

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-1

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

ASP Isotopes Inc.

(Exact name of Registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

2890

(Primary Standard Industrial
Classification Code Number)

87-2618235

(I.R.S. Employer
Identification Number)

**433 Plaza Real, Suite 275
Boca Raton, Florida 33432
(561) 709-3034**

(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

**Paul E. Mann
Chairman and Chief Executive Officer
ASP Isotopes Inc.**

**433 Plaza Real, Suite 275
Boca Raton, Florida 33432
(561) 709-3034**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

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**Approximate date of commencement of proposed sale to the public:
As soon as practicable after this registration statement becomes effective.**

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer

Accelerated Filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. The Selling Stockholder listed herein may not sell these securities until the registration statement filed with the U.S. Securities and Exchange Commission becomes effective. This prospectus is not an offer to sell the securities and it is not soliciting an offer to buy the securities in any state where offers or sales are not permitted.

PRELIMINARY PROSPECTUS

Subject to completion, dated April 5, 2023



This prospectus relates to the offer and sale from time to time by the selling stockholders identified in this prospectus or their permitted transferees (the "Selling Stockholders") of up to an aggregate of 6,550,633 shares (the "Registrable Securities") of ASP Isotopes Inc. (the "Company," "we," "our" or "us") common stock, par value \$0.01 per share (the "Common Stock").

The Registrable Securities registered for resale on behalf of Selling Stockholders pursuant to this prospectus include:

- 3,164,557 shares of Common Stock issued to a Selling Stockholder (the "Private Placement Shares") in a private placement on March 17, 2023 (the "Private Placement") pursuant to that certain Securities Purchase Agreement by and among the Company and the Selling Stockholder, dated as of March 14, 2023 (the "Securities Purchase Agreement"),
- 3,164,557 shares of Common Stock (the "Investor Warrant Shares") issuable upon the exercise of the warrants (the "Investor Warrants") issued in the Private Placement pursuant to the Securities Purchase Agreement and Investor Warrant Agreement dated March 17, 2023, and
- 221,519 shares of Common Stock (the "PA Warrant Shares") issuable upon the exercise of warrants (the "PA Warrants") issued to H.C. Wainwright (the "Placement Agent") in connection with the Private Placement pursuant to the PA Warrant Agreement dated March 17, 2023.

The Investor Warrants and PA Warrants are collectively referred to herein as the "Warrants" and the shares issuable upon exercise of the Warrants are referred to herein as the "Warrant Shares".

The Registrable Securities were issued to the Selling Stockholders in reliance upon the exemption from the registration requirements in Section 4(a)(2) of the Securities Act of 1933, as amended (the "Securities Act"), and Rule 506 of Regulation D promulgated thereunder. We are registering the offer and resale of the Private Placement Shares and Investor Warrant Shares to satisfy the provisions of that certain registration rights agreement, dated March 14, 2023 (the "Registration Rights Agreement"), pursuant to which we agreed to register the resale of the Private Placement Shares and the Investor Warrant Shares. We are registering the PA Warrant Shares pursuant to the Underwriting Agreement ("Underwriting Agreement") dated February 15, 2023 by and between the Company and the "Placement Agent.

We are not selling any securities under this prospectus and will not receive any of the proceeds from the sale of the Registrable Securities by the Selling Stockholders. We will, however, receive the net proceeds if any of the Warrants are exercised for cash.

The Selling Stockholders identified in this prospectus may offer the Registrable Securities from time to time through public or private transactions at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices. The registration of the Registrable Securities on behalf of the Selling Stockholders, however, does not necessarily mean that any of the Selling Stockholders will offer or sell their shares under this registration statement or at any time in the near future. We provide more information about how the Selling Stockholders may sell their Registrable Securities in the section entitled "Plan of Distribution" on page 53).

The Selling Stockholders will pay all underwriting discounts and selling commissions, if any, in connection with the sale of the Registrable Securities. We have agreed to pay certain expenses in connection with this registration statement and to indemnify the Selling Stockholders and certain related persons against certain liabilities. As of the date of this prospectus, no underwriter or other person has been engaged to facilitate the sale of the Registrable Securities in this prospectus.

Our common stock is traded on The Nasdaq Capital Market under the symbol "ASPI." On April 3, 2023 the last reported sale price of our common stock was \$0.9958 per share. There is no established public trading market for the Warrants, and we do not expect a market to develop. We do not intend to apply for listing of the Warrants on any securities exchange or other nationally recognized trading system. Without an active trading market, the liquidity of the Warrants will be limited.

We are an "emerging growth company" under the federal securities laws and, as such, are subject to reduced public company reporting requirements.

We may amend or supplement this prospectus from time to time by filing amendments or supplements as required. You should read the entire prospectus and any amendments or supplements carefully before you make your investment decision.

An investment in our common stock involves a high degree of risk. See "Risk Factors" on page 17 of this prospectus for more information on these risks.

Neither the U.S. Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities, or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

The date of this prospectus is April 5, 2023

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ABOUT THIS PROSPECTUS

This prospectus relates to the offer and resale of up to an aggregate of 6,550,633 shares of common stock (the “Registrable Securities”), par value \$0.01 per share (the “Common Stock”), of ASP Isotopes Inc., a Delaware corporation (“the Company”, “we”, “us” or “our”) held by selling stockholders (the “Selling Stockholders”) purchased in the Company’s private placement (the “Private Placement”) completed on March 17, 2023, consisting of (a) 3,164,557 shares of Common Stock purchased by a Selling Stockholder at the price of \$1.58 per share, (b) 3,164,557 shares of Common Stock (“Investor Warrant Shares”) issuable to a Selling Stockholder upon exercise of the warrants at the price of \$1.75 per share (the “Investor Warrants”), and (c) 221,519 Shares (“PA Warrant Shares”) shares of Common Stock issuable upon exercise of the warrants at the price of \$1.975 per share (the “PA Warrants”) to H.C. Wainwright & Co., LLC (the “Placement Agent”), or its designees.

You should rely only on the information contained in this prospectus and the related exhibits, any prospectus supplement or amendment thereto and the documents incorporated by reference, or to which we have referred you, before making your investment decision. Neither we nor the Selling Stockholders have authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. This prospectus, any prospectus supplement or amendments thereto do not constitute an offer to sell, or a solicitation of an offer to purchase, the Registrable Securities offered by this prospectus, any prospectus supplement or amendments thereto in any jurisdiction to or from any person to whom or from whom it is unlawful to make such offer or solicitation of an offer in such jurisdiction. You should not assume that the information contained in this prospectus, any prospectus supplement or amendments thereto, as well as information we have previously filed with the U.S. Securities and Exchange Commission (the “SEC”), is accurate as of any date other than the date on the front cover of the applicable document.

If necessary, the specific manner in which the Registrable Securities may be offered and sold will be described in a supplement to this prospectus, which supplement may also add, update or change any of the information contained in this prospectus. To the extent there is a conflict between the information contained in this prospectus and any prospectus supplement, you should rely on the information in such prospectus supplement, provided that if any statement in one of these documents is inconsistent with a statement in another document having a later date — for example, a document incorporated by reference in this prospectus or any prospectus supplement — the statement in the document having the later date modifies or supersedes the earlier statement.

Neither the delivery of this prospectus nor any distribution of the Registrable Securities pursuant to this prospectus shall, under any circumstances, create any implication that there has been no change in the information set forth or incorporated by reference into this prospectus or in our affairs since the date of this prospectus. Our business, financial condition, results of operations and prospects may have changed since such date.

Unless the context indicates otherwise, the terms “Company,” “we,” “us” and “our” refer to ASP Isotopes Inc., a Delaware corporation, and its subsidiaries.

PROSPECTUS SUMMARY

This summary highlights selected information that is presented in greater detail elsewhere in this prospectus. This summary does not contain all of the information you should consider before investing in our Common Stock. You should read this entire prospectus carefully, including the sections titled “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and our consolidated financial statements and the related notes included elsewhere in this prospectus before making an investment decision. Unless the context otherwise requires, the terms “Company,” “we,” “us,” “our” or similar terms refer to ASP Isotopes Inc. together with its consolidated subsidiaries. References to the “selling stockholders” refer to the selling stockholders named in this prospectus.

The Company

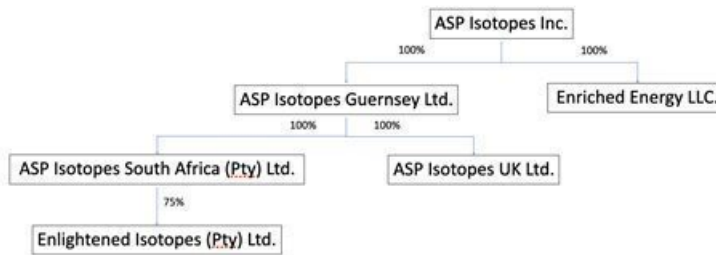
We are a pre-commercial stage advanced materials company dedicated to the development of technology and processes that, if successful, will allow for the enrichment of natural isotopes into higher concentration products, which could be used in several industries. We have an exclusive license to use proprietary technology, the Aerodynamic Separation Process (“ASP technology”), originally developed and licensed to us by Klydon Proprietary Ltd (“Klydon”), for the production, distribution, marketing and sale of all isotopes. Our initial focus is on the production and commercialization of enriched Carbon-14 (“C-14”), Molybdenum-100 (“Mo-100”) and Silicon-28 (“Si-28”). Klydon has agreed to provide us a first commercial-scale isotope enrichment plant located in South Africa. We believe the C-14 we may develop using the ASP technology may be used in the development of new pharmaceuticals and agrochemicals. We believe that the Mo-100 we may develop using the ASP technology has significant potential advantages for use in the preparation of nuclear imaging agents by radiopharmacies and others in the medical industry. We believe the Si-28 we may develop using the ASP technology may be used to develop advanced semiconductors and in quantum computing.

We also develop to use the ASP technology to produce enriched Uranium-235 (“U-235”). We believe that the U-235 we may develop using the ASP technology may be commercialized as a nuclear fuel component for use in the new generation of HALEU-fuelled small modular reactors that are now under development for commercial and government uses. In addition, we are considering future development of the ASP technology for the separation of Zinc-68, Ytterbium-176, Zinc-67, Nickel-64 and Xenon-136 for potential use in the healthcare target end market, and Chlorine -37 and Lithium-6 for potential use in the nuclear energy target end market.

The aerodynamic separation technique has its origins in the South African uranium enrichment program in the 1980s and the ASP technology has been developed during the last 18 years by the scientists at Klydon. In Klydon’s testing, the ASP technology has demonstrated efficacy and commercial scalability in the enrichment of oxygen-18 and silicon-28. ASP Isotopes Inc. was incorporated in Delaware in September 2021 to acquire assets and license intellectual property rights related to the production of Mo-100 using the ASP technology. In January 2022 we also licensed intellectual property rights related to the production of U-235 using the ASP technology. In July 2022, we licensed intellectual property rights related to the production of all isotopes using the ASP technology.

We operate principally through subsidiaries: ASP Isotopes Guernsey Limited (the holding company of ASP Isotopes South Africa (Proprietary) Limited and Enlightened Isotopes (Pty) Ltd), which will be focused on the development and commercialization of high value, low volume isotopes for highly specialized end markets (such as C-14, Mo-100 and Si-28); Enriched Energy LLC, which will be focused on the development and commercialization of uranium for the nuclear energy market; and ASP Isotopes UK Ltd, which is the licensee of the ASP technology under the exclusive license agreement with Klydon.

Our corporate structure and ownership of our subsidiaries is set forth in the chart below:



Background

We were incorporated in Delaware in September 2021 to acquire assets and license intellectual property rights related to the production of Mo-100 using the ASP technology. The aerodynamic separation technique has its origins in the South African uranium enrichment program in the 1980s and the ASP technology has been developed during the last 18 years by the scientists at Klydon. In Klydon’s testing, the ASP technology has demonstrated efficacy and commercial scalability in the enrichment of oxygen-18 and silicon-28. In July 2022, ASP Isotopes UK Ltd, as licensee, entered into a license agreement with Klydon, as licensor, pursuant to which ASP Isotopes UK Ltd acquired from Klydon an exclusive license to use, develop, modify, improve, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the production, distribution, marketing and sale of all isotopes produced using the ASP technology (the “Klydon license agreement”). The Klydon license agreement is royalty-free, has a term of 999 years and the license is worldwide for the development of the ASP technology and the distribution, marketing and sale of isotopes. Future production of isotopes is limited to member countries of the Nuclear Suppliers Group. We have no products approved for commercial sale or existing customers and have generated no revenues to date. We have not yet built a functioning Mo-100 or U-235 enrichment plant or even demonstrated the ability to produce Mo-100 or U-235 using the ASP technology.

Dr Einar Ronander, who serves as Chief Scientific Adviser to our board of directors, and Dr Hendrik Strydom, one of our directors, previously co-founded and currently serve as Executive Chairperson and Chief Executive Officer, of Klydon. Dr Ronander and Dr Strydom are the controlling shareholders of Klydon through Isotope Separation Technology (Pty) Ltd, a company jointly owned by Dr Ronander and Dr Strydom and the largest shareholder of Klydon. Dr Ronander and Dr Strydom each own approximately 11.9% of our outstanding shares of Common Stock. Immediately following the closing of this offering, Dr Ronander and Dr Strydom will each own 11.2% of our outstanding shares of Common Stock (or approximately 11.1% of our Common Stock, if the underwriters exercise in full their option to purchase additional shares of our Common Stock in this offering). For more information on our transactions with Klydon, see the section of this prospectus entitled “Certain Relationships and Related Party Transactions — Our Relationship with Klydon Proprietary Limited”).

Our Strategy

Our goal is to develop technology and processes that, if successful, will allow for the production of isotopes that may be used in the medical isotopes, nuclear power or other industries. Key elements of our strategy to achieve this goal include:

- Complete development and commissioning of Mo-100 enrichment facility located in Pretoria, South Africa.
- Demonstrate the capability to produce Mo-100 using the ASP technology and capitalize on the opportunity to solve the Mo-99 supply chain challenges in the existing medical isotope market.
- Introduce Mo-100 produced using ASP technology as an alternative and potentially more convenient production route for Tc-99m.
- Explore commercial opportunities for Silicon-28 and other light isotopes that may be produced using the assets comprising a dormant Silicon-28 aerodynamic separation processing plant acquired from Klydon in July 2022 (which are also located in Pretoria, South Africa).

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- Continue identifying potential offtake customers and strategic partners for Mo-100. We expect limited commercial activity for Mo-100 in the United States during the next two to three years and we anticipate that most of our initial revenues from future sales of our Mo-100 will be derived from countries in Asia and EMEA (Europe, Middle East and Africa).
- Demonstrate the capability to produce high-assay low-enriched uranium (HALEU) using the ASP technology and meet anticipated demand for the new generation of HALEU-fueled small modular reactors and advanced reactor designs that are now under development for commercial and government uses.

Recent Events

Company Owned ASP Plants

In October 2021 and July 2022, we successfully acquired two incomplete ASP plants in Pretoria, South Africa. In September 2021 we obtained the required licenses from the nuclear regulators, including the Non-proliferation Council of South Africa, to complete construction of the plants. In March of 2023, we successfully completed the construction and commissioning of the first plant which is capable of enriching light isotopes. As of the date of this prospectus, we employ 27 persons at this facility. We expect to conclude the construction of the second larger plant later in the last quarter of 2023.

Supply Contracts

In September 2022, we entered into a Memorandum of Understanding (MOU) with a North American customer for the entire capacity of our facility completed in March 2023, under which we will supply the customer with C-14 enriched to 85%. The timing, quantity and supply date are subject to future agreement between the parties. The MOU states that the customer will supply the feedstock and we will enrich it under a tolling agreement.

In November 2022, our wholly owned subsidiary, ASP Isotopes Guernsey Limited (“ASP Guernsey”), entered into an Amended Agreement with Klydon (Proprietary) Ltd (“Klydon”) related to a 25-year supply agreement for up to \$27 million per annum of highly enriched Molybdenum-100 entered into by and between Klydon and Beijing BRICEM Science and Technology Co. Ltd. (“Bricem”) in August 2021 (the “August 2021 Purchase Agreement”). Under the Amended Agreement, Klydon assigned all of its rights under the August 2021 Purchase Agreement to ASP Guernsey.

Klydon Agreements

On November 1, 2021, ASP Isotopes South Africa (Proprietary) Ltd (“ASP South Africa”) and Klydon (Proprietary) Limited (“Klydon”), as the contractor, entered into a contract under which Klydon was to supply ASP South Africa with a complete turnkey isotope enrichment plant (the “Turnkey Contract”). Among other things, the activities required to be undertaken or performed by Klydon include taking control of the assets acquired in the Molybdo Business Rescue Auction and the design of an isotope enrichment facility; the supply of components, equipment and labor required for the construction; the installation, testing and commissioning of the isotope enrichment plant; securing all required approvals, regulatory authorizations and other required consents for the operation of the plant; providing training to local ASP South Africa personnel to enable them to operate the plant going forward; and providing warranties in relation to the performance targets of the plant which are required to be met.

Klydon performed a portion of the services required under the Turnkey Contract; however, services were incomplete and many of the services were not completed within the time frame required. As a result, Klydon and ASP South Africa entered into an Acknowledgement of Debt Agreement dated November 30, 2022, whereby Klydon (i) agreed to pledge its assets (the “Pledged Assets”) to ASP South Africa to secure its performance of the Turnkey Contract by December 31, 2022, and (ii) acknowledged that ASP South Africa would suffer damages in the amount of \$6,050,000 (“Damage Amount”) should it fail to perform. Under the Acknowledgement of Debt Agreement, the Pledged Assets would serve as collateral for Klydon’s obligation to pay the Damage Amount should Klydon fail to perform. In connection therewith, also on November 30, 2022, ASP South Africa and Klydon entered into a Deed of Security Agreement whereby, if Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, all of Klydon’s rights of any nature to and interests of any nature in the Pledged Assets would be transferred to ASP South Africa. Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, The Company plans to perfect its interests in the assets as soon as practicable.

NMS Letter

On October 25, 2022, our outside counsel received a letter (the “NMS Letter”) from a law firm acting on behalf of Norsk Medisinsk Syklotronsenter AS (“NMS”), asserting, among other things, that the grant of a license to the ASP technology for the separation of isotopes of Molybdenum that have medical applications to ASP Isotopes Inc. by Klydon violates a pre-existing exclusive sub-license to the ASP technology granted to Radfarma, as more fully described below. NMS and ASP Isotopes had previously been briefly in discussions regarding a potential future collaboration on technology and product development. However, these preliminary discussions have not been active for several months, after death of a lead NMS scientist and ASPI decision to explore other options.

The NMS Letter makes reference to: (1) a license agreement entered into on October 25, 2013 by Klydon and API Labs Pharmaceuticals (Proprietary) Limited (“API Labs”) to license the ASP technology for enriching certain isotopes of the element Molybdenum (“2013 API Labs License”); and (2) an exclusive sub-license to the ASP technology granted on October 1, 2019 to Radfarma, as licensee, by API Labs and SaPhotonica Limited (“SaPhotonica”), as licensors (the “2019 Radfarma Sub-License”). The NMS Letter states that Radfarma is a joint venture that is 45% owned by NMS and 45% owned by SaPhotonica.

The NMS Letter asserts, among other things, that the grant of a license to the ASP technology to ASP Isotopes Inc. by Klydon violates a covenant in the 2019 Radfarma Sub-License that the licensors shall not be entitled, directly or indirectly, to use, grant or otherwise give the rights, or any similar rights, which were granted to Radfarma under the 2019 Radfarma Sub-License to any other person for use in the territory. The sub-license granted to Radfarma in the 2019 Radfarma Sub-License related to the use of intellectual property rights related to the ASP technology for the separation of isotopes of Molybdenum that have medical applications. “Territory” is defined in the 2019 Radfarma Sub-License as “the Kingdom of Norway for the construction of the 20-kilogram capacity plants; and *means the international market where distribution agreements can be produced.*” The NMS Letter asserts that while Klydon purported to give to ASP Isotopes Inc. a license to market the ASP technology globally, these rights were already granted to Radfarma.

The NMS Letter includes a request for ASP Isotopes Inc. to enter into discussions for an agreement with NMS based on terms proposed in previous correspondence from NMS. The previous correspondence from NMS included the following key prerequisites to a possible cooperation between NMS and ASP Isotopes Inc.: (1) NMS will be granted the right to set up an enrichment facility for a Mo-100 in Norway; (2) NMS will be granted the exclusive rights to sales, marketing, and distribution in Europe, while ASPI gets similar rights for the rest of the world; and (3) NMS will support the development of the Mo-100 target production and Mo-99 generator production and if required the sales operations of ASPI.

The NMS Letter does not include a threat of litigation against ASP Isotopes Inc. or any parties to the 2013 API Labs License or 2019 Radfarma Sub-License. However, if the licensed rights granted to us are found to be invalid or unenforceable (in whole or in part), or if our exclusive license agreement with Klydon is terminated or Klydon, as licensor, fails to abide by the terms of our exclusive license agreement, our ability to commercialize our future isotopes would suffer and our business, results of operations and financial condition may be adversely affected. If the prior sub-license granted to Radfarma is found to be valid, we would be required to cease using the ASP technology for the separation of isotopes of Molybdenum that have medical applications (unless we were able to obtain a license from Radfarma), and we would focus our business operations on the enrichment of isotopes other than Molybdenum. For example, instead of continuing to pursue the production of Molybdenum-100, we could focus on the production and commercialization of zinc, silicon and/or chlorine using the ASP technology. We expect that our Mo-100 plant in South Africa would need to be redesigned and retrofitted in order to produce other isotopes, which would take approximately six months and cost approximately \$1.0 million. See “Risk Factors — Risks Related to Our Intellectual Property” — “We have received a letter asserting that the license for the ASP technology granted to us from Klydon, which is critical to our business, may be invalid because these rights were already granted to a third party, Radfarma” and “Our license for the ASP technology with Klydon may be found to infringe third party intellectual property rights.”

Based on information currently available, and after consultation with legal counsel in South Africa, management believes that our exclusive license for the enrichment of Molybdenum-100 and all other isotopes from Klydon are valid and the company will vigorously defend its rights.

Our Strategy

Complete development and commissioning of our first enrichment facilities located in Pretoria, South Africa.

We intend to complete the development and construction of our second enrichment facility located in Pretoria, South Africa by the end of 2023. The first facility, which we completed in March of 2023, is designed to enrich light isotopes such as Carbon-14. The second facility, which is substantially larger than the first, should have the potential to enrich kilogram quantities of isotopes such as Molybdenum-100 and/or Silicon-28.

In October 2021, we acquired physical assets, including equipment, of Molybdos (Pty) Limited (Molybdos) located at the plant after having been declared the winner of a competitive auction process under Section 45 of the *South Africa Consumer Protection Act, 2008* (the Molybdos Business Rescue Auction) and we licensed the ASP technology for the production of Mo-100 from Klydon Proprietary Ltd (Klydon). We subsequently entered into a turnkey contract with Klydon pursuant to which Klydon has agreed to provide us a first commercial-scale isotope enrichment plant. The activities to be undertaken or performed by Klydon include: taking control of the assets acquired by us in the Molybdos Business Rescue Auction; the design of an enrichment facility; the supply of required components, equipment and labor; the installation, testing and commissioning of the enrichment facility; securing all required approvals, regulatory authorizations and other required consents for the operation of the plant; providing training to local ASP Isotopes South Africa (Proprietary) Limited personnel to enable them to operate the plant going forward; and providing warranties in relation to the performance targets of the plant which are required to be met. Klydon will also be responsible for liaising with the relevant South African authorities including the South African Non-Proliferation Council, the Nuclear Suppliers Group and International Atomic Energy Agency to ensure that the enrichment plant is compliant with international laws and guidelines.

In July 2022, we acquired a pilot plant, previously used by Klydon Proprietary Ltd (Klydon) to enrich Silicon-28 up to an abundance of 96.6%. This enriched Silicon-28 was then used for experimental work in the solar and electronics industries. We have spent the subsequent six months refurbishing and upgrading the facility so that it can produce commercial quantities of Carbon-14. In September 2022, we entered into a Memorandum of Understanding (MOU) with a North American customer for the entire capacity of this facility, under which we will supply the customer with C-14 enriched to 85%. The timing, quantity and supply date are subject to future agreement between the parties. The MOU states that the customer will supply the feedstock and we will enrich it under a tolling agreement.

Demonstrate the capability to produce C-14, Mo-100 and Si-28 using the ASP technology and capitalize on the opportunity to solve many supply chain challenges that currently exist.

We intend to demonstrate the capability to produce C-14, Mo-100 and Si-28 at a scale that can support anticipated customer demand for all three isotopes.

Historically, Russia has been the sole supplier of C-14, which is used as a tracer in the development of new pharmaceuticals and agrochemicals. The supply chain has been inherently fragile with inconsistent service. Subject to the supply of feedstock from our customer, we intend to start the enrichment of C-14 during 2024.

Mo-100 as alternative and potentially more convenient production route for Tc-99m used in nuclear medical diagnostic procedures. Mo-99's decay product, technetium-99m (Tc-99m), is used in medical procedures to diagnose heart disease and cancer, to study organ structure and function, and to perform other important medical applications. We intend to offer our Mo-100 to customers that may convert Mo-100 into Mo-99 or directly into Tc-99m, and we believe that the use of Mo-100 in this way will be an attractive alternative route to production of Tc-99m for a number of reasons.

Only a small number of major reactors located around the world (e.g., Australia, Belgium, the Netherlands and South Africa) produce large-scale amounts of Mo-99, and these reactors are taken off-line periodically for refueling and maintenance and go off-line on an unscheduled basis due to the need for extended repairs, which results in a global Mo-99 supply chain that is lengthy, complex and prone to interruption and has experienced supply shortages. Customers that could use and stockpile Mo-100 would not have to manage the periodic shortages and supply chain challenges related to Mo-99.

- Mo-99 (a radioisotope with a 66-hour half-life) decays and loses activity in transit, so it must be moved through the supply chain quickly to minimize decay losses and it cannot be stockpiled. Mo-100 (a stable isotope of molybdenum that does not decay) will not decay in transit, so the supply chain would not be dependent on elapsed time from production of Mo-100 to the delivery of a Tc-99m dose to a hospital or clinic.
- Mo-99 (with decay product Tc-99m) must be shipped in shielded transport containers that comply with the regulatory requirements for safe transport of radioactive material. Mo-100 is stable (non-radioactive) and therefore does not have the same handling and shipping requirements.

Isotopically enriched silicon is regarded as a promising material for semiconductor quantum information due to very long coherence times and its compatibility with the readily available industrial platform. We believe that the ASP technology is ideally suited to the production of this isotope because ASP technology has the ability to enrich molecules of low molecular mass. Other electronic gasses that can likely be enriched using ASP Technology include disilane and germane.

Continue identifying potential offtake customers and strategic partners for our isotopes.

We have already seen significant interest from potential offtake customers for the isotopes that we intend to produce. In November, 2022 we entered a 25-year supply agreement for highly enriched Mo-100 with BRICEM (Beijing Research Institute of Chemical Engineering Metallurgy). The contract has a value of up to \$27.0 million per annum. We have had or are currently in active dialogue with many other potential customers that could use the entire anticipated annual capacity of an initial plant. In September 2022, we entered into an MOU for a tolling agreement with a potential Canadian Customer for the entire capacity of our C-14 production facility. We are currently in discussions with potential customers that have interest in entering into long term supply agreements for kilogram quantities of Si-28 and larger quantities of Zn-68 and Cl-37.

Demonstrate the capability to produce high-assay low-enriched uranium (HALEU) using the ASP technology and meet anticipated demand for the new generation of HALEU-fueled small modular reactors and advanced reactor designs that are now under development for commercial and government uses.

We plan to begin research and development for the enrichment of uranium to demonstrate our capability to produce HALEU using the ASP technology. We anticipate a future demand for HALEU for the new generation of HALEU-fueled small modular reactors (SMRs) and advanced reactor designs that are now under development for commercial and government uses. SMRs are viewed as being cheaper, safer, and more versatile than traditional large scale nuclear reactors and development of the new technology is receiving considerable funding from the U.S. Department of Energy, as well as from the governments of other countries. There is currently no commercial production of HALEU in the United States and there has been a reliance on delivery from other countries, particularly Russia. We are currently conducting a feasibility study with respect to constructing an enrichment facility in either the United States or an international location. We would need to obtain approval of the U.S. Nuclear Regulatory Commission to produce HALEU in a U.S.-based facility.

Our Strengths

- ***ASP technology developed by Klydon.***
 - o The aerodynamic separation technique has its origins in the South African uranium enrichment program in the 1980s and the ASP technology has been developed during the last 18 years by the scientists at Klydon. To date, the scientists at Klydon have constructed two ASP plants for the enrichment of oxygen-18 and silicon-28 in Pretoria, South Africa, which were commissioned in October 2015 and July 2018, respectively. While the technology has not yet been used to enrich either Molybdenum or Uranium or heavier isotopes, we believe the success of the enrichment process for oxygen-18 and silicon-28 has demonstrated the efficacy and commercial scalability of the ASP technology from laboratory to commercial. We have exclusive worldwide licenses from Klydon for the production of all isotopes and, if our research and development is successful (and subject to obtaining applicable regulatory approvals and appropriate licenses), we plan to commercialize many different isotopes produced using the ASP technology. To date, we have completed the construction of one isotope enrichment facility, but we have not yet produced any commercial quantities of isotopes and we have not yet demonstrated the ability to produce any isotope in commercial quantities using ASP technology.

· ***High barriers to entry.***

- o We have exclusive worldwide licenses to the ASP technology for the production of all isotopes. Klydon has spent the last 18 years and tens of millions of dollars developing the aerodynamic separation technique used in the ASP technology, generating critical trade secrets. We believe our competitors lag behind us in terms of the technical expertise of our senior management and the know-how contained in the aerodynamic separation technique and will be unable to replicate the expected results of the ASP technology, even as we expect to continue to improve the existing technology and processes. Additionally, the high capital costs of development of proprietary technologies, significant lead times required to construct new enrichment facilities, as well as stringent regulatory and operating requirements applicable to enrichment facilities, adds to the significant barriers to entry for smaller competing market participants.

· ***ASP technology is a flexible platform with the potential to produce many different isotopes that could serve a large addressable markets.***

- o ASP technology is a flexible platform, compact in size and weight, and easily scaled to industrial level with number of separation devices added in parallel. The ASP technology also has few moving parts, with low capital and operating costs in comparison to alternatives. The technology is particularly efficient at enriching isotopes of low atomic mass. We believe that, assuming receipt of required regulatory approvals and governmental permits, the ASP technology can be deployed quickly and with a relatively minimal capital cost, to enrich many different isotopes that we believe consumers require both today and in the future in end markets such as healthcare, technology and energy. We also believe that the ASP technology is well-positioned to address a substantial global HALEU market that is contemplating a transition from petroleum-based energy to energy produced in a new generation of HALEU-fuelled SMRs and advanced reactors.

· ***ASP technology is designed to be low cost, low energy, and environmentally friendly.***

- o We recently completed the construction of our first isotope enrichment facility using SP technology located in Pretoria, South Africa. The ASP technology is designed to be scalable, low cost, low energy, and environmentally friendly, with no radioactive waste or hazardous materials produced in the process and planned arrangements to reuse chemical by-products.

· ***Experienced team***

- o Our board of directors and advisers have specialized expertise in isotopes enrichment, R&D, technology, plant development and manufacturing. Dr Einar Ronander, who serves as Chief Scientific Adviser to our board of directors, and Dr Hendrik Strydom, one of our directors, previously co-founded Klydon. The scientific team at Klydon combined has decades of experience in research and development of isotopes enrichment and amassed deep knowledge in the field.
- o Our board of directors and our management team also has broad experience and successful track records in biopharmaceutical research, chemicals, manufacturing and commercialization, as well as in business, operations, and finance. Our board of directors' and management team's experience was gained at leading companies and financial institutions that include, Barclays Capital, Bear Stearns, Deutsche Bank, Highbridge Capital, Investec Bank, Lehman Brothers, LyondellBasell, Morgan Stanley and Soros Fund Management.

Mo-100 Regulatory Approvals

We have not sought any regulatory approval for the application of Mo-100. Currently, the sale or use of Mo-100 is not regulated by a healthcare regulator, such as the FDA, European Medicines Agency (EMA) or comparable foreign regulatory authorities. However, products such as Mo-99 and Tc-99m that are produced from Mo-100 in a cyclotron or a linear accelerator are regulated by healthcare regulators. Our future customers who may use Mo-100 to produce radiopharmaceuticals will likely require regulatory approval for their products. To date, only one healthcare regulator (Canada) has approved the use of Tc-99m produced from Mo-100 via a cyclotron. Obtaining regulatory approval is expensive and can take many years to complete, and its outcome is inherently uncertain. Our customers' regulatory approval process may not be conducted as planned or completed on schedule, if at all, and failure can occur at any time during the process.

Intellectual Property

We have an exclusive worldwide license to use, develop, modify, improve, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the production, distribution, marketing and sale of all isotopes produced using the ASP technology. The intellectual property rights granted to us through the Klydon license agreement include all existing and/or future proprietary rights of Klydon relating to the ASP technology, whether or not such rights have been registered including the copyright, designs, know-how, patents and trademarks (although Klydon currently has no such patents, patent applications or copyrights). Klydon has spent the last 18 years and tens of millions of dollars developing the aerodynamic separation technique used in the ASP technology, generating critical trade secrets. Neither we nor Klydon have any existing patents, pending patent applications or copyrights. To date, we and Klydon have relied exclusively on trade secrets and other intellectual property laws, non-disclosure agreements with our respective employees, consultants, vendors, potential customers and other relevant persons and other measures to protect our intellectual property and intend to continue to rely on these and other means.

Summary Risk Factors

Investing in our Common Stock involves substantial risks, which are discussed more fully under the heading "Risk Factors" immediately following this summary. You should carefully consider all the information in this prospectus, including under "Risk Factors," before making an investment decision. The risks described under the heading "Risk Factors" may cause us to not realize the full benefits of our strengths or may cause us to be unable to successfully execute all or part of our strategy. Some of the more significant challenges include the following:

- We have incurred significant net losses since inception, and we expect to continue to incur significant net losses for the foreseeable future.
- We have a limited operating history, which may make it difficult to evaluate our prospects and likelihood of success.
- Our business is tied directly to the diagnostic medical imaging industry and is dependent on our ability to successfully introduce our Mo-100 and adapt to changing technology and a changing medical practice landscape.
- We currently have no sales, but we expect to be heavily dependent on a few large customers to generate a majority of our revenues for our Mo-100. Our operating results could be adversely affected by a reduction in business with our future significant customers.
- We are early in our research and development efforts for Mo-100 and U-235 using the ASP technology. If we are unable to advance our future isotopes in development, obtain applicable regulatory approval and ultimately commercialize our future isotopes, or experience significant delays in doing so, our business will be materially harmed.
- We depend on our agreements with Klydon, the termination of which could result in the loss of significant rights, which would harm our business.

- Obtaining and maintaining our patent protection depends on compliance with various procedures, document submissions, fee payments and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.
- Since our listing on the Nasdaq Capital Market in November 2022, there has been only a limited prior public market for our Common Stock, the stock price of our Common Stock may be volatile or may decline regardless of our operating performance and you may not be able to resell your shares at or above our initial public offering, or IPO, price.
- If we fail to maintain an effective system of internal control over financial reporting, we may not be able to accurately report our financial results or prevent fraud. As a result, stockholders could lose confidence in our financial and other public reporting, which would harm our business and the trading price of our Common Stock.
- Our independent registered public accounting firm’s report contains an explanatory paragraph that expresses substantial doubt about our ability to continue as a “going concern.”

Implications of Being an Emerging Growth Company

We qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. An emerging growth company may take advantage of relief from certain reporting requirements and other burdens that are otherwise applicable generally to public companies. These provisions include:

- reduced obligations with respect to financial data, including presenting only two years of audited financial statements and only two years of selected financial data;
- an exemption from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act;
- reduced disclosure about our executive compensation arrangements in our periodic reports, proxy statements, and registration statements; and
- exemptions from the requirements of holding non-binding advisory votes on executive compensation or golden parachute arrangements.

In addition, under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have elected to avail ourselves of this exemption from new or revised accounting standards, and, therefore, we will not be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies or that have opted out of using such extended transition period, which may make comparison of our financial statements with those of other public companies more difficult. We may take advantage of these reporting exemptions until we no longer qualify as an emerging growth company, or, with respect to adoption of certain new or revised accounting standards, until we irrevocably elect to opt out of using the extended transition period.

We will remain an emerging growth company until the earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of \$1.07 billion or more; (ii) the last day of our fiscal year following the fifth anniversary of the date of the completion of this offering; (iii) the date on which we have issued more than \$1 billion in nonconvertible debt during the previous three years; and (iv) the date on which we are deemed to be a large accelerated filer under the rules of the SEC. We may choose to take advantage of some but not all of these reduced reporting burdens.

Corporate Information

We were incorporated in Delaware in September 2021. Our principal executive offices are located at 433 Plaza Real, Suite 275, Boca Raton, Florida 33432, and our telephone number is (561) 709-3034. Our website address is www.aspisotopes.com. Information contained on, or that can be accessed through, our website is not part of and is not incorporated by reference into this prospectus, and you should not consider information on our website to be part of this prospectus.

The Offering

Shares of Common Stock offered by the Selling Stockholders:	We are registering 6,550,633 shares of our common stock, par value \$0.01 per share (the "Common Stock") on behalf of Selling Securityholders consisting of: (a) 3,164,557 shares of Common Stock purchased by a Selling Stockholder at the price of \$1.58 per share ("the Private Placement Shares"), (b) 3,164,557 shares of Common Stock ("Investor Warrant Shares") issuable to such Selling Stockholder upon exercise of the warrants at the price of \$1.75 per share (the "Investor Warrants"), and (c) 221,519 shares of Common Stock (the "PA Warrant Shares") issuable upon exercise of the warrants at the price of \$1.975 per share (the "PA Warrants") to H.C. Wainwright & Co., LLC (the "Placement Agent") or its designees. The Investor Warrants and PA Warrants are collectively referred to herein as the "Warrants" and the shares of Common Stock issuable upon exercise of warrants are referred to herein as the "Warrant Shares". The Private Placement Shares and the Warrant Shares are collectively referred to as the "Registrable Securities".
Common Stock Outstanding Before Completion of This Offering:	37,385,684
Common Stock Outstanding After Completion of This Offering (1):	40,771,760 (assuming full exercise of the Warrants by the Selling Stockholders that are exercisable into the Warrant Shares offered hereby).
Offering Proceeds	We will not receive any additional proceeds from the sale of the Registrable Securities by the Selling Stockholders. However, we will receive gross proceeds of approximately \$6.0 million if all of the Warrants are exercised for cash, excluding fees payable to the Placement Agent and other expenses. We intend to use any of the net proceeds from Warrant exercises for working capital purposes.
Transfer Agent:	American Stock Transfer & Trust Company, LLC
Nasdaq Capital Market Trading Symbol:	ASPI
Terms of the Offering:	The Selling Stockholders, including their transferees, donees, pledgees, assignees and successors-in-interest, may sell, transfer or otherwise dispose of any or all of the Registrable Securities offered by this prospectus from time to time on the Nasdaq Capital Market or any other stock exchange, market or trading facility on which the shares are traded or in private transactions. The Registrable Securities may be sold at fixed prices, at market prices prevailing at the time of sale, at prices related to prevailing market price or at negotiated prices.
Dividend Policy:	We have never declared or paid any cash dividends on our shares of Common Stock. We do not anticipate paying any cash dividends in the foreseeable future.
Risk Factors:	An investment in our Common Stock involves a high degree of risk. You should read this prospectus carefully, including the section titled "Risk Factors" and the combined and condensed consolidated financial statements and the related notes to those statements included in this prospectus, before investing in our Common Stock

(1) Excludes 3,351,000 shares of Common Stock issuable upon the exercise of outstanding stock options.

Summary Consolidated Financial Data

The following tables present our summary consolidated financial data as of and for the period indicated.

You should read this data together with our audited consolidated financial statements and related notes, as well as the information under the caption “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” included elsewhere in this prospectus. The summary financial data in this section are not intended to replace our financial statements and the related notes and are qualified in their entirety by the financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of results that should be expected in any future period.

	Year Ended December 31, 2022 (Audited)	For The Period From September 13, 2021 (Inception) Through December 31, 2021 (Audited)
Consolidated Statement of Operations Data:		
Operating expenses:		
Research and development	\$ 1,273,536	\$ 41,610
General and administrative	3,825,512	2,566,432
Total operating expenses	5,099,048	2,608,042
Loss from operations	(5,099,048)	(2,608,042)
Other income:		
Change in fair value of share liability	150,527	—
Interest income	3,382	115
Total other income	153,909	115
Net loss	\$ (4,945,139)	\$ (2,607,927)
Net loss per share, basic and diluted	\$ (0.18)	\$ (0.16)
Weighted average shares of common stock outstanding, basic and diluted	26,793,748	16,246,432
Other comprehensive loss:		
Net loss	(4,945,139)	(2,607,927)
Foreign currency translation	236,307	18,723
Total comprehensive loss	\$ (4,708,832)	\$ (2,589,204)
	December 31, 2022	December 31, 2021
Balance Sheet Data:		
Cash	\$ 2,389,140	\$ 2,953,721
Total assets	\$ 12,496,265	\$ 7,142,638
Total liabilities	\$ 2,678,804	\$ 1,144,974
Total stockholders’ equity	\$ 9,817,461	\$ 5,997,664

RISK FACTORS

An investment in our common stock involves a high degree of risk. In deciding whether to invest, you should carefully consider the following risk factors, as well as the financial and other information contained in this prospectus, including our consolidated financial statements and related notes. Any of the following risks could have a material adverse effect on our business, financial condition, results of operations or prospects and cause the value of our stock to decline, which could cause you to lose all or part of your investment. Additional risks and uncertainties of which we are unaware, or that we currently deem immaterial also may become important factors that affect us.

Risks Related to Our Limited Operating History, Financial Position and Need for Additional Capital

We have a very limited operating history, and we have incurred losses since our inception and anticipate that we will continue to incur significant losses for the foreseeable future. We may never generate any revenue or become profitable or, if we achieve profitability, we may not be able to sustain it.

We were incorporated in September 2021, and we have a very limited operating history upon which you can evaluate our business and prospects. Our operations to date have been primarily focused on acquiring the assets of Molybdos (after participating in and being declared the winner of a competitive auction process under Section 45 of the *South Africa Consumer Protection Act, 2008* for ZAR 11,000,000, which at the then current exchange rate was approximately \$734,000 and in-licensing intellectual property rights related to the production of Molybdenum-100 (a non-radioactive isotope we believe may have applications primarily in the medical industry) and Uranium-235 (an isotope of uranium we believe may have application in the clean, efficient and carbon-free energy industry) using the ASP technology, organizing and staffing our company, research and development activities, business planning, raising capital, and providing general and administrative support for these operations. In July 2022, we acquired assets comprising a dormant Silicon-28 aerodynamic separation processing plant from Klydon for ZAR 6,000,000 (which at the then current exchange rate was approximately \$364,000), which will be payable to Klydon on the later of 180 days of the acquisition and the date on which the assets generate any revenues of any nature. We have not yet built a functioning Mo-100 or U-235 manufacturing plant or even demonstrated the ability to produce Mo-100 or U-235 using the ASP technology. We have not yet demonstrated an ability to overcome many of the risks and uncertainties frequently encountered by companies in the medical, technology and energy industries, including an ability to obtain applicable regulatory approvals, manufacture any isotopes at commercial scale (or arrange for a third party to do so on our behalf), or conduct sales and marketing activities necessary for successful isotope commercialization. In addition, we have not yet sought any regulatory approval that may be necessary for application of Mo-100 that we may develop using the ASP process in the medical industry. Consequently, any predictions about our future performance may not be as accurate as they would be if we had a history of successfully developing and commercializing isotopes.

Investment in isotope enrichment technology is highly speculative because it entails substantial upfront capital expenditures and significant risk that any potential isotopes will fail to demonstrate adequate utility or effectiveness in the targeted application (or for medical indications, an acceptable safety profile), gain regulatory approval, if applicable, and become commercially viable. We have no products approved for commercial sale and have not generated any revenue to date, and we continue to incur significant research and development and other expenses related to our ongoing operations. As a result, we are not profitable and have incurred losses since our inception in September 2021. For the period from September 13, 2021 (inception) through December 31, 2021, we reported a net loss of \$2.6 million. For the year ended December 31, 2022, we reported a net loss of \$4.9 million. As of December 31, 2022, we had an accumulated deficit of \$7.6 million.

We expect to continue to incur significant losses for the foreseeable future, and we expect these losses to increase as we:

- continue to invest in our research and development activities;
- seek applicable regulatory approvals for any future isotopes that we may successfully develop;

- experience any delays or encounter any issues with any of the above, including but not limited to failed research and development activities, safety issues or other regulatory challenges, the risk of which in each case may be exacerbated by the ongoing COVID-19 pandemic;
- hire additional engineering and production personnel and build our internal resources, including those related to audit, patent, other legal, regulatory and tax-related services associated with maintaining compliance with exchange listing and SEC requirements, director and officer insurance premiums and investor and public relations costs;
- obtain, expand, maintain, enforce and protect our intellectual property portfolio;
- establish a sales, marketing and distribution infrastructure and establish manufacturing capabilities, whether alone or with third parties, to commercialize future isotopes (assuming receipt of applicable regulatory approvals), if any; and
- operate as a public company.

We expect limited commercial activity for our isotopes in the United States during the next two to three years and we anticipate that most of our initial revenues from future sales of our Mo-100 will be derived from countries in Asia and EMEA (Europe, Middle East and Africa). To become and remain profitable, we must succeed in developing and eventually commercializing isotopes that generate significant revenue. This will require us to be successful in a range of challenging activities, including completing research and development activities relating to our ASP technology, obtaining applicable regulatory approval for future isotopes, if any, and manufacturing, marketing and selling any future isotopes (assuming receipt of applicable regulatory approvals). We are only in the preliminary stages of most of these activities. We may never succeed in these activities and, even if we do, may never generate revenues that are significant enough to achieve profitability. Because of the numerous risks and uncertainties associated with chemical isotopes separation, we are unable to accurately predict the timing or amount of increased expenses or when, or if, we will be able to achieve profitability. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would depress the value of our company and could impair our ability to raise capital, expand our business, maintain our research and development efforts, diversify our future isotopes or even continue our operations. A decline in the value of our company could also cause you to lose all or part of your investment.

Our future prospects are tied directly to the end markets that use our isotopes including the diagnostic medical imaging industry and depend on our ability to successfully introduce our isotopes and adapt to a changing technology and medical practice landscape.

The field of diagnostic medical imaging is dynamic, with new products, including equipment, software and products, continually being developed and existing products continually being refined. New hardware (scanners), software or agents in a given diagnostic modality may be developed that provide benefits superior to the then-dominant hardware, software and agents in that modality, resulting in commercial displacement of the existing radiotracers. For example, alternate scanners and radiotracers could be introduced. Similarly, changing perceptions about comparative efficacy and safety, as well as changing availability of supply may favor one agent over another or one modality over another. In addition, new or revised appropriate use criteria developed by professional societies, to assist physicians and other health care providers in making appropriate imaging decisions for specific clinical conditions, can and have reduced the frequency of and demand for certain imaging modalities and imaging agents. Technological obsolescence in any of the medical imaging products that would use the Mo-100 that we plan to manufacture could have a material adverse effect on our business, results of operations, financial condition and cash flows.

We may not realize the anticipated benefits of previous acquisitions.

The success of the company will depend in large part on the success of our management in integrating the acquired assets into the company. In October 2021, our subsidiary in South Africa acquired the assets of Molybdos after participating in and being declared the winner of a competitive auction process under Section 45 of the *South Africa Consumer Protection Act, 2008* for ZAR 11,000,000 (which at the then current exchange rate was approximately \$734,000), plus value added tax (VAT) levied by the government of South Africa at the rate of 15% and auctioneers' commission at the rate of 10%. We have not yet built a functioning Mo-100 or U-235 manufacturing plant or even demonstrated the ability to produce Mo-100 or U-235 using the assets acquired at the business rescue auction. We will not know whether the assets that we acquired will work according to our expectations until we have completed construction of the Molybdos plant. In July 2022, we acquired assets comprising a dormant Silicon-28 aerodynamic separation processing plant from Klydon located in Pretoria, South Africa for ZAR 6,000,000 (which at the then current exchange rate was approximately \$364,000). We intend to explore commercial opportunities for Silicon-28 and other light isotopes that may be produced using these assets. Our failure to achieve the integration of the acquired assets into the company and to commercialize the assets could result in our failure to realize the anticipated benefits of those acquisitions and could impair our results of operations, profitability and financial results.

We currently have no sales, but we expect to be heavily dependent on a few large customers to generate a majority of our revenues. Our operating results could be adversely affected by a reduction in business with our future significant customers.

We currently have no sales. However, we expect to rely on a limited number of customers outside of the United States to purchase any isotopes that we develop using the ASP technology under long-term contracts. Our future key customers may stop ordering our isotopes at any time or may become bankrupt or otherwise unable to pay. The loss of any of our future key customers could result in lower revenues than we anticipate and could harm our business, financial condition or results of operations.

Our independent registered public accounting firm's report contains an explanatory paragraph that expresses substantial doubt about our ability to continue as a "going concern."

We incurred a net loss of \$2.6 million for the period from September 13, 2021 (inception) through December 31, 2021 and a net loss of \$4.9 million for the year ended December 31, 2022. As of April 3, 2023, we had approximately \$5.0 million in cash. We have yet to generate any revenues, and we anticipate that our losses will continue for the foreseeable future. We cannot assure you that our plans to commercialize isotopes that we may develop will be successful. These factors, among others, raise substantial doubt about our ability to continue as a going concern. The financial statements contained elsewhere in this report do not include any adjustments that might result from our inability to continue as a going concern. Unless we can begin to generate material revenue or raise capital from equity offerings, we may not be able to remain in business. We cannot assure you that we will raise enough money or generate sufficient sales to meet our future working capital needs.

We will require substantial additional capital to finance our operations, which may not be available on acceptable terms, or at all. Failure to obtain this necessary capital when needed may force us to delay, limit or terminate certain of our product development efforts or other operations.

We expect our expenses to increase substantially in connection with our ongoing and planned activities, particularly as we continue our research and development activities, seek applicable regulatory approvals for any future isotopes that we may successfully develop, and expand our organization by hiring additional personnel. In addition, we expect to incur additional costs associated with operating as a public company.

As of April 3, 2023, our cash was approximately \$5.0 million. In March 2023, we received gross proceeds of \$5.0 million through the issuance of 3,164,557 shares of our Common Stock at a purchase price of \$1.58 per share and warrants to purchase up to an aggregate of 3,164,557 shares of our Common Stock with an exercise price of \$1.75 per share. We believe, based on our current operating plan, that our existing cash and cash equivalents, will not be sufficient to fund our operations for at least the next 12 months from the date the financial statements are issued. Therefore, we plan seek additional funds through public or private equity or debt financings, third-party funding, marketing and distribution arrangements, as well as other collaborations, strategic alliances and licensing arrangements, or any combination of these approaches.

In any event, we will require substantial additional capital to support our business operations as we pursue additional research and development activities related to our ASP technology and seek applicable regulatory approval of our any future isotopes, and otherwise to support our continuing operations. In addition, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution (assuming receipt of applicable regulatory approvals for our future isotopes). Even if we believe we have sufficient capital for our current or future operating plans, we may seek additional capital if market conditions are favorable or if we have specific strategic considerations. Any additional capital raising efforts may divert our management from their day-to-day activities, which may adversely affect our ability to develop and commercialize our future isotopes (assuming receipt of applicable regulatory approvals).

Additionally, as a result of the COVID-19 pandemic and actions taken to slow its spread, the global credit and financial markets have experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability. If the equity and credit markets deteriorate, it may make any necessary debt or equity financing more difficult, more costly or more dilutive. If we do not raise additional capital in sufficient amounts, we may be prevented from pursuing development and commercialization efforts, which will harm our business, operating results and prospects.

We are subject to credit counterparty risk which could have a material adverse effect on our business, results of operations, financial condition and cash flows.

The Company maintains cash balances at many financial institutions in multiple geographies. While the majority of cash balances are currently held in US\$ at U.S. financial institutions, our cash balances at those institutions may exceed the Federal Deposit Insurance Corporation (“FDIC”) insurance limit of \$250,000 per depositor, per insured bank for each account ownership category. Our non-US banking counterparties might not have protections offered to their customers that are considered standard in the U.S. and even if such deposit insurances do exist, there is no guarantee that the insurer will honor those insurance policies. Although the Company currently believes that the financial institutions with whom it does business, will be able to fulfill their commitments to the Company, there is no assurance that those institutions will be able to continue to do so. Any credit losses that may occur could have a material adverse effect on our business, results of operations, financial condition and cash flows.

Raising additional capital or acquiring or licensing assets by issuing equity or debt securities may cause dilution to our stockholders, and raising funds through lending and licensing arrangements may restrict our operations or require us to relinquish proprietary rights.

We plan to seek additional capital through a combination of public and private equity offerings, debt financings, strategic partnerships and alliances and licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences that adversely affect your rights as a stockholder. The incurrence of indebtedness would result in increased fixed payment obligations and could involve certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. If we raise additional capital through future collaborations, strategic alliances or third-party licensing arrangements, we may have to relinquish valuable rights to our intellectual property, future revenue streams, research programs or future isotopes, or grant licenses on terms that may not be favorable to us.

If we are unable to raise additional capital when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts, or grant rights to develop and market our future isotopes (assuming receipt of applicable regulatory approvals for our future isotopes) that we would otherwise develop and market ourselves.

Risks Related to the Development and Commercialization of Our Future Isotopes

We are early in our research and development efforts for isotopes using the ASP technology. If we are unable to advance our future isotopes in development, obtain applicable regulatory approval and ultimately commercialize our future isotopes, or experience significant delays in doing so, our business will be materially harmed.

We are early in our research and development efforts and have not yet produced even experimental samples of any finished isotope. It is possible that the research and development, proof-of-concept, construction of a plant and commercialization will take longer than anticipated due to unexpected delays.

We also plan to begin researching the enrichment of uranium, which is a chemical element we believe may have application in the clean, efficient and carbon-free energy industry, using the ASP technology. We are in the planning stage of research and development activities for enriched uranium. If we are unable to advance our future isotopes in development, obtain applicable regulatory approval and ultimately commercialize our future isotopes (assuming receipt of applicable regulatory approvals), or experience significant delays in doing so, our business will be materially harmed.

Our ability to generate product revenues will depend heavily on the success of our research and development activities, receipt of applicable regulatory approvals, and eventual commercialization of our future isotopes (assuming receipt of applicable regulatory approvals and compliance with all applicable regulatory authorities).

The success of our business, including our ability to finance our company and generate any revenue in the future, will primarily depend on the successful development, regulatory approval and commercialization of our currently planned future isotopes, which may never occur.

We will have to be successful in a range of challenging activities, including completing research and development activities relating to our ASP technology, obtaining applicable regulatory approval for future isotopes, if any, and manufacturing, marketing and selling any future isotopes (assuming receipt of applicable regulatory approvals). We are only in the preliminary stages of most of these activities. If we are unable to succeed in these activities, we may not be able to generate sufficient revenue to continue our business.

We rely on a limited number of suppliers to provide us components and a material interruption in supply could prevent or limit our ability to execute our strategic plan and development programs in the expected timeframe.

We depend upon a limited number of third-party suppliers located for certain components required to construct the centrifuges and other equipment for the enrichment plant that is being constructed in South Africa. To date, we have been able to obtain the required components for our centrifuges without any significant delays or interruptions, except for certain delays related to COVID-19. If we lose any of these suppliers, we may be required to find and enter into supply arrangements with one or more replacement suppliers. Obtaining alternative sources of supply could involve significant delays and other costs, and these supply sources may not be available to us on reasonable terms or at all. Any disruption of supplies could delay completion of the enrichment plant in South Africa, which could adversely affect our ability to execute our strategic plan and development programs in the expected timeframe.

Our business, financial and operating performance could be adversely affected by epidemics and other health related issues including but not limited to the coronavirus disease 2019 (“COVID-19”) pandemic.

The global outbreak of COVID-19 has negatively affected global economies, disrupted supply chains, and has resulted in significant travel, transport, and other restrictions. The COVID-19 outbreak has disrupted the supply chains and our day-to-day operations (and the operations of our suppliers and contractors (including Klydon), which could materially adversely affect our operations). In this regard, global supply chains and the timely availability of components imported to South Africa from the United States, countries in Europe or other nations could be materially disrupted by quarantines, slowdowns or shutdowns, border closings, and travel restrictions resulting from the global COVID-19 pandemic or other global pandemic or health crises. Further, impacts of COVID-19 infections and other COVID-19 pandemic related impacts on our management and workforce, or our suppliers and contractors (including Klydon), could adversely impact our business. While we have taken steps to protect our workforce and carry-on operations, we may not be able to mitigate all of the potential impacts. We anticipate increased costs related to, or resulting from, the COVID-19 pandemic due to, among other things, delays in supplier deliveries, impacts of travel restrictions, site access and quarantine requirements.

In the event that the COVID-19 pandemic prevents our employees or our contractors from working in person at our facility in South Africa or our suppliers are unable to provide goods and services on the schedule we anticipated, the impacts on our schedule and costs could be material. The ultimate impact of the COVID-19 pandemic on our operations, including our ability to execute our strategic plan and development programs in the expected timeframe, remains uncertain and will depend on future pandemic-related developments, including the duration of the pandemic and any potential subsequent variants of COVID-19 and related government actions to prevent and manage disease spread, all of which are uncertain and cannot be predicted. The long-term impacts of the COVID-19 pandemic on us, our contractors and suppliers that could impact our business are also difficult to predict but could adversely affect our business, results of operations, and prospects.

Development activities at our facility in South Africa could be disrupted for a variety of reasons, which could prevent us from completing our development activities.

A disruption in development activities at our facility in South Africa could have a material adverse effect on our business. Disruptions could occur for many reasons, including power outages, fire, natural disasters, weather, unplanned maintenance or other manufacturing problems, public health crises (including, but not limited to, the COVID-19 pandemic), disease, strikes or other labor unrest, transportation interruption, government regulation, political unrest or terrorism. Alternative facilities with sufficient capacity or capabilities may not be available, may cost substantially more or may take a significant time to start production, each of which could negatively affect our business and financial performance. South Africa struggles with limited electricity supply and regions of the country regularly undergo load-shedding, during which electricity is not available. This uncertain supply of electricity could impact our ability to operate and produce commercial products and could negatively affect the financial position of the Company.

Risks associated with the in-licensing of the ASP technology for development of isotopes could cause substantial delays in the development of our future isotopes.

Prior to October 2021, as a company we had no involvement with or control over the research and development of the ASP technology. We have relied and continue to rely on Klydon to conduct such research and development in accordance with the applicable legal, regulatory and scientific standards prior to the in-licensing of the ASP technology for development of isotopes. If the research and development processes or the results of the development programs prior to the in-licensing of the ASP technology for development of isotopes prove to be unreliable, this could result in increased costs and delays in the development of our future isotopes, which could adversely affect any future revenue from these future isotopes (assuming receipt of applicable regulatory approvals).

Regulatory approval for production and distribution of radiopharmaceuticals used for medical imaging and therapeutic treatments may involve a lengthy and expensive process with an uncertain outcome.

Currently, the sale or use of Mo-100 is not regulated by a healthcare regulator, such as the FDA, European Medicines Agency (EMA) or comparable foreign regulatory authorities. However, products such as Mo-99 and Tc-99m that are produced from Mo-100 in a cyclotron or a linear accelerator are regulated by healthcare regulators. We expect radiopharmacies, hospitals, clinics and others in the medical community to produce the widely used medical radioisotope technetium-99m (Tc-99m) from the Mo-100 that we may produce using our ASP technology. Tc-99m is a diagnostic agent that is used by health care professionals with FDA-approved imaging devices to detect potential diseases like coronary artery disease and cancer, as well as evaluate lung, liver, kidney and brain function. When used with the appropriate diagnostic scanner device, such as a SPECT imaging system, the Tc-99m emits signals that are captured and produces an image of internal organs to detect various medical problems and contribute to diagnosis and treatment decisions. Our future customers who may use Mo-100 to produce radiopharmaceuticals will likely require regulatory approval for their products. To date, only one healthcare regulator (Canada) has approved the use of Tc-99m produced from Mo-100 via a cyclotron. Obtaining regulatory approval is expensive and can take many years to complete, and its outcome is inherently uncertain. Our customers' regulatory approval process may not be conducted as planned or completed on schedule, if at all, and failure can occur at any time during the process.

In the future, we may need to obtain approval from the FDA, EMA or comparable foreign regulatory authorities prior to the sale of Mo-100 that we may produce using our ASP technology for use in medical imaging and therapeutic treatments. If we require FDA, EMA or other comparable foreign regulatory authorities to approve the sale of Mo-100 that we may produce using our ASP technology for medical imaging and therapeutic treatments, we must demonstrate the safety and utility or efficacy of our Mo-100. Obtaining regulatory approval is expensive and can take many years to complete, and its outcome is inherently uncertain. Our regulatory approval process may not be conducted as planned or completed on schedule, if at all, and failure can occur at any time during the process.

Other isotopes that we intend to produce in the future may also require approvals from healthcare regulators such as FDA, EMA or comparable foreign regulatory authorities.

Our success depends on our future customers' ability to successfully commercialize products that are produced from our isotopes.

Our customers operate in a competitive environment. If our customers are unable to successfully commercialize products that they produce from our isotopes, our business will be negatively impacted. Our customers may fail for a number of reasons, including but not limited to pricing pressure from competing products and failure to gain regulatory approval for the production of their products from healthcare regulators.

Our success depends on our ability to adapt to a rapidly changing competitive environment in the nuclear industry.

The nuclear industry in general, and the nuclear fuel industry in particular, is in a period of significant change, which could significantly transform the competitive landscape we face. The uranium and isotope enrichment sector is competitive. Changes in the competitive landscape may adversely affect pricing trends, change customer spending patterns, or create uncertainty. To address these changes, we may seek to adjust our cost structure and efficiency of operations and evaluate opportunities to grow our business organically or through acquisitions and other strategic transactions. We are actively considering, and expect to consider from time to time in the future, potential strategic transactions, which could involve, without limitation, changes in our capital structure, acquisitions and/or dispositions of businesses or assets, joint ventures or investments in businesses, products or technologies.

In connection with any such transaction, we may seek additional debt or equity financing, contribute or dispose of assets, assume additional indebtedness, or partner with other parties to consummate a transaction. Any such transaction may not result in the intended benefits and could involve significant commitments of our financial and other resources. Legal and consulting costs incurred in connection with debt or equity financing transactions in development are deferred and subject to immediate expensing if such a transaction becomes less likely to occur. If the actions we take in response to industry changes are not successful, our business, results of operations and financial condition may be adversely affected.

We may explore strategic collaborations that may never materialize or may fail.

We intend to accelerate the development of our enriched uranium program by selectively collaborating with energy companies in the United States. We intend to retain significant technology, economic and commercial rights to our programs in key geographic areas that are core to our long-term strategy. As a result, we intend to periodically explore a variety of possible additional strategic collaborations in an effort to gain access to additional resources. At the current time, we cannot predict what form such a strategic collaboration might take. We are likely to face significant competition in seeking appropriate strategic collaborators, and strategic collaborations can be complicated and time-consuming to negotiate and document. We may not be able to negotiate strategic collaborations on acceptable terms, or at all. We are unable to predict when, if ever, we will enter into any additional strategic collaborations because of the numerous risks and uncertainties associated with establishing them.

If the market opportunities for our future isotopes are smaller than we estimate (even assuming receipt of any required regulatory approval), our business may suffer.

We are currently focused on producing isotopes using our ASP technology to meet critical needs in society. We also plan to research the production of enriched uranium to meet the future needs of developers of U.S. advanced reactor technologies requiring HALEU. Our projections of the potential markets are based on estimates that have been derived from a variety of sources, including scientific literature and market research, and which may prove to be incorrect. We must be able to successfully acquire a significant market share in our potential markets to achieve profitability and growth. Customers may become difficult to gain access to, which would adversely affect our results of operations and our business.

We face substantial competition, which may result in others discovering, developing or commercializing isotopes before or more successfully than us.

The development and commercialization of radioisotopes and chemical elements is highly competitive. We face competition with respect to all the isotopes that we may produce using our ASP technology from established biotechnology and nuclear medicine technology companies and will face competition with respect to enriched uranium that we may seek to develop or commercialize in the future from innovative technology and energy companies. There are a number of large biotechnology and nuclear medicine technology companies that currently market and sell radioisotopes to radiopharmacies, hospitals, clinics and others in the medical community (Mo-99 is the active ingredient for Tc-99m-based radiopharmaceuticals used in nuclear medicine procedures). There are also a number of technology and energy companies that are currently seeking to develop HALEU. Potential competitors also include academic institutions, government agencies and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for research, development, manufacturing and commercialization.

More established companies may have a competitive advantage over us due to their greater size, resources and institutional experience. In particular, these companies have greater experience and expertise in securing reimbursement, government contracts, relationships with key opinion leaders, obtaining and maintaining regulatory approvals and distribution relationships to market products. These companies also have significantly greater research and marketing capabilities than we do. If we are not able to compete effectively against existing and potential competitors, our business and financial condition may be harmed.

As a result of these factors, our competitors may complete development of isotopes before we are able to, which may limit our ability to develop or commercialize our future isotopes. Our competitors may also develop radioisotopes or technologies that are safer, more effective, more widely accepted and cheaper than ours, and may also be more successful than us in manufacturing and marketing their isotopes. These appreciable advantages could render our future isotopes obsolete or non-competitive before we can recover the expenses of their development and commercialization.

Mergers and acquisitions in the technology and energy industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller and other early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These third parties compete with us in recruiting and retaining qualified scientific, management and commercial personnel, as well as in acquiring technologies complementary to, or necessary for, our programs.

Even if the products that we or our customers may produce using the ASP technology receives regulatory approval, it may fail to achieve market acceptance by radiopharmacies, hospitals, clinics or others in the medical community necessary for commercial success.

Even if the Mo-100 that we may produce using the ASP technology, or Tc-99m or Mo-99 that we expect our future customers to produce using the Mo-100 that we plan to offer, receives regulatory approval, the isotopes may fail to gain sufficient market acceptance by radiopharmacies, hospitals, clinics and others in the medical community. If it does not achieve an adequate level of acceptance, we may not generate significant product revenue and may not become profitable. The degree of market acceptance of Mo-100 that we may produce using the ASP technology, or the Tc-99m or Mo-99 that our future customers may produce, will depend on a number of factors, including but not limited to:

- the potential advantages compared to alternative radioisotopes;
- the timing of market introduction of the product as well as competitive products;
- effectiveness of sales and marketing efforts;
- the strength of our relationships with radiopharmacies, hospitals, clinics and others in the medical community;
- the cost in relation to alternative radioisotopes;
- our ability to offer Mo-100 that we may produce using the ASP technology for sale at competitive prices;
- the convenience and ease of use compared to alternative radioisotopes;
- the willingness of radiopharmacies, hospitals, clinics and others in the medical community to try an innovative radioisotope; and
- the strength of marketing and distribution support.

Our efforts to educate radiopharmacies, hospitals, clinics and others in the medical community on the benefits of Mo-100 that we may produce using the ASP technology may require significant resources and may never be successful.

Because we expect sales of Mo-100 that we may produce using the ASP technology (assuming receipt of applicable regulatory approvals for commercial sale) to generate substantially all of our revenues for the foreseeable future, the failure of Mo-100 that we may produce using the ASP technology (assuming receipt of applicable regulatory approvals for commercial sale) to find market acceptance would harm our business and could require us to seek additional financing.

We currently have no marketing and sales organization and have no experience as a company in commercializing products, and we may have to invest significant resources to develop these capabilities. If we are unable to establish marketing and sales capabilities or enter into agreements with third parties to market and sell our products, we may not be able to generate product revenue.

We have no internal sales, marketing or distribution capabilities, nor have we commercialized a product. If the isotopes that we may produce using our ASP technology gains market acceptance and our customers receive regulatory approval for the isotopes they produce, we must build a marketing and sales organization with technical expertise and supporting distribution capabilities to commercialize such product in the markets that we target, which will be expensive and time-consuming, or collaborate with third parties that have direct sales forces and established distribution systems, either to augment our own sales force and distribution systems or in lieu of our own sales force and distribution systems. We currently plan to independently commercialize the isotopes that we may produce using our ASP technology (assuming receipt of applicable regulatory approvals) in the United States by establishing a focused sales force and marketing infrastructure. We may opportunistically seek additional strategic collaborations to maximize the commercial opportunities for our medical isotopes business outside of the United States. We have no prior experience as a company in the marketing, sale and distribution of isotopes and there are significant risks involved in building and managing a sales organization, including our ability to hire, retain and incentivize qualified individuals, generate sufficient sales leads, provide adequate training to sales and marketing personnel and effectively manage a geographically dispersed sales and marketing team. Any failure or delay in the development of our internal sales, marketing and distribution capabilities would adversely impact the commercialization of these products. We may not be able to enter into collaborations or hire consultants or external service providers to assist us in sales, marketing and distribution functions on acceptable financial terms, or at all. In addition, our product revenues and our profitability, if any, may be lower if we rely on third parties for these functions than if we were to market, sell and distribute any products that we develop ourselves. We likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively. If we are not successful in commercializing our isotopes, either on our own or through arrangements with one or more third parties, we may not be able to generate any future product revenue and we would incur significant additional losses.

Obtaining regulatory approval for either the Mo-100 that we may produce using the ASP technology, or the Tc-99m or Mo-99 that our future customers may produce using the Mo-100 that we plan to offer, in one jurisdiction does not mean that we or they will be successful in obtaining regulatory approval of such future products in other jurisdictions.

Currently, the production and distribution of Mo-100 does not require any regulatory licenses from healthcare regulators. Healthcare regulators frequently change such requirements, and it is possible that in the future Mo-100 may be regulated as a healthcare product. Obtaining such regulatory licenses, if required, may be a timely and costly process and could materially impact our ability to commercialize the Mo-100 that we plan to offer. Obtaining regulatory approval of the Mo-100 that we may produce using the ASP technology in one jurisdiction does not guarantee that we will be able to obtain regulatory approval in any other jurisdiction. For example, even if the FDA grants regulatory approval of the Mo-100 that we may produce using the ASP technology, comparable regulatory authorities in foreign jurisdictions must also approve the manufacturing, marketing and promotion and reimbursement of such future product in those countries. However, a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in others. Approval procedures vary among jurisdictions and can involve requirements and administrative review periods different from those in the United States.

Obtaining foreign regulatory approvals and establishing and maintaining compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of the Mo-100 that we may produce using the ASP technology. Products such as Tc-99m and Mo-99 that may be produced by our future customers using the Mo-100 that we plan to offer will likely require regulatory licenses in most regions. Healthcare regulators frequently change such requirements and it is unclear what each healthcare regulator will require. To date, only one region (Canada) has approved the use of Tc-99m that has been produced from Mo-100 in a cyclotron. Obtaining such regulatory licenses, if required, may be a timely and costly process and could materially impact the ability of our future customers to operate and use the Mo-100 that we plan to offer. Obtaining regulatory approval in one jurisdiction does not guarantee that we or they will be able to obtain regulatory approval in any other jurisdiction.

If we or any future collaborator fail to comply with the regulatory requirements in international markets or fail to receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of the Mo-100 that we may produce using the ASP technology will be harmed.

Product liability lawsuits against us could cause us to incur substantial liabilities and could limit commercialization of any isotopes that we may develop.

We face an inherent risk of product liability exposure if we commercialize any isotopes that we may develop. If we cannot successfully defend ourselves against claims that any such isotopes caused injuries, we could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any isotopes that we may develop;
- loss of revenue;
- substantial monetary awards to patients;
- significant time and costs to defend the related litigation;
- a diversion of management's time and our resources;
- initiation of investigations by regulators;
- the inability to commercialize any isotopes that we may develop;
- injury to our reputation and significant negative media attention; and
- a decline in our share price.

Any product liability insurance coverage that we obtain and maintain may not be adequate to cover all liabilities that we may incur. We anticipate that we will need to increase our insurance coverage each time we commence a clinical trial and if we successfully commercialize any isotopes. Insurance coverage is increasingly expensive. We may not be able to obtain or maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

Risks Related to Regulatory Compliance

Our business is and could become subject to a wide variety of extensive and evolving laws and regulations. Failure to comply with such laws and regulations and failure to obtain licenses, approvals and permits that may be required to execute on our strategy and develop our company's business could have a material adverse effect on our business.

We are subject to a wide variety of laws and regulations relating to various aspects of our business, including with respect to the development of the ASP technology and our future isotopes, employment and labor, health care, tax, privacy and data security, health and safety, and environmental issues. Laws and regulations at the South African and foreign, federal, state and local levels frequently change, especially in relation to new and emerging industries, and we cannot always reasonably predict the impact of, or the ultimate cost of compliance with, current or future regulatory or administrative changes. In South Africa, our Mo-100 enrichment facility is heavily regulated. South Africa is a signatory to the International Atomic Energy Agency ("IAEA") conventions and has adopted safety standards from the IAEA. The design, construction and operation of the isotope enrichment plants are highly regulated and require government licenses, approvals and permits, and may be subject to the imposition of conditions. In some cases, these licenses, approvals and permits entail periodic review and inspections. While we and Klydon have received all licenses, approvals and permits required to build and operate our isotope enrichment facilities in South Africa, we cannot predict whether the conditions associated with such licenses, approvals and permits will be maintained. For example, each of Klydon and ASP Isotopes South Africa (Proprietary) Limited has received from the South African Council for The Non-Proliferation of Weapons of Mass Destruction (1) a registration certificate (which are valid for two years from the date of issuance) and (2) a Manufacturing and Services Permit. The permits provide that the Non-Proliferation Secretariat will conduct at least two industry visits in June and November (or as arranged) of every year. Each of the permits includes numerous conditions, including, for example, the obligation to keep the Council updated or informed on all separation projects at all times and at least through biannual declarations, which must be done through correspondence to the Council at the end of April and September every year. The permit issued to ASP Isotopes South Africa (Proprietary) Limited includes additional specific information requirements related to (i) the progress on the design and construction of the Mo-100 separation plant, (ii) the progress on the manufacturing of Molybdenum separation elements, and (iii) the commissioning of the plant. Each of the permits further provides that (i) any potential export of controlled goods and technology should be requested at an early stage through a Provisional Export Guidance Request, (ii) all isotope separation applications remain controlled regardless of the isotope atomic mass and will be dealt with on a case-by-case basis, and (iii) any ultimate transfer of these controlled goods and technology will be subject to the issuance of a permit by the Council as required in terms of the Non-Proliferation Act and related Government Notices and Regulations.

In addition, we cannot assure you that we will be able to obtain, on a timely basis or at all, any additional licenses, approvals and permits that may be required to execute on our strategy and develop our company's business, including any such licenses, approvals and permits that may be required to introduce isotopes produced using ASP technology into the market and to begin the enrichment of uranium to demonstrate our capability to produce HALEU using the ASP technology.

Changes in law or the imposition of new or additional regulations or permit requirements that impact our business could negatively impact our performance in various ways, including by limiting our ability to collaborate with partners or customers or by increasing our costs and the time necessary to obtain required authorization. We monitor new developments and devote a significant amount of management's time and external resources to compliance with these laws and regulations. We cannot assure you, however, that we are and will remain in compliance with all such requirements and, even when we believe we are in compliance, a regulatory agency may determine that we are not. In addition, we cannot assure you that we will be able to obtain all licenses, approvals and permits that may be required to execute on our strategy and develop our company's business as currently contemplated. Failure by us, our employees, affiliates, partners or others with whom we work to comply with applicable laws and regulations or to obtain or comply with necessary licenses, approvals and permits could result in administrative, civil, commercial or criminal liabilities, including suspension or debarment from government contracts or suspension of our export/import privileges. Failure by us, our employees, affiliates, partners or others with whom we work to comply with the permits issued to us by the South African Council for The Non-Proliferation of Weapons of Mass Destruction could result in disruption of our development activities at our facility in South Africa, which could prevent us from completing our development activities.

If technology developed for the purposes of enriching isotopes can be applied to the creation or development of weapons-grade materials, then our technology may be considered "dual use" technology and be subject to limitations on public disclosure or export.

Our research and development of isotope enrichment is dedicated not only to producing isotopes for use in nuclear medical diagnostic procedures and concentrating uranium in the isotope uranium-235 for use in nuclear energy, but also to safeguarding any information with broad, dual-use potential that could be inappropriately applied. Enrichment is among the most sensitive nuclear technologies because it can produce weapon-grade materials. The ASP technology may be considered dual use and could be subject to export control, for example, under the Wassenaar Arrangement.

Risks Related to Our Intellectual Property

Our intellectual property is not protected through patents or formal copyright registration. As a result, we do not have the full benefit of patent or copyright laws to prevent others from replicating the ASP technology.

Neither we nor Klydon have yet protected our respective intellectual property rights through patents or formal copyright registration, and neither we nor Klydon currently have any patent applications pending. To date, we and Klydon have relied exclusively on trade secrets and other intellectual property laws, non-disclosure agreements with our respective employees, consultants, vendors, potential customers and other relevant persons and other measures to protect our intellectual property, and intend to continue to rely on these and other means. As we intend to transition into the commercialization of Mo-100, we envision our intellectual property and its security becoming more vital to our future. Until we protect our intellectual property through patent, trademarks and registered copyrights, we may not be able to protect our intellectual property and trade secrets or prevent others from independently developing substantially equivalent proprietary information and techniques or from otherwise gaining access to our intellectual property or trade secrets. In such an instance, our competitors could produce products that are nearly identical to ours, resulting in us selling less products or generating less revenue from our sales.

We may be unable to adequately protect our intellectual property and proprietary rights and prevent others from making unauthorized use of our products and technology.

Our success and competitiveness depend, in significant part, on our ability to protect our intellectual property rights, including the ASP technology and certain other practices, tools, technologies and technical expertise we utilize in designing, developing, implementing and maintaining processes used in the development of our future isotopes. To date, we and Klydon have relied exclusively on trade secrets and other intellectual property laws, non-disclosure agreements with our respective employees, consultants, vendors, potential customers and other relevant persons and other measures to protect our intellectual property, and intend to continue to rely on these and other means.

For strategic reasons, neither we nor Klydon have yet protected our intellectual property by filing patent applications related to our technology, inventions and improvements. Even if we or Klydon filed patent applications and patents were granted, we cannot assure you we would be fully protected against third parties as those patents may not be sufficiently broad in their coverage, may not be economically significant, or may not provide us with any competitive advantage. Competitors may be able to design around any patents and develop isotope production techniques comparable or superior to the ASP technology. Furthermore, the filing of a patent would entail the disclosure of our know-how, and breaches of patent rights related to a wrongful use of this know-how would be difficult to enforce in the international landscape. We believe that our intellectual property strategy differs significantly from the strategies of others involved in the medical isotope industry, many of whom have extensive patent portfolios and rely heavily on intellectual property registrations to enforce their intellectual property rights. As a result of this discrepancy in strategy, we may be at a competitive disadvantage with respect to the strength of our intellectual property protection. Unlike others involved in the medical isotope industry, who generally have patents providing exclusive control over their innovations, we have no recourse against any entity that independently creates the same technology as ours or legitimately reverse-engineers our technology.

We generally enter into non-disclosure agreements with our employees, consultants and other parties with whom we have strategic relationships and business alliances. We cannot, however, assure you that these agreements will be effective in controlling access to and distribution of our technology and proprietary information. Since we do not protect our intellectual property by filing patent applications, we rely on our personnel to protect our trade secrets, know-how and other proprietary information to a greater degree than we would if we had patent protection for our intellectual property. In any jurisdiction in which our research and development is not protected by similar agreements, there is no protection against the manufacture and marketing of identical or comparable research and development by third parties, who are generally free to use, independently develop, and sell our developments and technologies without paying license or royalty fees. Furthermore, our former employees may perform work for our competitors and use our know-how in performing this work. In the event we scale our business by hiring additional personnel and entering into contracts with third parties, the risks associated with breaches of non-disclosure agreements, confidentiality agreements and other agreements pertaining to our technology and proprietary information will increase, and such breaches could have an adverse effect on our business and competitive position.

We may come to believe that third parties are infringing on, or otherwise violating, our intellectual property or other proprietary rights. To prevent infringement or unauthorized use, we may need to file infringement and/or misappropriation suits, which are expensive and time-consuming, could result in meritorious counterclaims against us and would distract management's attention. In addition, in an infringement or misappropriation proceeding, a court may decide that one or more of our intellectual property rights is invalid, unenforceable, or both, in which case third parties may be able to use our technology without paying license fees or royalties. If we are unable to protect our intellectual property and proprietary rights, we may be unable to prevent competitors from using our own inventions and intellectual property to compete against us, and our business may be harmed.

We depend on intellectual property licensed from Klydon, the termination of which could result in the loss of significant rights, which would harm our business.

We are dependent on technology, know-how, and proprietary materials licensed from Klydon. We have an exclusive license from Klydon to use, develop, modify, improve, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the production, distribution, marketing and sale of all isotopes produced using the ASP technology (the “Klydon license agreement”). The Klydon license agreement is royalty-free, has a term of 999 years, and the license is worldwide for the development of the ASP technology and the distribution, marketing and sale of isotopes. Future production of isotopes is limited to member countries of the Nuclear Suppliers Group. Klydon has the right to terminate the exclusivity of the Klydon license agreement in the event that the licensee ceases to carry on activities related to isotope enrichment for a period longer than 24 consecutive months. Any termination of exclusivity under the Klydon license agreement will result in the loss of significant rights and will restrict our ability to develop and commercialize our planned isotopes. If we or Klydon fails to adequately protect this intellectual property, our ability to commercialize the isotopes, such as Mo-100 or uranium, that we may produce using ASP technology could suffer.

In addition, agreements under which we license intellectual property or technology to or from third parties may be complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations and prospects. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on commercially acceptable terms, we may be unable to successfully develop and commercialize the affected future isotopes. Our business also would suffer if our licensor fails to abide by the terms of the license, or if we are unable to enter into necessary licenses on acceptable terms. Moreover, our licensor may own or control intellectual property that has not been licensed to us and, as a result, we may be subject to claims, regardless of their merit, that we are infringing or otherwise violating the licensor’s rights.

Licensing of intellectual property is of critical importance to our business and involves complex legal, business and scientific issues and is complicated by the rapid pace of scientific discovery in our industry. Disputes may also arise between us and our licensors regarding intellectual property subject to a license agreement, including those relating to:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- whether and the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the license agreement;
- our right to sublicense rights to third parties under collaborative development relationships;
- whether we are complying with our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our future isotopes, and what activities satisfy those diligence obligations;
- the priority of invention of patented technology;
- the amount and timing of payments owed under license agreements; and
- the allocation of ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensor and by us and our partners.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected future isotopes. We are generally also subject to all of the same risks with respect to protection of intellectual property that we license as we are for intellectual property that we own, which are described below. If we or our licensor fail to adequately protect this intellectual property, our ability to commercialize our future isotopes could suffer.

We have received a letter asserting that the license for the ASP technology granted to us from Klydon, which is critical to our business, may be invalid because these rights were already granted to a third party, Radfarma.

On October 25, 2022, we received a letter (the “NMS Letter”) from a law firm acting on behalf of Norsk Medisinsk Syklotronsenter AS (“NMS”), asserting, among other things, that the grant of a license to the ASP technology to us by Klydon violates a pre-existing exclusive sub-license to the ASP technology granted to Radfarma. The NMS Letter makes reference to: (1) a license agreement entered into on October 25, 2013 by Klydon and API Labs Pharmaceuticals (Proprietary) Limited (“API Labs”) to license the ASP technology for enriching certain isotopes of the element Molybdenum (“2013 API Labs License”); and (2) an exclusive sub-license to the ASP technology granted on October 1, 2019 to Radfarma, as licensee, by API Labs and SaPhotonica Limited (“SaPhotonica”), as licensors (the “2019 Radfarma Sub-License”). The NMS Letter states that Radfarma is a joint venture that is 45% owned by NMS and 45% owned by SaPhotonica. The NMS Letter also states that Klydon, SaPhotonica and ASP Isotopes Inc. are under common control by Dr. Hendrik Strydom and Einar Ronander.

The NMS Letter asserts, among other things, that the grant of a license to the ASP technology to us by Klydon (pursuant to license agreements entered into subsequent to the Radfarma Sub-License) violates a covenant in the 2019 Radfarma Sub-License that the licensors shall not be entitled, directly or indirectly, to use, grant or otherwise give the rights, or any similar rights, which were granted to Radfarma under the 2019 Radfarma Sub-License to any other person for use in the territory. “Territory” is defined in the 2019 Radfarma Sub-License as “the Kingdom of Norway for the construction of the 20-kilogram capacity plants; and means the international market where distribution agreements can be produced.” The NMS Letter asserts that while Klydon purported to give to us a license to market the ASP technology globally, these rights were already granted to Radfarma.

The NMS Letter includes a request for us to enter into discussions and an agreement with NMS based on terms proposed in previous correspondence from NMS which outlined a future collaboration on technology and product development. The NMS Letter does not include a threat of litigation against us or any parties to the 2013 API Labs License or 2019 Radfarma Sub-License. However, if the licensed rights granted to us are found to be invalid or unenforceable (in whole or in part), or if our exclusive license agreement with Klydon is terminated or Klydon, as licensor, fails to abide by the terms of our exclusive license agreement, our ability to commercialize our future isotopes would suffer and our business, results of operations and financial condition may be adversely affected.

Our license for the ASP technology with Klydon may be found to infringe third party intellectual property rights.

Third parties may in the future assert claims or initiate litigation related to their intellectual property rights in technology that is important to us, including the ASP technology. For example, on October 25, 2022, we received a letter (the “NMS Letter”) from a law firm acting on behalf of Norsk medisinsk syklotronsenter AS (“NMS”), asserting, among other things, that the grant of a license to the ASP technology to us by Klydon violates a pre-existing exclusive sub-license to the ASP technology granted to Radfarma, as more fully described in the risk factor above. The asserted claims, arbitration and/or litigation could include claims against us, our licensor (Klydon), or Klydon’s present or former sub-licensors alleging infringement of intellectual property rights with respect to the ASP technology on which our company relies. Regardless of the merit of the claims, they could be time consuming, resulting in costly arbitration or litigation and diversion of technical and management personnel, or require us to develop non-infringing technology or enter into license agreements. We cannot assure you that licenses will be available on acceptable terms, if at all. Furthermore, because of the potential for significant damage awards, which are not necessarily predictable, it is not unusual to find even arguably unmeritorious claims resulting in large settlements. If any infringement or other intellectual property claim made against us by any third party (including NMS or Radfarma) is successful, or if we fail to develop non-infringing technology or license the proprietary rights on commercially reasonable terms and conditions, our business, operating results and financial condition could be materially adversely affected.

If the ASP technology that we license from Klydon infringes the proprietary rights of other parties (including NMS or Radfarma), we could incur substantial costs, and we may have to take certain actions, including the following:

- obtain licenses, which may not be available on commercially reasonable terms, if at all;
- redesign our technology or processes to avoid infringement;
- stop using the subject matter claimed to be held by others;
- pay damages; or
- defend arbitration, litigation or administrative proceedings which may be costly whether we win or lose (and may be prohibitively expensive, particularly for a company of our size), and which could result in a substantial diversion of our financial and management resources.

In addition, in an infringement proceeding, a court or tribunal may decide that our asserted intellectual property is not valid or is unenforceable. An adverse determination in any litigation, arbitration or defense proceedings could put our licensed intellectual property at risk of being invalidated or interpreted narrowly. If the licensed rights granted to us are found to be invalid or unenforceable (in whole or in part), or if our exclusive license agreement with Klydon is terminated or Klydon, as licensor, fails to abide by the terms of our exclusive license agreement, our ability to commercialize our future isotopes would suffer and our business, results of operations and financial condition may be adversely affected.

We may enter into collaboration agreements and strategic alliances, and we may not realize the anticipated benefits of such collaborations or alliances.

We may wish to form collaborations in the future with respect to our future isotopes but may not be able to do so or to realize the potential benefits of such transactions, which may cause us to alter or delay our development and commercialization plans. Research and development collaborations are subject to numerous risks, which may include the following:

- collaborators have significant discretion in determining the efforts and resources that they will apply to a collaboration and may not commit sufficient efforts and resources or may misapply those efforts and resources;
- collaborators may not pursue development and commercialization of future isotopes or may elect not to continue or renew development or commercialization programs;
- collaborators may delay, provide insufficient resources to, or modify or stop development activities for future isotopes;
- collaborators could develop or acquire products outside of the collaboration that compete directly or indirectly with our future isotopes;
- collaborators may not properly maintain or defend our intellectual property rights or may use our intellectual property or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential liability;
- disputes may arise between us and a collaborator that cause the delay or termination of the research, development or commercialization of our future isotopes, or that result in costly litigation or arbitration that diverts management attention and resources;
- collaborations may be terminated and, if terminated, may result in a need for additional capital and personnel to pursue further development or commercialization of the applicable future isotopes; and
- collaborators may own or co-own intellectual property covering our products that results from our collaborating with them, and in such cases, we may not have the exclusive right to commercialize such intellectual property.

The development and potential commercialization of our future isotopes will require substantial additional capital to fund expenses. We may form or seek further strategic alliances, create joint ventures or collaborations, or enter into additional licensing arrangements with third parties that we believe will complement or augment our development and commercialization efforts with respect to our future isotopes, including in territories outside the United States or for certain indications. These transactions can entail numerous operational and financial risks, including exposure to unknown liabilities, disruption of our business and diversion of our management's time and attention in order to manage a collaboration or develop acquired products or technologies, incurrence of substantial debt or dilutive issuances of equity securities to pay transaction consideration or costs, higher than expected collaboration, acquisition or integration costs, write-downs of assets or goodwill or impairment charges, increased amortization expenses, difficulty and cost in facilitating the collaboration or combining the operations and personnel of any acquired business, impairment of relationships with key suppliers, manufacturers or customers of any acquired business due to changes in management and ownership and the inability to retain key employees of any acquired business. As a result, if we enter into acquisition or in-license agreements or strategic partnerships, we may not be able to realize the benefit of such transactions if we are unable to successfully integrate them with our existing operations and company culture, or if there are materially adverse impacts on our or the counterparty's operations resulting from COVID-19, which could delay our timelines or otherwise adversely affect our business. We also cannot be certain that, following a strategic transaction or license, we will achieve the revenue or specific net income that justifies such transaction or such other benefits that led us to enter into the arrangement.

In addition, we face significant competition in seeking appropriate strategic partners and the negotiation process is time-consuming and complex. We may not be successful in our efforts to establish a strategic partnership or other alternative arrangements for our future isotopes because they may be deemed to be at too early of a stage of development for collaborative effort and third parties may not view our future isotopes as having the requisite potential to demonstrate safety and efficacy. If and when we collaborate with a third-party for development and commercialization of a future isotope, we can expect to relinquish some or all of the control over the future success of that future isotope to the third-party. Our ability to reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of our technologies, future isotopes and market opportunities. The collaborator may also consider alternative isotopes or technologies for similar applications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with us for our future isotope. We may also be restricted under any license agreements from entering into agreements on certain terms or at all with potential collaborators.

As a result of these risks, we may not be able to realize the benefit of our existing collaborations or any future collaborations or licensing agreements we may enter into. In addition, we may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of such future isotope, reduce or delay one or more of our other development programs, delay the potential commercialization or reduce the scope of any planned sales or marketing activities for such future isotope, or increase our expenditures and undertake development, manufacturing or commercialization activities at our own expense. If we elect to increase our expenditures to fund development, manufacturing or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to further develop our future isotopes or bring them to market and generate product revenue.

We may be dependent on intellectual property licensed or sublicensed to us from, or for which development was funded or otherwise assisted by, government agencies, for development of our technology and future isotopes. Failure to meet our own obligations to our licensor or upstream licensors, including such government agencies, may result in the loss of our rights to such intellectual property, which could harm our business.

Government agencies may provide funding, facilities, personnel or other assistance in connection with the development of the intellectual property rights owned by or licensed to us. Such government agencies may have retained rights in such intellectual property, including the right to grant or require us to grant mandatory licenses or sublicenses to such intellectual property to third parties under certain specified circumstances, including if it is necessary to meet health and safety needs that we are not reasonably satisfying or if it is necessary to meet requirements for public use specified by federal regulations, or to manufacture products in the United States. Any exercise of such rights, including with respect to any such required sublicense of these licenses could result in the loss of significant rights and could harm our ability to commercialize licensed products.

If we are unable to obtain patent protection for our future isotopes, or if the scope of the patent protection obtained is not sufficiently broad, we may not be able to compete effectively in our markets.

We anticipate that either Klydon or ourselves will file patent applications both in the United States and in other countries, as appropriate. However, we cannot predict:

- if and when any patents will issue;
- the degree and scope of protection any issued patents will afford us against competitors, including whether third parties will find ways to invalidate or otherwise circumvent our patents;
- whether others will apply for or obtain patents claiming aspects similar to those covered by our patents and patent applications;
- whether we will need to initiate litigation or administrative proceedings to defend our patent rights, which may be costly whether we win or lose; or
- whether the patent applications that we own or in-license will result in issued patents with claims that cover our future isotopes or uses thereof in the United States or in foreign countries.

We currently rely upon a combination of trade secret protection and confidentiality agreements to protect the intellectual property related to our isotope development techniques and future isotopes. Our success will depend in large part on our (or Klydon, as our licensor) ability to obtain and maintain patent protection in the United States and other countries with respect to the ASP technology. We expect Klydon to seek to protect its proprietary position by filing patent applications in the United States and abroad related to its current and future development programs and future isotopes to the extent permitted by applicable law. Our exclusive license agreement with Klydon provides that additional patents, knowhow and improvements in the ASP technology that may be developed in the future will be considered part of the intellectual property rights granted under the license. The patent prosecution process is expensive and time-consuming, and we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner, including as a result of the COVID-19 pandemic impacting our or our licensors' operations.

It is possible that we (or Klydon, as our licensor) will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. The patent applications that we own or in-license may fail to result in issued patents with claims that cover our future isotopes in the United States or in foreign countries. There is no assurance that all of the potentially relevant prior art relating to our (or Klydon's) patents and patent applications has been found, which can invalidate a patent or prevent a patent from being issued from a pending patent application. Even if patents are successfully issued and even if such patents cover the ASP technology, third parties may challenge their scope, validity, or enforceability, which may result in such patents being narrowed, invalidated, or held unenforceable. Any successful opposition to these patents or any other patents owned by or licensed to us could deprive us of rights necessary for the successful commercialization of any future isotopes using the ASP technology. Further, if we encounter delays in regulatory approvals, the period of time during which we could market a future isotope could be reduced.

If the patent applications we hold or have in-licensed with respect to our development programs fail to issue, if their breadth or strength of protection is threatened, or if they fail to provide meaningful exclusivity for the ASP technology, it could dissuade companies from collaborating with us, and threaten our ability to commercialize, isotopes produced using the ASP technology. Any such outcome could have a negative effect on our business.

Even if we obtain patents covering the ASP technology or our methods, we may still be barred from making, using and selling such technology or methods because of the patent rights of others. Others may have filed, and in the future may file, patent applications covering technology or methods that are similar or identical to ours, which could materially affect our ability to successfully develop our technology or to successfully commercialize any isotopes alone or with collaborators.

Patent applications in the United States and elsewhere are generally published approximately 18 months after the earliest filing for which priority is claimed, with such earliest filing date being commonly referred to as the priority date. Therefore, patent applications covering our platform technologies and methods could have been filed by others without our knowledge. Additionally, pending claims in patent applications which have been published can, subject to certain limitations, be later amended in a manner that could cover our platform technologies. These patent applications may have priority over patent applications filed by us.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by government patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance fees, renewal fees, annuity fees and various other government fees on patents and/or applications will be due to be paid to the USPTO and various government patent agencies outside of the United States over the lifetime of our owned and licensed patents and/or applications and any patent rights we may own or license in the future. We will rely on our outside counsel, patent annuity service providers, or our licensing partners to pay these fees due to non-U.S. patent agencies. The USPTO and various non-U.S. government patent agencies require compliance with several procedural, documentary, and other similar provisions during the patent application process. We will employ reputable law firms and other professionals to help us comply and we will also be dependent on Klydon (as our licensor) to take the necessary action to comply with these requirements with respect to our licensed intellectual property. In many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. There are situations, however, in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, potential competitors might be able to enter the market and this circumstance could harm our business.

Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, the outcome of which would be uncertain and could have a negative impact on the success of our business.

Our commercial success depends, in part, upon our ability and the ability of our current or future collaborators to develop, manufacture, market and sell our future isotopes and use our proprietary technologies without infringing the proprietary rights and intellectual property of third parties. The technology industry is characterized by extensive and complex litigation regarding patents and other intellectual property rights. Our future isotopes and other proprietary technologies we may develop may infringe existing or future patents owned by third parties. We may in the future become party to, or be threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to our future isotopes and technology, including interference proceedings, post-grant review and inter partes review before the USPTO. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future, regardless of their merit. There is a risk that third parties may choose to engage in litigation with us to enforce or to otherwise assert their patent rights against us. Even if we believe such claims are without merit, a court of competent jurisdiction could hold that these third-party patents are valid, enforceable and infringed, which could have a negative impact on our ability to commercialize our future isotopes. In order to successfully challenge the validity of any such U.S. patent in federal court, we would need to overcome a presumption of validity. As this burden is a high one requiring us to present clear and convincing evidence as to the invalidity of any such U.S. patent claim, there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U.S. patent. If we are found to infringe a third party's valid and enforceable intellectual property rights, we could be required to obtain a license from such third party to continue developing, manufacturing and marketing our future isotope(s) and technology. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us, and it could require us to make substantial licensing and royalty payments. We could be forced, including by court order, to cease developing, manufacturing and commercializing the infringing technology or future isotope. In addition, we could be found liable for monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed a patent or other intellectual property right. A finding of infringement could prevent us from manufacturing and commercializing our future isotopes or force us to cease some or all of our business operations, which could materially harm our business. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business, financial condition, results of operations and prospects.

Third parties asserting their patent or other intellectual property rights against us may seek and obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize our future isotopes or force us to cease some of our business operations. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of management and other employee resources from our business, cause development delays, and may impact our reputation. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third parties, pay royalties, or redesign our infringing products, which may be impossible on a cost-effective basis or require substantial time and monetary expenditure. In that event, we would be unable to further develop and commercialize our future isotopes, which could harm our business significantly. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business.

We may be subject to claims asserting that our employees, consultants or advisors have wrongfully used or disclosed alleged trade secrets of their current or former employers or claims asserting ownership of what we regard as our own intellectual property.

Certain of our employees, consultants or advisors are currently, or were previously, employed at universities or other technology companies, including Klydon. Although we try to ensure that our employees, consultants and advisors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that these individuals or we have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such individual's current or former employer. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property.

Reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

If we rely on third parties to manufacture or commercialize our future isotopes, or if we collaborate with additional third parties for the development of our future isotopes, we must, at times, share trade secrets with them. We may also conduct joint research and development programs that may require us to share trade secrets under the terms of our research and development partnerships or similar agreements. We seek to protect our proprietary technology in part by entering into confidentiality agreements and, if applicable, material transfer agreements, services agreements, consulting agreements or other similar agreements with our advisors, employees, third-party contractors and consultants prior to beginning research or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose our confidential information, including our trade secrets. Despite the contractual provisions employed when working with third parties, the need to share trade secrets and other confidential information increases the risk that such trade secrets become known by our competitors, are inadvertently incorporated into the technology of others, or are disclosed or used in violation of these agreements. Given that our proprietary position is based, in part, on our know-how and trade secrets, a competitor's discovery of our trade secrets or other unauthorized use or disclosure could have an adverse effect on our business and results of operations.

In addition, these agreements typically restrict the ability of our advisors, employees, third-party contractors and consultants to publish data potentially relating to our trade secrets. Despite our efforts to protect our trade secrets, our competitors may discover our trade secrets, either through breach of our agreements with third parties, independent development or publication of information by any third-party collaborators. A competitor's discovery of our trade secrets could harm our business.

Confidentiality agreements with employees and third parties may not prevent unauthorized disclosure of trade secrets and other proprietary information.

In addition to the protection afforded by patents, we seek to rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable or that we elect not to patent, processes for which patents are difficult to enforce, and any other elements of our future isotopes, technology and product discovery and development processes that involve proprietary know-how, information, or technology that is not covered by patents. Any disclosure, either intentional or unintentional, by our employees, the employees of third parties with whom we share our facilities or third-party consultants and vendors that we engage, or misappropriation by third parties (such as through a cybersecurity breach) of our trade secrets or proprietary information could enable competitors to duplicate or surpass our technological achievements, thus eroding our competitive position in our market. Because we expect to rely on third parties in the development and manufacture of our future isotopes, we must, at times, share trade secrets with them. Our reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

Trade secrets and confidential information, however, may be difficult to protect. We seek to protect our trade secrets, know-how and confidential information, including our proprietary processes, in part, by entering into confidentiality agreements with our employees, consultants, outside scientific advisors, contractors, and collaborators. With our consultants, contractors, and outside scientific collaborators, these agreements typically include invention assignment obligations. We cannot guarantee that we have entered into such agreements with each party that may have or has had access to our trade secrets or proprietary technology and processes. Although we use reasonable efforts to protect our trade secrets, our employees, consultants, outside scientific advisors, contractors, and collaborators might intentionally or inadvertently disclose our trade secret information to competitors. In addition, competitors may otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor or other third-party, we would have no right to prevent them from using that technology or information to compete with us. Furthermore, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. If we are unable to prevent unauthorized material disclosure of our intellectual property to third parties, or misappropriation of our intellectual property by third parties, we may not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, operating results, and financial condition.

If we use hazardous and chemical materials in a manner that causes injury or violates applicable law, we may be liable for damages.

Our research and development activities involve the controlled use of potentially hazardous substances, including chemical materials. Klydon is subject to international and local laws and regulations in South Africa governing the use, manufacture, storage, handling and disposal of radioactive and hazardous materials. Although we believe that Klydon's procedures for using, handling, storing and disposing of these materials comply with legally prescribed standards, we cannot completely eliminate the risk of contamination or injury resulting from radioactive or hazardous materials. As a result of any such contamination or injury, we may incur liability or local, city, state or federal authorities may curtail the use of these materials and interrupt our business operations. In the event of an accident, we could be held liable for damages or penalized with fines, and the liability could exceed our resources. We do not have any insurance for liabilities arising from radioactive or hazardous materials. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental regulations may impair our research, development, and production efforts, which could harm our business, prospects, financial condition, or results of operations.

Risks Related to Our Business Operations, Employee Matters and Managing Growth

We are highly dependent on the services of our senior management team, and if we are not able to retain these members of our management team and recruit and retain additional management, clinical and scientific personnel, our business will be harmed.

We are highly dependent on our senior management team. The employment agreements we have with these officers do not prevent such persons from terminating their employment with us at any time. The loss of the services of any of these persons could impede the achievement of our research, development and commercialization objectives.

In addition, we will need to attract, retain and motivate highly qualified additional management and scientific personnel. If we are not able to retain our management and to attract, on acceptable terms, additional qualified personnel necessary for the continued development of our business, we may not be able to sustain our operations or grow.

We may not be able to attract or retain qualified personnel in the future due to the intense competition for qualified personnel among biotechnology, pharmaceutical and other businesses. Many of the other pharmaceutical companies that we compete against for qualified personnel and consultants have greater financial and other resources, different risk profiles and a longer history in the industry than we do. They also may provide more diverse opportunities and better chances for career advancement. Some of these characteristics may be more appealing to high-quality candidates and consultants than what we have to offer. If we are unable to continue to attract, retain and motivate high-quality personnel and consultants to accomplish our business objectives, the rate and success at which we can develop future isotopes and our business will be limited, and we may experience constraints on our development objectives.

Our future performance will also depend, in part, on our ability to successfully integrate newly hired executive officers into our management team and our ability to develop an effective working relationship among senior management. Our failure to integrate these individuals and create effective working relationships among them and other members of management could result in inefficiencies in the development and commercialization of our future isotopes, harming future regulatory approvals, sales of our future isotopes and our results of operations. Additionally, we do not currently maintain “key person” life insurance on the lives of our executives or any of our employees.

We will need to expand our organization, and we may experience difficulties in managing this growth, which could disrupt our operations.

As of December 31, 2022, we had four full-time employees and we presently employ approximately 31 people on a full-time basis, 27 of whom are located in South Africa. We rely on service providers for certain general administrative, financial, accounting, tax, intellectual property and other legal services, and we will need to expand our organization to hire qualified personnel to perform these functions internally. Our management may need to divert significant attention and time to managing these growth activities. We may not be able to effectively manage the expansion of our operations, which may result in weaknesses in our infrastructure, operational inefficiencies, loss of business opportunities, loss of employees and reduced productivity among remaining employees. Our expected growth could require significant capital expenditures and may divert financial resources from other projects, such as the development of our future isotopes. If our management is unable to effectively manage our growth, our expenses may increase more than expected, our ability to generate and grow revenue could be reduced and we may not be able to implement our business strategy. Our future financial performance, our ability to commercialize future isotopes, develop a scalable infrastructure and compete effectively will depend, in part, on our ability to effectively manage any future growth.

Our employees, consultants and commercial partners may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements and insider trading.

We are exposed to the risk of fraud or other misconduct by our employees, consultants and commercial partners. Misconduct by these parties could include intentional failures to comply with FDA regulations or the regulations applicable in other jurisdictions, provide accurate information to the FDA and other regulatory authorities, report financial information or data accurately or disclose unauthorized activities to us. It is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from government investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us and we are not successful in defending ourselves or asserting our rights, those actions could have a negative impact on our business, financial condition, results of operations and prospects, including the imposition of significant fines or other sanctions.

We and our contractors are highly dependent on the performance of sub-contractors and other third parties.

We and our contractors are highly dependent on the performance of sub-contractors and other third parties. If these contractors, sub-contractors and third parties are unable to deliver the results that we require, our operating results could be adversely affected and our business could be materially harmed.

Significant disruptions of our information technology systems or data security incidents could result in significant financial, legal, regulatory, business and reputational harm to us.

We are dependent on information technology systems and infrastructure, including mobile technologies, to operate our business. In the ordinary course of our business, we collect, store, process and transmit large amounts of sensitive information, including intellectual property, proprietary business information, personal information and other confidential information. It is critical that we do so in a secure manner to maintain the confidentiality, integrity and availability of such sensitive information. We have also outsourced elements of our operations (including elements of our information technology infrastructure) to third parties, and as a result, we manage a number of third-party vendors who may or could have access to our computer networks or our confidential information. In addition, many of those third parties, in turn, subcontract or outsource some of their responsibilities to third parties. While all information technology operations are inherently vulnerable to inadvertent or intentional security breaches, incidents, attacks and exposures, the accessibility and distributed nature of our information technology systems, and the sensitive information stored on those systems, make such systems potentially vulnerable to unintentional or malicious, internal and external attacks on our technology environment. In addition, some of our employees work remotely, which may make us more vulnerable to cyberattacks. Potential vulnerabilities can be exploited from inadvertent or intentional actions of our employees, third-party vendors, business partners, or by malicious third parties. Attacks of this nature are increasing in their frequency, levels of persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives (including, but not limited to, industrial espionage) and expertise, including organized criminal groups, “hacktivists,” nation states and others. In addition to the extraction of sensitive information, such attacks could include the deployment of harmful malware, ransomware, denial-of-service attacks, social engineering and other means to affect service reliability and threaten the confidentiality, integrity and availability of information. In addition, the prevalent use of mobile devices increases the risk of data security incidents.

Significant disruptions of our, our third-party vendors’ and/or our business partners’ information technology systems or other similar data security incidents could adversely affect our business operations and/or result in the loss, misappropriation, and/or unauthorized access, use or disclosure of, or the prevention of access to, sensitive information, which could result in financial, legal, regulatory, business and reputational harm to us. In addition, information technology system disruptions, whether from attacks on our technology environment or from computer viruses, natural disasters, terrorism, war and telecommunication and electrical failures, could result in a material disruption of our development programs and our business operations. Additionally, theft of our intellectual property or proprietary business information could require substantial expenditures to remedy. If we or our third-party collaborators, consultants, contractors, suppliers, or service providers were to suffer an attack or breach, for example, that resulted in the unauthorized access to or use or disclosure of personal or health information, we may have to notify consumers, partners, collaborators, government authorities, and the media, and may be subject to investigations, civil penalties, administrative and enforcement actions, and litigation, any of which could harm our business and reputation.

There is no way of knowing with certainty whether we have experienced any data security incidents that have not been discovered. While we have no reason to believe this to be the case, attackers have become very sophisticated in the way they conceal access to systems, and many companies that have been attacked are not aware that they have been attacked. Any event that leads to unauthorized access, use or disclosure of personal information, including but not limited to personal information regarding our patients or employees, could disrupt our business, harm our reputation, compel us to comply with applicable federal and/or state breach notification laws and foreign law equivalents, subject us to time-consuming, distracting and expensive litigation, regulatory investigation and oversight, mandatory corrective action, require us to verify the correctness of database contents, or otherwise subject us to liability under laws, regulations and contractual obligations, including those that protect the privacy and security of personal information. This could result in increased costs to us, and result in significant legal and financial exposure and/or reputational harm. In addition, any failure or perceived failure by us or our vendors or business partners to comply with our privacy, confidentiality or data security-related legal or other obligations to third parties, or any further security incidents or other inappropriate access events that result in the unauthorized access, release or transfer of sensitive information, which could include personally identifiable information, may result in governmental investigations, enforcement actions, regulatory fines, litigation, or public statements against us by advocacy groups or others, and could cause third parties, including clinical sites, regulators or current and potential partners, to lose trust in us or we could be subject to claims by third parties that we have breached our privacy- or confidentiality-related obligations, which could materially and adversely affect our business and prospects. Moreover, data security incidents and other inappropriate access can be difficult to detect, and any delay in identifying them may lead to increased harm of the type described above. While we have implemented security measures intended to protect our information technology systems and infrastructure, there can be no assurance that such measures will successfully prevent service interruptions or security incidents.

Our international operations subject us to risks of doing business in foreign countries, which could adversely affect our business, financial condition and results of operations.

Our primary operations are located outside the U.S. (primarily the construction of the isotope enrichment plant in South Africa), and we plan to sell our isotopes to customers outside the U.S. Accordingly, our business is subject to risks related to the differing legal, political, social and regulatory requirements and economic conditions of non-U.S. jurisdictions. Risks inherent in international operations include the following:

- fluctuations in foreign currency exchange rates may affect product demand and may adversely affect the profitability in U.S. dollars of products and services we provide in international markets where payment for our products and services is made in the local currency;
- transportation and other shipping costs may increase, or transportation may be inhibited;
- increased cost or decreased availability of raw materials;
- changes in foreign laws and tax rates or U.S. laws and tax rates with respect to foreign income may unexpectedly increase the rate at which our income is taxed, impose new and additional taxes on remittances, repatriation or other payments by subsidiaries, or cause the loss of previously recorded tax benefits;
- foreign countries in which we do business may adopt other restrictions on foreign trade or investment, including currency exchange controls;
- trade sanctions by or against these countries could result in our losing access to customers and suppliers in those countries;
- unexpected adverse changes in foreign laws or regulatory requirements may occur;
- our agreements with counterparties in foreign countries may be difficult for us to enforce and related receivables may be difficult for us to collect;
- compliance with the variety of foreign laws and regulations may be unduly burdensome;
- compliance with anti-bribery and anti-corruption laws (such as the Foreign Corrupt Practices Act) as well as anti-money- laundering laws may be costly;
- unexpected adverse changes in export duties, quotas and tariffs and difficulties in obtaining export licenses may occur;
- general economic conditions in the countries in which we operate could have an adverse effect on our earnings from operations in those countries;
- our foreign operations may experience staffing difficulties and labor disputes;
- termination or substantial modification of international trade agreements may adversely affect our access to raw materials and to markets for our products outside the U.S.;
- foreign governments may nationalize or expropriate private enterprises;
- increased sovereign risk (such as default by or deterioration in the economies and creditworthiness of local governments) may occur; and
- political or economic repercussions from terrorist activities, including the possibility of hyperinflationary conditions and political instability, may occur in certain countries in which we do business.

Unanticipated events, such as geopolitical changes, could result in a write-down of our investment in the affected joint venture or a delay or cause cancellation of those capital projects, which could negatively impact our future growth and profitability. Our success as a global business will depend, in part, upon our ability to succeed in differing legal, regulatory, economic, social and political conditions by developing, implementing and maintaining policies and strategies that are effective in each location where we and our joint ventures do business.

Furthermore, we will be subject to rules and regulations related to anti-bribery and anti-trust prohibitions of the U.S. and other countries, as well as export controls and economic embargoes, violations of which may carry substantial penalties. For example, export control and economic embargo regulations limit the ability of our subsidiaries to market, sell, distribute or otherwise transfer their products or technology to prohibited countries or persons. Failure to comply with these regulations could subject our subsidiaries to fines, enforcement actions and/or have an adverse effect on our reputation and the value of our Common Stock.

Our tangible assets may be subject to defects in title.

We have investigated our rights to the assets we have purchased and developed, and, to the best of our knowledge, those rights are in good standing. However, no assurance can be given that such rights will not be revoked, or significantly altered, to our detriment. There can also be no assurance that our rights will not be challenged or impugned by third parties, including by governments and non-governmental organizations.

We are subject to foreign currency risks.

Our operations are subject to foreign currency fluctuations. Our operating expenses and revenues are primarily transacted in U.S. dollars, while some of our cash balances and expenses are measured in other currencies. Any strengthening or weakening of the U.S. dollar in relation to the currencies of other countries or vice versa can have a material impact on our cash flows and profitability and affect the value of our assets and shareholders' equity.

Risks Related to Our Common Stock and the Offering

We do not know whether an active, liquid and orderly trading market will develop for our Common Stock or what the market price of our Common Stock will be and as a result it may be difficult for you to sell your shares of our Common Stock.

Prior to our IPO in November of 2022, there was no public market for shares of our Common Stock. Although our Common Stock is listed on the Nasdaq Capital Market (Nasdaq), only a limited trading market for our shares has developed, and an active market may never develop or if developed be sustained in the future. You may not be able to sell your shares quickly or at the market price if trading in shares of our Common Stock is not active. The initial public offering price for our Common Stock was determined through negotiations with the underwriters, and the negotiated price is not indicative of the market price of our Common Stock as of the date of this registration statement. As a result of these and other factors, you may be unable to resell your shares of our Common Stock at or above the initial public offering price.

A substantial number of shares of Common Stock may be sold in the market following effectiveness of this registration statement, which may depress the market price for our Common Stock.

Once this registration statement is declared effective and assuming the exercise of the Warrants, all 6,550,633 shares of Common Stock registered on behalf of Selling Stockholders will be, freely tradable without restriction or further registration under the Securities Act, unless owned or purchased by our "affiliates" as that term is defined in Rule 144 under the Securities Act. As such, all 6,550,633 shares of Common Stock may be publicly sold, which may depress the market price of our Common Stock. Sales of a substantial number of shares of the Common Stock in the public market following this offering could cause the market price of our Common Stock to decline. Further, an inactive market may also impair our ability to raise capital by selling shares of our Common Stock and may impair our ability to enter into strategic partnerships or acquire companies or products by using our shares of Common Stock as consideration.

The price of our stock may be volatile, and you could lose all or part of your investment.

The trading price of our Common Stock is volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control, including limited trading volume. In addition to the factors discussed in this "Risk Factors" section and elsewhere in this registration statement, these factors include:

- adverse results or delays in our development activities;
- adverse regulatory decisions, including failure to receive regulatory approval for our future isotopes;
- changes in laws or regulations applicable to our future isotopes, including but not limited to requirements for approvals;
- any changes to our relationship with any manufacturers, suppliers, licensors, future collaborators or other strategic partners;
- our inability to obtain adequate product supply for any future isotope or inability to do so at acceptable prices;
- our inability to establish collaborations if needed;
- our failure to commercialize our future isotopes;
- additions or departures of key scientific or management personnel;
- unanticipated serious safety concerns related to the use of our future isotopes;
- introduction of new products or services offered by us or our competitors;

- announcements of significant acquisitions, strategic partnerships, joint ventures, or capital commitments by us or our competitors;
- our ability to effectively manage our growth;
- actual or anticipated variations in quarterly operating results;
- our cash position;
- our failure to meet the estimates and projections of the investment community or that we may otherwise provide to the public;
- publication of research reports about us or our industry or positive or negative recommendations or withdrawal of research coverage by securities analysts;
- changes in the market valuations of similar companies;
- overall performance of the equity markets;
- issuances of debt or equity securities;
- sales of our Common Stock by us or our stockholders in the future or the perception that such sales may occur;
- trading volume of our Common Stock;
- changes in accounting practices;
- ineffectiveness of our internal controls;
- disputes or other developments relating to proprietary rights, including patents, litigation matters, and our ability to obtain patent protection for our technologies;
- significant lawsuits, including patent or stockholder litigation;
- general political and economic conditions, including the COVID-19 pandemic; and
- other events or factors, many of which are beyond our control.

In addition, the stock market in general, and biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our Common Stock, regardless of our actual operating performance, and you may not realize any return on your investment in us and may lose some or all of your investment. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company's securities. This type of litigation, if instituted, could result in substantial costs and a diversion of management's attention and resources, which would harm our business, operating results or financial condition.

We do not intend to pay dividends on our Common Stock, so any returns will be limited to the value of our stock.

We have never declared or paid any cash dividend on our Common Stock. We currently anticipate that we will retain future earnings for the development, operation, and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. Any return to stockholders would therefore be limited to the appreciation, if any, of their stock.

Our principal stockholders and management own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

Our executive officers, current directors, greater than 5% holders, and their affiliates beneficially own, in the aggregate, approximately 54.5% of our Common Stock as of April 3, 2023. Therefore, these stockholders will have the ability to influence us through this ownership position. These stockholders may be able to determine all matters requiring stockholder approval. For example, these stockholders may be able to control elections of directors, amendments of our organizational documents, or approval of any merger, sale of assets, or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our Common Stock that you may feel are in your best interest as one of our stockholders.

Sales of a substantial number of shares of our Common Stock by our existing stockholders in the public market, or the perception that such sales could occur, could cause our stock price to fall.

If our existing stockholders sell, or indicate an intention to sell, substantial amounts of our Common Stock in the public market after the lock-up and other legal restrictions on resale lapse, the trading price of our Common Stock could decline. As of April 3, 2023, we had a total of 37,385,684 shares of Common Stock outstanding of which 28,683,184 shares were restricted and 8,702,500 shares were unrestricted. We are registering 6,550,633 shares of our Common Stock on behalf of Selling Stockholders under the Securities Act in this registration statement. Registration of these shares under the Securities Act will result in the shares becoming freely tradable without restriction under the Securities Act, except for shares held by affiliates, as defined in Rule 144 under the Securities Act.

Subject to the restrictions described in the paragraph below, future sales in the public market of shares will be subject to the volume and other restrictions of Rule 144 under the Securities Act if held by a person that is deemed to be our affiliate, unless the shares to be sold are registered with the SEC. The sale of a substantial number of shares pursuant to Rule 144 or other exemption from registration under the Securities Act, or a perception that such sales could occur, could significantly reduce the market price of our Common Stock.

Of our outstanding Common Stock, shares held by our management are subject to lock-up agreements pertaining to our IPO that we expect will expire on May 15, 2023. After the lock-up agreements expire, the shares held by directors, executive officers, and other affiliates and will be subject to volume limitations under Rule 144 under the Securities Act. In addition, 3,351,000 shares of Common Stock that are either subject to outstanding options or reserved for future issuance under our employee benefit plans will become eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, the lock-up agreements, and Rule 144 and Rule 701 under the Securities Act. If these additional shares of Common Stock are sold, or if it is perceived that they will be sold, in the public market, the trading price of our Common Stock could decline.

After this offering is complete, assuming the exercise of the Investor Warrants and the PA Warrants, we will have an aggregate of 15,253,133 shares freely tradable without restriction under the Securities Act. Any sales of securities by our stockholders could have a material adverse effect on the trading price of our Common Stock.

Future sales and issuances of our Common Stock or rights to purchase Common Stock, including pursuant to our equity incentive plans, could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to fall.

We expect that we will need significant additional capital in the future to continue our planned operations, including development activities, commercialization efforts if we are able to obtain marketing approval of future isotopes, research and development activities, and costs associated with operating a public company. To raise capital, we may sell Common Stock, convertible securities or other equity securities in one or more transactions at prices and in a manner that we determine from time to time. If we sell Common Stock, convertible securities or other equity securities, investors may be materially diluted by subsequent sales. Such sales may also result in material dilution to our existing stockholders, and new investors could gain rights, preferences and privileges senior to the holders of our Common Stock.

Pursuant to our 2022 Plan, our management is authorized to grant stock options to our employees, directors and consultants. Additionally, the number of shares of our Common Stock reserved for issuance under our 2022 Plan will automatically increase on January 1 of each year, beginning on January 1, 2023 and continuing through and including January 1, 2032, by 5% of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year (determined on an as-converted to voting Common Stock basis, without regard to any limitations on the conversion of the non-voting Common Stock), or a lesser number of shares determined by our board of directors. Such issuances will result in dilution to our stockholders.

We have broad discretion in the use of our existing cash and cash equivalents and may not use them effectively.

Our management has broad discretion in the application of our existing cash and cash equivalents. Because of the number and variability of factors that will determine our use of our existing cash and cash equivalents, their ultimate use may vary substantially from their currently intended use. Our management might not apply our existing cash and cash equivalents in ways that ultimately increase the value of our Common Stock. The failure by our management to apply these funds effectively could harm our business. We intend to invest our existing cash and cash equivalents that are not used as described above in short- and medium-term, investment-grade, interest-bearing instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government. These investments may not yield a favorable return to our stockholders. If we do not invest or apply our existing cash and cash equivalents in ways that enhance stockholder value, we may fail to achieve expected financial results, which could cause our stock price to decline.

We are an emerging growth company and a smaller reporting company, and the reduced reporting requirements applicable to emerging growth companies and smaller reporting companies may make our Common Stock less attractive to investors.

We are an emerging growth company, as defined in the JOBS Act. For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions from the requirements of holding nonbinding advisory votes on executive compensation and stockholder approval of any golden parachute payments not previously approved. We could be an emerging growth company until December 31, 2027, although circumstances could cause us to lose that status earlier, including if we become a “large accelerated filer” as defined in Rule 12b-2 under the Exchange Act or if we have total annual gross revenue of \$1.235 billion or more during any fiscal year before that time, in which cases we would no longer be an emerging growth company as of the following December 31 or, if we issue more than \$1.0 billion in non-convertible debt during any three year period before that time, we would cease to be an emerging growth company immediately. Even after we no longer qualify as an emerging growth company, we may still qualify as a “smaller reporting company” which would allow us to take advantage of many of the same exemptions from disclosure requirements including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements. Investors may find our Common Stock less attractive because we may rely on these exemptions. If some investors find our Common Stock less attractive as a result, there may be a less active trading market for our Common Stock and our stock price may be more volatile.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This provision allows an emerging growth company to delay the adoption of accounting standards that have different effective dates for public and private companies until those standards would otherwise apply to private companies. We have elected to avail ourselves of this exemption from new or revised accounting standards, and therefore we will not be subject to the same requirements to adopt new or revised accounting standards as other public companies that are not emerging growth companies.

We are also a “smaller reporting company” as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than \$250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than \$100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than \$700.0 million measured on the last business day of our second fiscal quarter.

Delaware law and provisions certificate of incorporation and bylaws, as amended could make a merger, tender offer or proxy contest difficult, thereby depressing the trading price of our common stock.

Provisions of certificate of incorporation and bylaws as amended may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our amended and restated certificate of incorporation and amended and restated bylaws:

- permit our board of directors to issue up to 10,000,000 shares of preferred stock, with any rights, preferences and privileges as they may designate (including the right to approve an acquisition or other change in our control);
- provide that the authorized number of directors may be changed only by resolution of the board of directors;
- provide that our board of directors or any individual director may only be removed with cause and the affirmative vote of the holders of at least 66-2/3% of the voting power of all of our then-outstanding shares of the capital stock entitled to vote generally in the election of directors, voting together as a single class;
- provide that all vacancies, including newly created directorships, may, except as otherwise required by law, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- divide our board of directors into three classes;
- require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and not be taken by written consent;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide notice in writing in a timely manner and also specify requirements as to the form and content of a stockholder's notice;
- do not provide for cumulative voting rights (therefore allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose);
- provide that special meetings of our stockholders may be called only by the chair of our board of directors, our Chief Executive Officer or by the board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors; and
- provide that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings under state, statutory and common law: (i) any derivative action or proceeding brought on our behalf; (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders; (iii) any action asserting a claim pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our bylaws; (iv) any action as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; and (v) any action governed by the internal affairs doctrine, in all cases subject to the court's having personal jurisdiction over the indispensable parties named as defendants; provided these provisions of our amended and restated certificate of incorporation and amended and restated bylaws will not apply to suits brought to enforce a duty or liability created by the Exchange Act, or any other claim for which the federal courts have exclusive jurisdiction; and provided that, unless we consent in writing to the selection of an alternative forum, to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act of 1933, as amended (Securities Act), including all causes of action asserted against any defendant to such complaint. For the avoidance of doubt, this provision is intended to benefit and may be enforced by us, our officers and directors, the underwriters to any offering giving rise to such complaint, and any other professional or entity whose profession gives authority to a statement made by that person or entity and who has prepared or certified any part of the documents underlying the offering.

These provisions, with the exception of the ability of our board of directors to issue shares of preferred stock and designate any rights, preferences and privileges thereto, would require approval by the holders of at least 66-2/3% of our then-outstanding common stock.

In addition, as a Delaware corporation, we are subject to Section 203 of the Delaware General Corporation Law. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a certain period of time. A Delaware corporation may opt out of this provision by express provision in its original certificate of incorporation or by amendment to its certificate of incorporation or bylaws approved by its stockholders. However, we have not opted out of this provision.

These and other provisions in our certificate of incorporation and bylaws, as amended and Delaware law could make it more difficult for stockholders or potential acquirors to obtain control of our board of directors or initiate actions that are opposed by our then-current board of directors, including delay or impede a merger, tender offer or proxy contest involving our company. The existence of these provisions could negatively affect the price of our common stock and limit opportunities for you to realize value in a corporate transaction.

For information regarding these and other provisions, see “Description of Capital Stock.”

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the exclusive forum for certain disputes between us and our stockholders, which could limit our stockholders’ ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.

Our amended and restated certificate of incorporation provides that, subject to the court’s having personal jurisdiction over the indispensable parties named as defendants, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings:

- any derivative action or proceeding brought on our behalf;
- any action asserting a claim of breach of fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders;
- any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or bylaws;
- any action as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; and
- any action asserting a claim that is governed by the internal affairs doctrine.

This provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act. Furthermore, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all such Securities Act actions. Accordingly, both state and federal courts have jurisdiction to entertain such claims. To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our amended and restated certificate of incorporation further provides that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our amended and restated certificate of incorporation. This may require significant additional costs associated with resolving such action in other jurisdictions and there can be no assurance that the provisions will be enforced by a court in those other jurisdictions.

These exclusive forum provisions may limit a stockholder’s ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, or other employees, which may discourage lawsuits against us and our directors, officers and other employees. If a court were to find either exclusive forum provision in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur further significant additional costs associated with resolving the dispute in other jurisdictions, all of which could seriously harm our business.

We will not receive any proceeds from the sale of the Registrable Securities by the Selling Stockholders covered by this prospectus.

We are registering the shares of Common Stock that were, or may be, issued by us to the Selling Stockholders to permit the resale of these shares of Common Stock from time to time after the date of this prospectus. We will not receive any of the proceeds from the sale by the Selling Stockholders of the shares of Common Stock.

We are currently listed on The Nasdaq Capital Market. If we are unable to maintain listing of our securities on Nasdaq or any stock exchange, our stock price could be adversely affected and the liquidity of our stock and our ability to obtain financing could be impaired and it may be more difficult for our shareholders to sell their securities.

Although our Common Stock is currently listed on The Nasdaq Capital Market, we may not be able to continue to meet the exchange's minimum listing requirements or those of any other national exchange. If we are unable to maintain listing on Nasdaq or if a liquid market for our Common Stock does not develop or is sustained, our Common Stock may remain thinly traded.

The Listing Rules of Nasdaq require listing issuers to comply with certain standards in order to remain listed on its exchange. If, for any reason, we should fail to maintain compliance with these listing standards and Nasdaq should delist our securities from trading on its exchange and we are unable to obtain listing on another national securities exchange, a reduction in some or all of the following may occur, each of which could have a material adverse effect on our shareholders:

- the liquidity of our Common Stock;
- the market price of our Common Stock;
- our ability to obtain financing for the continuation of our operations;
- the number of investors that will consider investing in our Common Stock;
- the number of market makers in our Common Stock;
- the availability of information concerning the trading prices and volume of our Common Stock; and
- the number of broker-dealers willing to execute trades in shares of our Common Stock.

General Risk Factors

We will incur significant increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives.

We became a public company in November of 2022, and as a public company we will incur significant legal, accounting, and other expenses that we did not incur as a private company. We are subject to the reporting requirements of the Exchange Act, which require, among other things, that we file with the SEC annual, quarterly, and current reports with respect to our business and financial condition. In addition, the Sarbanes-Oxley Act, as well as rules subsequently adopted by the SEC and Nasdaq to implement provisions of the Sarbanes-Oxley Act, impose significant requirements on public companies, including requiring establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. Further, in July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) was enacted. There are significant corporate governance and executive compensation-related provisions in the Dodd-Frank Act that require the SEC to adopt additional rules and regulations in these areas such as "say on pay" and proxy access. Emerging growth companies and smaller reporting companies are exempted from certain of these requirements, but we may be required to implement these requirements sooner than budgeted or planned and thereby incur unexpected expenses. Stockholder activism, the current political environment and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact the manner in which we operate our business in ways we cannot currently anticipate.

We expect the rules and regulations applicable to public companies to substantially increase our legal and financial compliance costs and to make some activities more time-consuming and costly. If these requirements divert the attention of our management and personnel from other business concerns, they could have a material adverse effect on our business, financial condition, and results of operations. The increased costs will decrease our net income or increase our net loss, and may require us to reduce costs in other areas of our business or increase the prices of our products or services. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to incur substantial costs to maintain the same or similar coverage. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers.

We have identified a material weakness in our internal control over financial reporting. If our remediation of this material weakness is not effective, or if we experience material weaknesses in the future or otherwise fail to implement and maintain an effective system of internal controls in the future, we may not be able to accurately report our financial condition or results of operations which may adversely affect investor confidence in us, and as a result, the value of our Common Stock.

Our Common Stock was only recently listed on the Nasdaq Stock Exchange on November 10, 2022. Prior to listing, we were a privately-held company, we were not required to evaluate our internal control over financial reporting in a manner that meets the standards of publicly traded companies required by Section 404(a) of the Sarbanes-Oxley Act, or Section 404. As a public company, we are subject to significant requirements for enhanced financial reporting and internal controls. The process of designing and implementing effective internal controls is a continuous effort that requires us to anticipate and react to changes in our business and the economic and regulatory environments and to expend significant resources to maintain a system of internal controls that is adequate to satisfy our reporting obligations as a public company. In addition, we are required, pursuant to Section 404, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting in the second annual report. This assessment will need to include disclosure of any material weaknesses identified by our management in our internal control over financial reporting. A material weakness is a deficiency or combination of deficiencies in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of a company's annual and interim financial statements will not be detected or prevented on a timely basis.

The rules governing the standards that must be met for our management to assess our internal control over financial reporting are complex and require significant documentation, testing, and possible remediation. Testing and maintaining internal controls may divert management's attention from other matters that are important to our business. Once we are no longer an "emerging growth company," or a "smaller reporting company", our auditors will be required to issue an attestation report on the effectiveness of our internal controls on an annual basis.

In the course of preparing the financial statements that are included in this prospectus, management has determined that a material weakness exists within the internal controls over financial reporting. The material weakness identified relates to the lack of a sufficient complement of personnel within the finance and accounting function with an appropriate degree of knowledge, experience and training. We also noted a material weakness related to logical security and privileged access in the area of information technology. We concluded that the material weaknesses in our internal control over financial reporting information technology occurred because, prior to our IPO, we were a private company and did not have the necessary business processes, systems, personnel, and related internal controls necessary to satisfy the accounting and financial reporting requirements of a public company.

In order to remediate the material weaknesses, we expect to hire additional accounting, finance and information technology resources or consultants with public company experience.

We may not be able to fully remediate the identified material weakness until the steps described above have been completed and our internal controls have been operating effectively for a sufficient period of time. We believe we have already and will continue to make progress in our remediation plan but cannot assure you that we will be able to fully remediate the material weakness by such time. If the steps we take do not correct the material weakness in a timely manner, we will be unable to conclude that we maintain effective internal control over financial reporting. Accordingly, there could continue to be a reasonable possibility that a material misstatement of our financial statements would not be prevented or detected on a timely basis. We also may incur significant costs to execute various aspects of our remediation plan but cannot provide a reasonable estimate of such costs at this time.

In accordance with the provisions of the JOBS Act, we and our independent registered public accounting firm were not required to, and did not, perform an evaluation of our internal control over financial reporting as of December 31, 2022 nor any period subsequent in accordance with the provisions of the Sarbanes-Oxley Act. Accordingly, we cannot assure you that we have identified all material weaknesses. Material weaknesses may still exist when we report on the effectiveness of our internal control over financial reporting as required under Section 404 of the Sarbanes-Oxley Act.

In the future, it is possible that additional material weaknesses or significant deficiencies may be identified that we may be unable to remedy before the requisite deadline for these reports. Our ability to comply with the annual internal control reporting requirements will depend on the effectiveness of our financial reporting and data systems and controls across our company. Any weaknesses or deficiencies or any failure to implement new or improved controls, or difficulties encountered in the implementation or operation of these controls, could harm our operating results and cause us to fail to meet our financial reporting obligations, or result in material misstatements in our consolidated financial statements, which could adversely affect our business and reduce our stock price.

If we are unable to conclude on an ongoing basis that we have effective internal control over financial reporting in accordance with Section 404, our independent registered public accounting firm may not issue an unqualified opinion. If we are unable to conclude that we have effective internal control over financial reporting, investors could lose confidence in our reported financial information, which could have a material adverse effect on the trading price of our Common Stock. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because biopharmaceutical companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business.

Our failure to meet Nasdaq's continued listing requirements could result in a delisting of our Common Stock.

If we fail to satisfy the continued listing requirements of Nasdaq, such as the corporate governance requirements or the minimum closing bid price requirement, Nasdaq may take steps to delist our Common Stock. Such a delisting would likely have a negative effect on the price of our Common Stock and would impair your ability to sell or purchase our Common Stock when you wish to do so. In the event of a delisting, we can provide no assurance that any action taken by us to restore compliance with listing requirements would allow our Common Stock to become listed again, stabilize the market price or improve the liquidity of our Common Stock, prevent our Common Stock from dropping below the Nasdaq minimum bid price requirement or prevent future non-compliance with the listing requirements of Nasdaq.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our stock price and trading volume could decline.

The trading market for our Common Stock depends in part on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on our company. If no securities or industry analysts commence coverage of our company, the trading price for our stock would likely be negatively impacted. In the event securities or industry analysts initiate coverage, if one or more of the analysts who covers us downgrades our stock or publishes inaccurate or unfavorable research about our business, our stock price may decline. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Prospectus contains forward-looking statements within the meaning of the federal securities laws. All statements other than statements of historical fact contained in this Prospectus, including statements regarding our future results of operations and financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as “may,” “should,” “would,” “expects,” “plans,” “anticipates,” “could,” “intends,” “target,” “projects,” “contemplates,” “believes,” “estimates,” “predicts,” “potential” or “continue” or the negative of these terms or other similar expressions. The forward-looking statements in this Prospectus are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this Prospectus and are subject to a number of risks, uncertainties and assumptions described in the section titled “Risk Factors” and elsewhere in this Prospectus. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Some of the key factors that could cause actual results to differ from our expectations include:

- our ability to complete the construction of, commission and successfully operate isotope enrichment plants in a cost-effective manner;
- our ability to meet, and to continue to meet, applicable regulatory requirements for the use of the isotopes we may produce using the ASP technology;
- our ability to comply on an ongoing basis with the numerous regulatory requirements applicable to the ASP technology and our enrichment facilities in South Africa;
- the introduction, market acceptance and success of Mo-100 that we may produce using ASP technology as an alternative and potentially more convenient production route for Tc-99m;
- the success or profitability of our future offtake arrangements with respect to various isotopes that we may produce using ASP technology;
- a failure of demand for various isotopes that we may produce using ASP technology;
- our future capital requirements and sources and uses of cash;
- our ability to obtain funding for our operations and future growth;
- the extensive costs, time and uncertainty associated with new technology development;
- developments and projections relating to our competitors and industry;
- the ability to recognize the anticipated benefits of the acquisition of assets of Molybdos (Pty) Limited in the “business rescue” auction and the ASP technology for the production of Mo-100 and U-235 we licensed from Klydon Proprietary Ltd;
- problems with the performance of the ASP technology in the enrichment of isotopes;
- our dependence on a limited number of third-party suppliers for certain components;
- our inability to adapt to changing technology and diagnostic landscape, such as the emergence of new diagnostic scanners or tracers;
- our expected dependence on a limited number of key customers for Mo-100 that we may produce using ASP technology;
- our inability to protect our intellectual property and the risk of claims that we have infringed on the intellectual property of others;
- our inability to compete effectively;
- risks associated with the current economic environment;
- risks associated with our international operations;
- we are subject to credit counterparty risks;
- geopolitical risk and changes in applicable laws or regulations;
- our inability to adequately protect our technology infrastructure;
- our inability to hire or retain skilled employees and the loss of any of our key personnel;
- operational risk;
- costs and other risks associated with becoming a reporting company and becoming subject to the Sarbanes-Oxley Act;
- our inability to implement and maintain effective internal controls; and
- other factors that are described in “Risk Factors”, beginning on page 17.

These statements relate to future events or to our future financial performance and involve known and unknown risks, uncertainties, and other factors that may cause our actual results, performance, or achievements to be materially different from any future results, performance, or achievements expressed or implied by these forward-looking statements. Factors that may cause actual results to differ materially from current expectations include, among other things, those set forth in “Risk Factors” in this Prospectus below and for the reasons described elsewhere in this Prospectus. Any forward-looking statement in this Prospectus reflect our current view with respect to future events and is subject to these and other risks, uncertainties, and assumptions relating to our operations, results of operations, industry, and future growth. Given these uncertainties, you should not place undue reliance on these forward-looking statements. Except as required by law, we assume no obligation to update or revise these forward-looking statements for any reason, even if new information becomes available in the future.

This Prospectus also contains estimates, projections, and other information concerning our industry, our business, and the markets for certain drugs, including data regarding the estimated size of those markets, their projected growth rates, and the incidence of certain medical conditions. Information that is based on estimates, forecasts, projections, or similar methodologies is inherently subject to uncertainties, and actual events or circumstances may differ materially from events and circumstances reflected in this information. Unless otherwise expressly stated, we obtained these industry, business, market, and other data from reports, research surveys, studies, and similar data prepared by third parties, industry, medical and general publications, government data, and similar sources. In some cases, we do not expressly refer to the sources from which these data are derived.

Except where the context otherwise requires, in this Prospectus, “we,” “us,” “our,” “ASP Isotopes,” and the “Company” refer to ASP Isotopes Inc. and, where appropriate, its consolidated subsidiaries.

Trademarks

All trademarks, service marks, and trade names included in this Prospectus are the property of their respective owners. Solely for convenience, the trademarks and trade names in this report may be referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

MARKET, INDUSTRY AND OTHER DATA

We use market and industry data, forecasts and projections throughout this prospectus. We have obtained certain market and industry data from publicly available industry publications and from certain sources that are not publicly available. These sources generally state that the information they provide has been obtained from sources believed to be reliable, but that the accuracy and completeness of the information are not guaranteed. The forecasts and projections are based on historical market data, and any of the forecasts or projected amounts may not be achieved. The market and industry data used in this prospectus involve risks and uncertainties that are subject to change based on various factors, including those discussed in the section titled “Risk Factors.” These and other factors could cause results to differ materially from those expressed in, or implied by, the estimates made by independent parties and by us. Furthermore, we cannot assure you that a third party using different methods to assemble, analyze or compute industry and market data would obtain the same results.

PRIVATE PLACEMENT

On March 14, 2023, we entered into a Securities Purchase Agreement (the “Purchase Agreement”) with a single institutional investor (the “Purchaser”), pursuant to which the Company issued, in a private placement (the “Private Placement Offering”), an aggregate of (i) 3,164,557 shares (the “Private Placement Shares”) of the Company’s common stock, par value \$0.01 per share (the “Common Stock”) at a purchase price of \$1.58 per share for total gross proceeds of approximately \$5 million, before deducting Placement Agent fees and other offering expenses; and (ii) warrants (the “Investor Warrants”) to purchase up to an aggregate of 3,164,557 shares of Common Stock at an exercise price of \$1.75 per share. The Investor Warrants are exercisable on or after September 17, 2023 and will expire on September 18, 2028.

The Private Placement Offering closed on March 17, 2023 (the “Closing”).

The Company engaged H.C. Wainwright & Co., LLC (the “Placement Agent”) to act as the Company’s exclusive placement agent in connection with the Private Placement Offering, pursuant to the underwriting (the “Underwriting Agreement”), dated as of February 15, 2023, between the Company and the Placement Agent. Pursuant to the Underwriting Agreement, the Company paid the Placement Agent (i) a total cash fee equal to 7.0% of the aggregate gross proceeds of the Private Placement Offering; (ii) a management fee of 1.0% of the aggregate gross proceeds of the Offering; and (iii) reimbursement of certain expenses. In addition, the Company issued to the Placement Agent or its designees warrants (the “PA Warrants”) to purchase up to 221,519 shares of Common Stock (the “PA Warrant Shares”) at an exercise price of \$1.975 per share. The PA Warrants are exercisable on or after September 17, 2023 and will expire on September 18, 2028.

The Investor Warrants and PA Warrants are collectively referred to herein as the “Warrants” and the shares issuable upon exercise of the Warrants are referred to herein as the “Warrant Shares”. The Private Placement Shares and the Warrant Shares are collectively referred to as the “Registrable Securities”.

We received net proceeds of approximately \$4.5 million from the Private Placement Offering, after deducting the Placement Agent fees and other Offering expenses. We intend to use the net proceeds from the Offering for working capital and general corporate purposes.

In connection with the Offering, on March 14, 2023, we entered into a Registration Rights Agreement with the investor (the “Registration Rights Agreement”) pursuant to which we are required to file a registration statement with the Securities and Exchange Commission (the “SEC”) to register for resale the Private Placement Shares and the Investor Warrant Shares. We are required to use our best efforts to cause the registration statement to be declared effective by the SEC by April 28, 2023 or in the event of a “full review” by the SEC, by May 29, 2023. The Registration Rights Agreement imposed a penalty of 2% monthly of the total financing amount if the registration statement was not filed by March 29, 2023 which we failed to do. As such, we are obligated to pay a penalty of \$100,000 to the Purchaser.

The Underwriting Agreement and the Purchase Agreement contain customary representations and warranties and agreements, and customary indemnification rights and obligations of the respective parties.

The Registrable Securities have not been registered under the Securities Act of 1933, as amended (the “Securities Act”). The Company offered and sold the Private Placement Shares, Warrants, the Investor Warrant Shares and the PA Warrant Shares pursuant to the exemption from the registration requirements of the Securities Act, available under Section 4(a)(2) and/or Rule 506(b) of Regulation D promulgated thereunder and intends to issue the Common Warrant Shares and PA Warrant Shares pursuant to the same exemption.

The Registrable Securities were issued to the investors in reliance upon the exemption from the registration requirements in Section 4(a)(2) of the Securities Act of 1933, as amended (the “Securities Act”), and Rule 506 of Regulation D promulgated thereunder. We are registering the offer and resale of the Private Placement Shares and Investor Warrant Shares to satisfy the provisions of that certain registration rights agreement, dated March 14, 2023 (the “Registration Rights Agreement”), pursuant to which we agreed to register the resale of the Private Placement Shares and the Investor Warrant Shares. We are registering the PA Warrant Shares pursuant to the Underwriting Agreement (“Underwriting Agreement”) dated February 15, 2023 by and between the Company and H.C. Wainwright & Co LLC (the “Placement Agent”).

SELLING STOCKHOLDERS

The Registrable Securities being offered by the Selling Stockholders are shares of our Common Stock previously issued to the Selling Stockholders, and Common Stock issuable to the Selling Stockholders, upon exercise of the Warrants. For additional information regarding the issuances of those shares of the Common Stock, the Warrants, see “Private Placement” above. We are registering the Registrable Securities in order to permit the Selling Stockholders to offer their shares of our Common Stock for resale from time to time. Except for the ownership of the Registrable Securities or as otherwise set forth herein the Selling Stockholders have not had any material relationship with us within the past three years.

The table below lists the Selling Stockholders and other information regarding the beneficial ownership of our Common Stock by each of the Selling Stockholders. The second column lists the number of shares of Common Stock beneficially owned by each Selling Stockholder, based on its ownership of the shares of our securities, as of April 3, 2023, assuming exercise of Warrants held by the Selling Stockholders on that date, without regard to any limitations on exercises.

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The third column lists the shares of Common Stock being offered by this prospectus by the Selling Stockholders. The fourth column lists the shares which would be held if all shares offered by the Selling Stockholders were sold.

In accordance with the terms of a Registration Rights Agreement with the Selling Stockholders, this prospectus generally covers the resale of the sum of (i) the number of shares of Common Stock issued to one Selling Stockholder in the “Private Placement” described above and (ii) up to 3,386,076 shares of Common Stock issuable upon exercise of the related Warrants, determined as if the outstanding Warrants were exercised in full as of the date this registration statement was initially filed with the SEC, and all subject to adjustment as provided in the Registration Right Agreement, without regard to any limitations on the exercise of the Warrants. The fourth column assumes the sale of all of the Common Stock being offered by the Selling Stockholders pursuant to this prospectus.

Under the terms of the Investor Warrants, a Selling Stockholder may not exercise such warrants to the extent such exercise would cause such Selling Stockholder, together with its affiliates and attribution parties, to beneficially own a number of shares of the Common Stock which would exceed 4.99% or 9.99%, as applicable, of our then outstanding Common Stock following such exercise, excluding for purposes of such determination shares of Common Stock issuable upon exercise of the Investor Warrants and PA Warrants which have not been exercised. The number of shares in the second and fourth columns do not reflect this limitation. The Selling Stockholders may sell all, some or none of their shares in this offering. See “Plan of Distribution”.

Name of Selling Stockholder	Number of shares of Common Stock Owned Prior to Offering	Maximum Number of shares of Common Stock to be Sold Pursuant to this Prospectus	Number of shares of Common Stock Owned After Offering (8)
Armistice Capital Master Fund Ltd. (1)	6,329,114(2)	6,329,114(2)	0
Michael Vasinkevich (3)	142,049(4)	142,049(4)	0
Noam Rubinstein (3)	69,778(5)	69,778(5)	0
Craig Schwabe (3)	7,477(6)	7,477(6)	0
Charles Worthman (3)	2,215(7)	2,215(7)	0
TOTAL		6,550,633	

- (1) The securities are directly held by Armistice Capital Master Fund Ltd., a Cayman Islands exempted company (the “Master Fund”), and may be deemed to be indirectly beneficially owned by: (i) Armistice Capital, LLC (“Armistice Capital”), as the investment manager of the Master Fund; and (ii) Steven Boyd, as the Managing Member of Armistice Capital. Armistice Capital and Steven Boyd disclaim beneficial ownership of the securities except to the extent of their respective pecuniary interests therein. The address of the Master Fund is c/o Armistice Capital, LLC, 510 Madison Avenue, 7th Floor, New York, NY 10022.
- (2) Represents (i) 3,164,557 shares of Common Stock, and (ii) warrants to purchase up to 3,164,557 shares of Common Stock. The warrants contain an ownership limitation such that the holder may not exercise any of such warrants to the extent that such exercise would result in the holder’s beneficial ownership being in excess of 4.99% of the Company’s issued and outstanding Common Stock together with all shares owned by the holder and its affiliates.
- (3) Each of the Selling Stockholders is affiliated with H.C. Wainwright & Co., LLC, a registered broker dealer and has a registered address of c/o H.C. Wainwright & Co., 430 Park Ave, 3rd Floor, New York, NY 10022, and has sole voting and dispositive power over the securities held. The number of shares to be sold in this offering consists of shares of Common Stock issuable upon exercise of PA Warrants, which were received as compensation for our private placement. The Selling Stockholder acquired the PA Warrants in the ordinary course of business and, at the time the PA Warrants were acquired, the Selling Stockholder had no agreement or understanding, directly or indirectly, with any person to distribute such securities.
- (4) Represents warrants to purchase up to 142,049 shares of Common Stock. The warrants contain an ownership limitation such that the holder may not exercise any of such warrants to the extent that such exercise would result in the holder’s beneficial ownership being in excess of 4.99% of the Company’s issued and outstanding Common Stock together with all shares owned by the holder and its affiliates.
- (5) Represents warrants to purchase up to 69,778 shares of Common Stock. The warrants contain an ownership limitation such that the holder may not exercise any of such warrants to the extent that such exercise would result in the holder’s beneficial ownership being in excess of 4.99% of the Company’s issued and outstanding Common Stock together with all shares owned by the holder and its affiliates.
- (6) Represents warrants to purchase up to 7,477 shares of Common Stock. The warrants contain an ownership limitation such that the holder may not exercise any of such warrants to the extent that such exercise would result in the holder’s beneficial ownership being in excess of 4.99% of the Company’s issued and outstanding Common Stock together with all shares owned by the holder and its affiliates.
- (7) Represents warrants to purchase up to 2,215 shares of Common Stock. The warrants contain an ownership limitation such that the holder may not exercise any of such warrants to the extent that such exercise would result in the holder’s beneficial ownership being in excess of 4.99% of the Company’s issued and outstanding Common Stock together with all shares owned by the holder and its affiliates.
- (8) We do not know when or in what amounts a Selling Stockholder may offer shares for sale. The Selling Stockholders might not sell any or might sell all of the shares offered by this prospectus. Because the Selling Stockholders may offer all or some of the shares pursuant to this offering, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares, we cannot estimate the number of the shares that will be held by the Selling Stockholders after completion of the offering. However, for purposes of this table, we have assumed that, after completion of the offering, none of the shares covered by this prospectus will be held by the Selling Stockholders, including Common Stock issuable upon exercise of the Warrants issued in the Private Placement.

USE OF PROCEEDS

The net proceeds from any disposition of the Registrable Securities covered hereby will be received by the Selling Stockholders. We will not receive any of the proceeds from the Registrable Securities offered by this prospectus. We will, however, receive the net proceeds of any Warrants exercised for cash. If all of the Warrants are exercised, we would receive aggregate proceeds of \$6.0 million. We expect to use the proceeds received from the exercise of the Warrants, if any, for general working capital purposes. We will pay all of the fees and expenses incurred by us in connection with this registration. We cannot predict when or if the Warrants will be exercised, and it is possible that the Warrants may expire and never be exercised or may be exercised pursuant to a cashless exercise. We will bear the out-of-pocket costs, expenses and fees incurred in connection with the registration of the Registrable Securities to be sold by the Selling Stockholders, including registration, Edgar fees, accounting and legal fees collectively, the "Registration Expenses". Other than Registration Expenses, the Selling Stockholders will bear underwriting discounts, commissions, PA fees or other similar expenses payable with respect to sales of shares.

PLAN OF DISTRIBUTION

Each Selling Stockholder of the Registrable Securities and any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their securities covered hereby on The Nasdaq Capital Market or any other stock exchange, market or trading facility on which the securities are traded or in private transactions. These sales may be at fixed or negotiated prices. A Selling Stockholder may use any one or more of the following methods when selling securities:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- settlement of short sales;
- in transactions through broker-dealers that agree with the Selling Stockholders to sell a specified number of such securities at a stipulated price per security;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

The Selling Stockholders may also sell the Registrable Securities under Rule 144 or any other exemption from registration under the Securities Act of 1933, as amended (the "Securities Act"), if available, rather than under this prospectus.

Broker-dealers engaged by the Selling Stockholders may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the Selling Stockholders (or, if any broker-dealer acts as agent for the purchaser of securities, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this Prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2121; and in the case of a principal transaction a markup or markdown in compliance with FINRA Rule 2121.

In connection with the sale of the securities or interests therein, the Selling Stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the securities in the course of hedging the positions they assume. The Selling Stockholders may also sell securities short and deliver these securities to close out their short positions, or loan or pledge the securities to broker-dealers that in turn may sell these securities. The Selling Stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or create one or more derivative securities which require the delivery to such broker-dealer or other financial institution of securities offered by this prospectus, which securities such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The Selling Stockholders and any broker-dealers or agents that are involved in selling the securities may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the securities purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Each Selling Stockholder has informed the Company that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the securities.

The Company is required to pay certain fees and expenses incurred by the Company incident to the registration of the securities. The Company has agreed to indemnify the Selling Stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

We agreed to keep this prospectus effective until the earlier of (i) the date on which the securities may be resold by the Selling Stockholders without registration and without regard to any volume or manner-of-sale limitations by reason of Rule 144, without the requirement for the Company to be in compliance with the current public information under Rule 144 under the Securities Act or any other rule of similar effect or (ii) all of the securities have been sold pursuant to this prospectus or Rule 144 under the Securities Act or any other rule of similar effect. The resale securities will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, the resale securities covered hereby may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the resale securities may not simultaneously engage in market making activities with respect to the Common Stock for the applicable restricted period, as defined in Regulation M, prior to the commencement of the distribution. In addition, the Selling Stockholders will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of the Common Stock by the Selling Stockholders or any other person. We will make copies of this prospectus available to the Selling Stockholders and have informed them of the need to deliver a copy of this prospectus to each purchaser at or prior to the time of the sale (including by compliance with Rule 172 under the Securities Act).

Our Common Stock is quoted on The Nasdaq Capital Market under the symbol “ASPT”. There is no established public trading market for the Warrants, and we do not expect a market to develop. We do not intend to apply for listing of the Warrants on any securities exchange or other nationally recognized trading system. Without an active trading market, the liquidity of the Warrants will be limited.

DIVIDEND POLICY

We currently intend to retain all available funds and future earnings, if any, for use in the operation of our business and do not intend to declare or pay any cash dividends in the foreseeable future. Any further determination to pay dividends on our capital stock will be at the discretion of our board of directors, subject to applicable laws, and will depend on our financial condition, results of operations, capital requirements, general business conditions, and other factors that our board of directors consider relevant. Our future ability to pay cash dividends on our Common Stock may also be limited by the terms of any future debt securities, preferred stock or credit facility.

- the hiring of key personnel and the experience of management;
- trends and developments in the isotopes industry; and
- external market conditions and trends affecting the isotopes industry.

Our board of directors will determine the fair market value of our Common Stock based on its closing price as reported on the date of grant on the primary stock exchange on which our Common Stock is traded.

MARKET PRICE OF AND DIVIDENDS ON COMMON STOCK AND RELATED STOCKHOLDER MATTERS

Market Information

Our Common Stock is quoted on the Nasdaq Capital Market under the symbol ASPI. Until November 10, 2022, there was no public market for our Common Stock.

The following table sets forth the high and low sales prices as reported on the Nasdaq Capital Market for the periods indicated. The quotations reflect inter-dealer prices, without retail mark-up, mark-down or commission, and may not represent actual transactions.

Common Stock Quarter Ended	High		Low	
December 31, 2022	\$	3.75	\$	1.25
March 31, 2023	\$	1.97	\$	0.73

The last reported sales price of our Common Stock on the Nasdaq Capital Market on April 3, 2023 was \$0.9958.

As of April 3, 2023, we have 55 holders of record of our Common Stock.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our historical results of operations and our liquidity and capital resources should be read together with the consolidated financial statements and related notes that appear elsewhere in this prospectus. In addition to historical financial information, this prospectus contains "forward-looking statements." You should review the "Special Note Regarding Forward-Looking Statements" and "Risk Factors" sections of this prospectus for factors and uncertainties that may cause our actual future results to be materially different from those in our forward-looking statements. Forward-looking statements in this prospectus are based on information available to us as of the date hereof, and we assume no obligation to update any such forward-looking statements.

Overview

We are a pre-commercial stage advanced materials company dedicated to the development of technology and processes that, if successful, will allow for the enrichment of natural isotopes into higher concentration products, which could be used in several industries. We were incorporated in Delaware in September 2021 to acquire assets and license intellectual property rights related to the production of isotopes using Aerodynamic Separation Process ("ASP technology"), originally developed and licensed to us by Klydon Proprietary Ltd ("Klydon"). We have an exclusive license to use the ASP technology for the production, distribution, marketing and sale of all isotopes. Our initial focus is on the production and commercialization of enriched Carbon-14 ("C-14"), Molybdenum-100 ("Mo-100") and Silicon-28 ("Si-28"). Klydon has agreed to provide us a first commercial-scale isotope enrichment plant located in South Africa. We also intend to use the ASP technology to produce enriched Uranium-235 ("U-235"). We believe that the U-235 we may develop using the ASP technology may be commercialized as a nuclear fuel component for use in the new generation of HALEU-fueled small modular reactors that are now under development for commercial and government uses.

We operate principally through subsidiaries: ASP Isotopes Guernsey Limited (the holding company of ASP Isotopes South Africa (Proprietary) Limited), which will be focused on the development and commercialization of high value, low volume isotopes for highly specialized end markets (such as C-14, Mo-100 and Si-28); Enriched Energy LLC, which will be focused on the development and commercialization of uranium for the nuclear energy market; and ASP Isotopes UK Ltd, which is the licensee of the ASP technology under the exclusive license agreement with Klydon.

On November 15, 2022, we completed an IPO of our Common Stock and issued and sold 1,250,000 shares of Common Stock at a public offering price of \$4.00 per share, resulting in net proceeds of \$3.8 million after deducting underwriting discounts and commissions and estimated offering expenses.

Acquisition of Assets and Agreements with Klydon

To date, we have purchased certain assets of Molybdos Proprietary Limited, a South Africa company (Molybdos), and entered into a number of agreements with Klydon (Pty) Limited, a South Africa company (Klydon). Below is a summary of the key terms for our licenses and other agreements with Klydon.

Acquisition of Molybdos Assets. On September 30, 2021, our subsidiary, ASP Isotopes South Africa (Proprietary) Limited ("ASP South Africa"), participated in and was declared the winner of a competitive auction process under Section 45 of the South Africa Consumer Protection Act, 2008 related to the sale and assignment of the assets of Molybdos (the "Molybdos Business Rescue Auction"). On October 12, 2021, ASP South Africa acquired the assets of Molybdos for ZAR 11,000,000 (which at the then current exchange rate was approximately \$734,000), plus value added tax (VAT) levied by the government of South Africa at the rate of 15% and auctioneers' commission at the rate of 10%.

Acquisition of Silicon-28 Plant Assets. On July 26, 2022, we acquired assets comprising a dormant Silicon-28 aerodynamic separation processing plant from Klydon for ZAR 6,000,000 (which at the then current exchange rate was approximately \$364,000), which will be payable to Klydon on the later of 180 days of the acquisition and the date on which the assets generate any revenues of any nature.

Exclusive Mo-100 License (superseded and replaced by new license (see “Omnibus Klydon License” below)). On September 30, 2021, ASP South Africa, as licensee, entered into a license with Klydon, as licensor, pursuant to which ASP South Africa acquired from Klydon an exclusive license to use, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the development and/or otherwise disposing of the ASP technology and production, distribution, marketing and or sale of Mo-100 isotope produced using the ASP technology (as amended on June 8, 2022, the “Mo-100 license”). The intellectual property rights granted to us through the Mo-100 license included all existing and/or future proprietary rights of Klydon relating to the ASP technology, whether or not such rights have been registered, including the copyright, designs, know-how, patents and trademarks (although Klydon currently has no such patents, patent applications or copyrights). The exclusive Mo-100 license was royalty-free, had a term of 999 years and was for the global development of the ASP Technology and production of the Mo-100 Isotope and global for the distribution, marketing and sale of the Mo-100 Isotope. No upfront or other payment was made or is owed in connection with the Mo-100 license. Klydon had the right to terminate the exclusivity of the Mo-100 license in the event that the licensee ceased carrying on activities of Mo-100 enrichment for a period longer than 24 consecutive months. Klydon had no other rights to terminate the Mo-100 license. Effective July 26, 2022, the parties agreed to terminate the Mo-100 license, which was superseded and replaced by a new license agreement (described under the heading “Omnibus Klydon License” below).

Exclusive U-235 License (superseded and replaced by new license (see “Omnibus Klydon License” below)). On January 25, 2022, ASP South Africa, as licensee, entered into a license with Klydon, as licensor, pursuant to which ASP South Africa acquired from Klydon an exclusive license to use, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the development and/or otherwise disposing of the ASP technology and production, distribution, marketing and or sale of U-235 produced using the ASP (as so amended, the “U-235 license”). The intellectual property rights granted to us through the U-235 license included all existing and/or future proprietary rights of Klydon relating to the ASP technology, whether or not such rights have been registered, including the copyright, designs, know-how, patents and trademarks (although Klydon currently has no such patents, patent applications or copyrights). The exclusive U-235 license had a term of 999 years and was for the global development of the ASP technology and production of U-235 and global for the distribution, marketing and sale of U-235. In connection with the U-235 license we made an upfront payment of \$100,000 and agreed to pay certain royalties (the greater of \$50 per k.g. of U-235 and 10% of profits) and a 33% sublicensing revenue share of any cash consideration we may receive for any sublicenses we may grant. Klydon had the right to terminate the exclusivity of the U-235 license in the event that the licensee ceased carrying on activities of U-235 enrichment for a period longer than 24 consecutive months. Klydon had no other rights to terminate the U-235 license. Effective July 26, 2022, the parties agreed to terminate the U-235 license, which was superseded and replaced by a new license agreement (described under the heading “Omnibus Klydon License” below).

Omnibus Klydon License. On July 26, 2022, ASP Isotopes UK Ltd, as licensee, entered into a license agreement with Klydon, as licensor, pursuant to which ASP Isotopes UK Ltd acquired from Klydon an exclusive license to use, develop, modify, improve, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the production, distribution, marketing and sale of all isotopes produced using the ASP technology (the “Klydon license agreement”). The intellectual property rights granted to us through the Klydon license agreement include all existing and/or future proprietary rights of Klydon relating to the ASP technology, whether or not such rights have been registered, including the copyright, designs, know-how, patents and trademarks (although Klydon currently has no such patents, patent applications or copyrights). The Klydon license agreement superseded and replaced the Mo-100 license and U-235 license described above. The Klydon license agreement is royalty-free, has a term of 999 years and is worldwide for the development of the ASP technology and the distribution, marketing and sale of isotopes. Future production of isotopes is limited to member countries of the Nuclear Suppliers Group. In connection with the Klydon license agreement, we agreed to make an upfront payment of \$100,000 (to be included within the payments we made under the Turnkey Contract (described below) and deferred payments of \$300,000 over 24 months. Klydon has the right to terminate the exclusivity of the Klydon license agreement in the event that the licensee ceases to carry on activities related to isotope enrichment for a period longer than 24 consecutive months.

Turnkey Contract. On November 1, 2021, ASP South Africa and Klydon, as the contractor, entered into a contract under which Klydon has been appointed to supply to ASP South Africa a complete turnkey isotope enrichment plant (the “Turnkey Contract”). The activities to be undertaken or performed by Klydon include: taking control of the assets acquired in the Molybdos Business Rescue Auction; the design of an isotope enrichment facility; the supply of components, equipment and labor required for the construction; the installation, testing and commissioning of the isotope enrichment plant; securing all required approvals, regulatory authorizations and other required consents for the operation of the plant; providing training to local ASP Isotopes South Africa (Proprietary) Limited personnel to enable them to operate the plant going forward; and providing warranties in relation to the performance targets of the plant which are required to be met. Klydon was responsible for liaising with the relevant South African authorities, including the South African Non Proliferation Council, the Nuclear Suppliers Group and International Atomic Energy Agency to ensure that the Turnkey Contract and the isotope enrichment plant are compliant with international laws and guidelines.

Klydon performed a portion of the services required under the Turnkey Contract; however, services were incomplete and many of the services were not completed within the time frame required. As a result, Klydon and ASP South Africa entered into an Acknowledgement of Debt Agreement dated November 30, 2022, whereby Klydon (i) agreed to pledge its assets (the “Pledged Assets”) to ASP South Africa to secure its performance of the Turnkey Contract by December 31, 2022, and (ii) acknowledged that ASP South Africa would suffer damages in the amount of \$6,050,000 (“Damage Amount”) should it fail to perform. Under the Acknowledgement of Debt Agreement, the Pledged Assets would serve as collateral for Klydon’s obligation to pay the Damage Amount should Klydon fail to perform. In connection therewith, also on November 30, 2022, ASP South Africa and Klydon entered into a Deed of Security Agreement whereby, if Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, all of Klydon’s rights of any nature to and interests of any nature in the Pledged Assets would be transferred to ASP South Africa. Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, and the Company plans to perfect its interests in the assets as soon as practicable.

Letter of Intent for Klydon Shares or Assets. On September 30, 2021, ASP South Africa entered into a letter of intent with Klydon and Isotope Separation Technology (Pty) Ltd (Klydon’s largest shareholder which is owned by Dr Ronander and Dr Strydom) with respect to the acquisition of all of the outstanding shares or substantially all of the assets of Klydon. Under the letter of intent (as amended), Klydon has agreed to negotiate with us on an exclusive basis. We are in the process of preparing, and negotiating with Klydon, the share purchase agreement and related agreements with respect to the Klydon acquisition, but such transaction documents are not yet in agreed form and as of the date hereof, several issues remain open that, if not resolved, will prevent us from entering into a definitive agreement with respect to the Klydon acquisition. In addition, the resolution of the Acknowledgement of Debt Agreement pertaining to the nonperformance by Klydon under the Turnkey Contract may significantly alter the outcome of these negotiations. We do not expect the timing or success of the Klydon acquisition to have a material effect on either our business or our financial results in the future because of the existing commercial agreements that we have with Klydon. We believe that the Klydon license agreement provides us with the requisite intellectual property rights and personnel (through Klydon’s workforce) that we need to conduct our business as currently proposed to be conducted.

Other Commercial Agreements

Below is a summary of the key terms of our other commercial agreements.

Lease for Molybdenum Processing Plant. On October 12, 2021, ASP South Africa entered into an agreement of lease with the landlord of the facility located at 33 Eland Street, Koedoespoort Industrial, Pretoria where Klydon and its scientists and engineers will operate on our behalf the Molybdenum processing plant where gaseous Molybdenum compound will be treated (which process comprises several stages of compression and expansion during which the product is purified). The term of the lease ends on December 31, 2030.

Political Risk Insurance Policy with Optio Group. On October 25, 2021, ASP Guernsey entered into a contract of insurance to cover against political risk and expropriation, to off-set the risk of events detrimental to the company occurring in the Republic of South Africa for a period of three years. The insurer is Optio Group Limited which is 100% underwritten by one or more syndicates at Lloyd’s of London. The specific risks covered in the policy are: (i) permanent and total abandonment of operations, (ii) deprivation of assets or shareholding, (iii) physical damage due to political violence, (iv) non-transfer or inconvertibility, (v) business interruption, (vi) non-honouring of arbitration award, and (vii) crisis management support. The limit of cover is equal to or in excess of the projected amount of investment required to complete the initial stage of the first planned Molybdenum enrichment plant. The limit of cover is capable of being increased and extended by mutual agreement with the insurer.

Components of Results of Operations

Operating Expenses

Our operating expenses consist of (i) research and development expenses and (ii) general and administrative expenses.

Research and Development

Our research and development expenses consist primarily of direct and indirect costs incurred in connection with the development activities for our future isotopes.

Direct costs include:

- external research and development expenses incurred under the Turnkey Contract; and
- costs related to designing the development processes of isotope production.

Indirect costs include:

- personnel-related costs, which include salaries, payroll taxes, employee benefits, and other employee-related costs, including stock-based compensation, for personnel engaged in research and development functions; and
- facilities and other various expenses.

Research and development expenses are recognized as incurred and payments made prior to the receipt of goods or services to be used in research and development are capitalized until the goods or services are received.

We expect that our research and development expenses will increase substantially for the foreseeable future as we continue the development of our future isotopes. We cannot determine with certainty the timing of initiation, the duration or the completion costs of development activities. Actual development timelines, the probability of success and development costs can differ materially from expectations.

We will need to raise substantial additional capital in the future. In addition, we cannot forecast which future isotopes may be subject to future collaborations, when such arrangements will be secured, if at all, and to what degree such arrangements would affect our development plans and capital requirements.

Our research and development expenses may vary significantly based on a variety of factors, such as:

- the scope, rate of progress, expense and results of our development activities;
- the phase of development of our future isotopes;
- the timing, receipt, and terms of any approvals from applicable regulatory authorities including the FDA and foreign regulatory authorities;
- significant and changing government regulation and regulatory guidance;
- the cost and timing of designing the development processes of isotope production;
- the extent to which we establish additional strategic collaborations or other arrangements; and
- the impact of any business interruptions to our operations or to those of the third parties with whom we work, including Klydon, particularly in light of the current COVID-19 pandemic environment.

A change in the outcome of any of these variables with respect to the development of any of our future isotopes could significantly change the costs and timing associated with the development of that future isotope.

General and Administrative

General and administrative expenses consist primarily of personnel-related costs, which include salaries, payroll taxes, employee benefits, and other employee-related costs, including stock-based compensation, for personnel in executive, finance and other administrative functions. Other significant costs include legal fees relating to corporate matters, professional fees for accounting and consulting services and facility-related costs.

We expect that our ongoing general and administrative expenses will increase substantially for the foreseeable future to support our increased research and development activities and increased costs of operating as a public company and in building our internal resources. These increased costs will include increased expenses related to audit, legal, regulatory and tax-related services associated with maintaining compliance with exchange listing and SEC requirements, director and officer insurance premiums and investor and public relations costs associated with operating as a public company.

Results of operations*Comparison of the year ended December 31, 2022 and the period from September 13, 2021 (Inception) through December 31, 2021*

	Year ended December 31, 2022	Period from September 13, 2021 (Inception) through December 31, 2021
Operating expenses:		
Research and development	\$ 1,273,536	\$ 41,610
General and administrative	3,825,512	2,566,432
Total operating expenses	5,099,048	2,608,042
Other income:		
Interest income	3,382	115
Change in fair value of share liability	150,527	—
Total other income	153,909	115
Net loss	<u>\$ (4,945,139)</u>	<u>\$ (2,607,927)</u>

Research and development expenses

	Year ended December 31, 2022	Period from September 13, 2021 (Inception) through December 31, 2021
Direct costs:		
Mo-100	\$ 6,645	\$ 9,360
Indirect costs:		
Personnel-related costs	429,270	—
License fees	495,503	—
Consulting, facility and other expenses	342,118	32,250
Total research and development expenses	<u>\$ 1,273,536</u>	<u>\$ 41,610</u>

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Research and development expenses were \$1,273,536 for the year ended December 31, 2022. These expenses include \$6,645 in consulting expenses related to advancing development activities for Mo-100, \$429,270 of personnel-related costs, including \$201,270 in stock-based compensation, \$495,503 in license fees and \$342,118 in consulting, facility and other expenses.

Research and development expenses were \$41,610 for the period from September 13, 2021 (Inception) through December 31, 2021. These expenses include \$9,360 in consulting expenses related to advancing development activities for Mo-100 and \$32,250 in facility and related expenses.

General and administrative expenses

General and administrative expenses were \$3,825,512 for the year ended December 31, 2022. These expenses include \$560,789 of personnel-related costs, \$1,798,043 in stock-based compensation, \$1,010,187 of professional services and legal related fees and \$456,493 in facility and other corporate expenses.

General and administrative expenses were \$2,566,432 for the period from September 13, 2021 (Inception) through December 31, 2021. These expenses include \$1,735,841 of expenses for past services for the issuance of warrants to purchase common shares, \$513,227 in stock-based compensation, \$127,500 of personnel-related costs, \$137,209 of professional services and legal related fees, \$21,025 in facility and related expenses and \$31,630 in other corporate expenses.

Other income and expense

Other income for the year ended December 31, 2022 was \$153,909, which includes a \$150,527 change in the fair value of the share liability related to the shares issuable to a placement agent.

Liquidity and capital resources

Sources of Liquidity

We have incurred net losses and negative cash flows from operations since our inception, and we expect to continue to incur significant and increasing net losses for the foreseeable future. We have principally financed our operations to date through private placements of our Common Stock and, most recently, our IPO and private placement. On November 15, 2022, we completed an IPO of our Common Stock and issued and sold 1,250,000 shares of Common Stock at a public offering price of \$4.00 per share, resulting in net proceeds of \$3.8 million after deducting underwriting discounts and commissions and estimated offering expenses. In March 2023, we received gross proceeds of \$5.0 million through the issuance of 3,164,557 shares of our Common Stock at a purchase price of \$1.58 per share and warrants to purchase up to an aggregate of 3,164,557 shares of our Common Stock with an exercise price of \$1.75 per share.

As of December 31, 2022, and April 3, 2023 we had cash of \$2.4 million and \$5.2 million, respectively. We do not have any isotopes approved for sale, we have not generated any revenue from the sale of isotopes, and our ability to generate product revenue sufficient to achieve profitability will depend on the successful development and eventual commercialization of one or more of our current or future isotopes.

Future Funding Requirements

Based on our current operating plan, we estimate that our existing cash, together with the net proceeds from our IPO, will not be sufficient to fund our operating expenses and capital expenditure requirements through at least the next 12 months from the date the financial statements are issued. However, our forecast of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement that involves risks and uncertainties, and actual results could vary materially. We have based this estimate on assumptions that may prove to be wrong, and we could deplete our capital resources sooner than we expect. Additionally, the process of developing isotopes is costly, and the timing of progress and expenses in these development activities is uncertain.

Our future capital requirements will depend on many factors, including:

- the type, number, scope, progress, expansions, results, costs and timing of, our development activities for our future isotopes;
- the outcome, timing and costs of regulatory review of our future isotopes;
- the costs and timing of manufacturing for our future isotopes;
- our efforts to enhance operational systems and hire additional personnel to satisfy our obligations as a public company, including enhanced internal controls over financial reporting;
- the costs associated with hiring additional personnel and consultants as our preclinical and clinical activities increase;
- the costs and timing of establishing or securing sales and marketing and distribution capabilities, whether alone or with third parties, to commercialize future isotopes for which we may obtain regulatory approval, if any;
- our ability to achieve sufficient market acceptance, coverage and adequate reimbursement from third-party payors and adequate market share and revenue for any approved products;
- the terms and timing of establishing and maintaining collaborations, licenses and other similar arrangements;
- the costs of obtaining, expanding, maintaining and enforcing our patent and other intellectual property rights;
- costs associated with any products or technologies that we may in-license or acquire; and
- if we experience any delays or encounter any issues with any of the above, including the risk of each of which may be exacerbated by the ongoing COVID-19 pandemic.

Developing isotopes is a time-consuming, expensive and uncertain process that takes years to complete, and we may never achieve the necessary results required or obtain applicable regulatory approval for any isotopes or generate revenue from the sale of any future isotopes (assuming applicable regulatory approval is received). In addition, our future isotopes (assuming applicable regulatory approval is received) may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of isotopes that we do not expect to be commercially available in substantial quantities until at least 2024. If we receive permits and licenses to enrich U-235 (which in itself is highly uncertain), we do not expect U-235 to be commercially available for at least several years, if ever. As a result, we may need substantial additional financing to support our continuing operations and further the development of and commercialization of our future isotopes.

Until such time as we can generate significant revenue from sales of our future isotopes, if ever, we expect to finance our cash needs through public or private equity or debt financings or other capital sources, including potential collaborations, licenses and other similar arrangements. However, we may be unable to raise additional funds or enter into such other arrangements when needed on favorable terms or at all. Our ability to raise additional funds may be adversely impacted by potential worsening global economic conditions and the recent disruptions to, and volatility in, the credit and financial markets in the United States and worldwide resulting from the ongoing COVID-19 pandemic and otherwise. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of our stockholders will be or could be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our Common Stockholders. Debt financing and equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise funds through collaborations, or other similar arrangements with third parties, we may have to relinquish valuable rights to our future isotopes, future revenue streams or research programs or may have to grant licenses on terms that may not be favorable to us and/or may reduce the value of our Common Stock. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market our future isotopes even if we would otherwise prefer to develop and market such isotopes ourselves.

Cash flows

The following table summarizes our sources and uses of cash for each of the periods presented:

	Year ended December 31, 2022	Period from September 13, 2021 (Inception) through December 31, 2021
Net cash provided by (used in):		
Operating activities	\$ (2,939,893)	\$ (577,692)
Investing activities	(4,473,164)	(2,988,210)
Financing activities	6,641,052	6,500,900
Net (decrease) increase in cash and cash equivalents	<u>\$ (72,005)</u>	<u>\$ 2,934,998</u>

Operating Activities.

Net cash used in operating activities was \$2,939,893 for the year ended December 31, 2022 and was primarily due to our net loss of \$4,945,139, adjusted for stock-based compensation expense of \$1,999,313, amortization of right-of-use asset of \$72,570, issuance of Common Stock to a consultant with a fair value of \$50,000 and change in fair value of share liability of \$150,527, partially offset by a \$33,890 change in our operating assets and liabilities.

Net cash used in operating activities was \$577,692 for the period from September 13, 2021 (inception) through December 31, 2021, and was primarily due to our net loss of \$2,607,927, adjusted for stock-based compensation expense of \$513,227, the issuance of warrants to purchase Common Stock of \$1,735,841 and a \$218,833 change in our operating assets and liabilities.

Investing activities.

Net cash used in investing activities was \$4,473,164 and \$2,988,210 for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021, respectively, and was comprised of construction in progress.

Financing Activities.

Net cash provided by financing activities was \$6,641,052 for the year ended December 31, 2022 and was comprised primarily of net proceeds of \$3,790,504 from the sale and issuance of 1,250,000 shares of our Common Stock in our IPO, net proceeds of \$2,863,595 from the sale and issuance of 1,559,780 shares of our Common Stock prior to our IPO and the repayment of notes payable of \$13,046.

Net cash provided by financing activities was \$6,500,900 for the period from September 13, 2021 (inception) through December 31, 2021 and was comprised primarily of net proceeds of \$6,454,000 from the sale and issuance of 20,652,500 shares of our Common Stock in 2021.

Contractual obligations and commitments

We lease our research and development facility in Pretoria, South Africa under a lease with base monthly rent payment of approximately \$8,000 with a term expiring on December 31, 2030.

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As of December 31, 2022, we had commitments of approximately \$5.6 million with Klydon for the ongoing development activities under the Turnkey Contract due within approximately 15 months. Klydon performed a portion of the services required under the Turnkey Contract; however, services were incomplete and many of the services were not completed within the time frame required. As a result, Klydon and ASP South Africa entered into an Acknowledgement of Debt Agreement dated November 30, 2022, whereby Klydon (i) agreed to pledge its assets (the “Pledged Assets”) to ASP South Africa to secure its performance of the Turnkey Contract by December 31, 2022, and (ii) acknowledged that ASP South Africa would suffer damages in the amount of \$6,050,000 (“Damage Amount”) should it fail to perform. Under the Acknowledgement of Debt Agreement, the Pledged Assets would serve as collateral for Klydon’s obligation to pay the Damage Amount should Klydon fail to perform. In connection therewith, also on November 30, 2022, ASP South Africa and Klydon entered into a Deed of Security Agreement whereby, if Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, all of Klydon’s rights of any nature to and interests of any nature in the Pledged Assets would be transferred to ASP South Africa. Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, and the Company plans to perfect its interests in the assets as soon as practicable.

In addition, we enter into contracts in the normal course of business with vendors for services and products for operating purposes. These contracts do not contain any minimum purchase commitments and generally provide for termination after a notice period and, therefore, are not considered long-term contractual obligations. Payments due upon cancellation consist only of payments for services provided and expenses incurred up to the date of cancellation.

Off-balance sheet arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Recent accounting pronouncements

See Note 2 to our consolidated financial statements which discusses new accounting pronouncements.

Quantitative and qualitative disclosures about market risk

Interest Rate Risk

As of December 31, 2022 and 2021, our cash consists of cash in readily available checking accounts. We do not hold any short-term investments. As a result, the fair value of our portfolio is relatively insensitive to interest rate changes. As of December 31, 2022 and 2021, we had no bank debt outstanding and are therefore not exposed to interest rate risk with respect to debt. We believe a hypothetical 100 basis point increase or decrease in interest rates during the period presented would not have had a material impact on our financial results.

Foreign Currency Exchange Rate Risk

Our expenses are generally denominated in U.S. dollars but our operations are currently primarily located outside the United States and we have entered into a number of contracts with vendors that are denominated in foreign currencies. We are subject to foreign currency transaction gains or losses on our contracts denominated in foreign currencies. To date, foreign currency transaction gains and losses have not been material to our financial statements, and we have not had a formal hedging program with respect to foreign currency. We believe a hypothetical 100 basis point increase or decrease in exchange rates during the period presented would not have had a material impact on our financial results.

Effects of Inflation

Inflation generally affects us by increasing our cost of labor and research and development costs. We do not believe that inflation and changing prices had a significant impact on our results of operations for the period presented herein.

BUSINESS

Overview

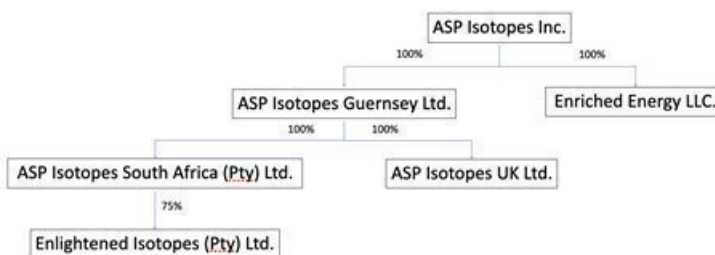
We are a pre-commercial stage advanced materials company dedicated to the development of technology and processes that, if successful, will allow for the enrichment of natural isotopes into higher concentration products, which could be used in several industries. We have an exclusive license to use proprietary technology, the Aerodynamic Separation Process (“ASP technology”), originally developed and licensed to us by Klydon Proprietary Ltd (“Klydon”), for the production, distribution, marketing and sale of all isotopes. Our initial focus is on the production and commercialization of enriched Carbon-14 (“C-14”), Molybdenum-100 (“Mo-100”) and Silicon-28 (“Si-28”). Klydon has agreed to provide us a first commercial-scale isotope enrichment plant located in South Africa. We believe the C-14 we may develop using the ASP technology may be used in the development of new pharmaceuticals and agrochemicals. We believe that the Mo-100 we may develop using the ASP technology has significant potential advantages for use in the preparation of nuclear imaging agents by radiopharmacies and others in the medical industry. We believe the Si-28 we may develop using the ASP technology may be used to develop advanced semiconductors and in quantum computing.

We also intend to use the ASP technology to produce enriched Uranium-235 (“U-235”). We believe that the U-235 we may develop using the ASP technology may be commercialized as a nuclear fuel component for use in the new generation of HALEU-fuelled small modular reactors that are now under development for commercial and government uses. In addition, we are considering future development of the ASP technology for the separation of Zinc-68, Ytterbium-176, Zinc-67, Nickel-64 and Xenon-136 for potential use in the healthcare target end market, and Chlorine -37 and Lithium-6 for potential use in the nuclear energy target end market.

The aerodynamic separation technique has its origins in the South African uranium enrichment program in the 1980s and the ASP technology has been developed during the last 18 years by the scientists at Klydon. In Klydon’s testing, the ASP technology has demonstrated efficacy and commercial scalability in the enrichment of oxygen-18 and silicon-28. ASP Isotopes Inc. was incorporated in Delaware in September 2021 to acquire assets and license intellectual property rights related to the production of Mo-100 using the ASP technology. In January 2022 we also licensed intellectual property rights related to the production of U-235 using the ASP technology. In July 2022, we licensed intellectual property rights related to the production of all isotopes using the ASP technology.

We operate principally through subsidiaries: ASP Isotopes Guernsey Limited (the holding company of ASP Isotopes South Africa (Proprietary) Limited and Enlightened Isotopes (Pty) Ltd), which will be focused on the development and commercialization of high value, low volume isotopes for highly specialized end markets (such as C-14, Mo-100 and Si-28).; Enriched Energy LLC, which will be focused on the development and commercialization of uranium for the nuclear energy market; and ASP Isotopes UK Ltd, which is the licensee of the ASP technology under the exclusive license agreement with Klydon.

Our corporate structure and ownership of our subsidiaries is set forth in the chart below:



Recent Events

Completion of First Company Owned Plant

Our wholly owned subsidiary, ASP Isotopes South Africa (Pty) Ltd, successfully completed the construction of our first Company owned plant, for light isotopes, during the first quarter of 2023. This facility located in Pretoria, South Africa, will, when fully commissioned, satisfy the production to fulfill our obligations to our prospective C-14 customer. We employ 27 persons at this facility. We expect to conclude the construction of a second larger plant later in 2023.

Klydon Agreements

On November 1, 2021, ASP Isotopes South Africa (Proprietary) Ltd (“ASP South Africa”) and Klydon (Proprietary) Limited (“Klydon”), as the contractor, entered into a contract under which Klydon was to supply ASP South Africa with a complete turnkey isotope enrichment plant (the “Turnkey Contract”). Among other things, the activities required to be undertaken or performed by Klydon include taking control of the assets acquired in the Molybdo Business Rescue Auction and the design of an isotope enrichment facility; the supply of components, equipment and labor required for the construction; the installation, testing and commissioning of the isotope enrichment plant; securing all required approvals, regulatory authorizations and other required consents for the operation of the plant; providing training to local ASP South Africa personnel to enable them to operate the plant going forward; and providing warranties in relation to the performance targets of the plant which are required to be met.

Klydon performed a portion of the services required under the Turnkey Contract; however, services were incomplete and many of the services were not completed within the time frame required. As a result, Klydon and ASP South Africa entered into an Acknowledgement of Debt Agreement dated November 30, 2022, whereby Klydon (i) agreed to pledge its assets (the “Pledged Assets”) to ASP South Africa to secure its performance of the Turnkey Contract by December 31, 2022, and (ii) acknowledged that ASP South Africa would suffer damages in the amount of \$6,050,000 (“Damage Amount”) should it fail to perform. Under the Acknowledgement of Debt Agreement, the Pledged Assets would serve as collateral for Klydon’s obligation to pay the Damage Amount should Klydon fail to perform. In connection therewith, also on November 30, 2022, ASP South Africa and Klydon entered into a Deed of Security Agreement whereby, if Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, all of Klydon’s rights of any nature to and interests of any nature in the Pledged Assets would be transferred to ASP South Africa. Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, and the Company plans to perfect its interests in the assets as soon as practicable.

Private Placement

On March 14, 2023, we entered into a Securities Purchase Agreement (the “Purchase Agreement”) with a single institutional investor (the “Purchaser”), pursuant to which the Company issued, in a private placement (the “Private Placement Offering”), an aggregate of (i) 3,164,557 shares (the “Private Placement Shares”) of the Company’s common stock, par value \$0.01 per share (the “Common Stock”) at a purchase price of \$1.58 per share for total gross proceeds of approximately \$5 million, before deducting Placement Agent fees and other offering expenses; and (ii) warrants (the “Investor Warrants”) to purchase up to an aggregate of 3,164,557 shares of Common Stock at exercise price of \$1.75 per share. The Investor Warrants are exercisable on or after September 17, 2023 and will expire on September 18, 2028. The Offering closed on March 17, 2023 (the “Closing”). The Offering was conducted pursuant to the exemption from the registration requirements of the Securities Act, available under Section 4(a)(2) and/or Rule 506(b) of Regulation D.

We engaged H.C. Wainwright & Co., LLC (the “Placement Agent”) to act as its exclusive placement agent in connection with the Offering, pursuant to the Underwriting Agreement (the “Underwriting Agreement”), dated as of February 15, 2023, between the Company and the Placement Agent. Pursuant to the Underwriting Agreement, we paid the Placement Agent (i) a total cash fee equal to 7.0% of the aggregate gross proceeds of the Offering; (ii) a management fee of 1.0% of the aggregate gross proceeds of the Offering; and (iii) reimbursement of certain expenses. In addition, we issued to the Placement Agent, or its designees warrants (the “PA Warrants”) to purchase up to 221,519 shares of Common Stock (the “PA Warrant Shares”) at an exercise price of \$1.975 per share. The PA Warrants are exercisable on or after September 17, 2023 and will expire on September 18, 2028.

We received net proceeds of approximately \$4.5 million from the Offering, after deducting the Placement Agent fees and other Offering expenses. We plan to use the net proceeds from the Offering for working capital and general corporate purposes.

In connection with the Offering, on March 14, 2023, we entered into a Registration Rights Agreement with the investor (the “Registration Rights Agreement”) pursuant to which we are required to file a registration statement with the Securities and Exchange Commission (the “SEC”) to register for resale the Shares and the Investor Warrant Shares on or before March 29, 2023 and to use its best efforts to cause the registration statement to be declared effective by the SEC by April 28, 2023 or in the event of a “full review” by the SEC, by May 28, 2023.

Our Strategy

Complete development and commissioning of our first enrichment facilities located in Pretoria, South Africa.

We intend to complete the development and construction of two enrichment facilities located in Pretoria, South Africa. We currently have two enrichment facilities in Pretoria, South Africa under either construction or commissioning. The first facility is designed to enrich light isotopes such as Carbon-14. The second facility, which is substantially larger than the first, should have the potential to enrich kilogram quantities of isotopes such as Molybdenum-100 and/or Silicon-28.

In October 2021, we acquired physical assets, including equipment, of Molybdos (Pty) Limited (Molybdos) located at the plant after having been declared the winner of a competitive auction process under Section 45 of the *South Africa Consumer Protection Act, 2008* (the Molybdos Business Rescue Auction) and we licensed the ASP technology for the production of Mo-100 from Klydon Proprietary Ltd (Klydon). We subsequently entered into a turnkey contract with Klydon pursuant to which Klydon agreed to provide us a first commercial-scale isotope enrichment plant. The activities to be undertaken or performed by Klydon include: taking control of the assets acquired by us in the Molybdos Business Rescue Auction; the design of an enrichment facility; the supply of required components, equipment and labor; the installation, testing and commissioning of the enrichment facility; securing all required approvals, regulatory authorizations and other required consents for the operation of the plant; providing training to local ASP Isotopes South Africa (Proprietary) Limited personnel to enable them to operate the plant going forward; and providing warranties in relation to the performance targets of the plant which are required to be met. Klydon will also be responsible for liaising with the relevant South African authorities including the South African Non-Proliferation Council, the Nuclear Suppliers Group and International Atomic Energy Agency to ensure that the enrichment plant is compliant with international laws and guidelines.

In July 2022, we acquired a pilot plant, previously used by Klydon Proprietary Ltd (Klydon) to enrich Silicon-28 up to an abundance of 96.6%. This enriched Silicon-28 was then used for experimental work in the solar and electronics industries. We have spent the subsequent six months refurbishing and upgrading the facility so that it can produce commercial quantities of Carbon-14. In September 2022, we entered into a Memorandum of Understanding (MOU) with a North American customer for the entire capacity of this facility, under which we will supply the customer with C-14 enriched to 85%. The timing, quantity and supply date are subject to future agreement between the parties. The MOU states that the customer will supply the feedstock and we will enrich it under a tolling agreement.

Demonstrate the capability to produce C-14, Mo-100 and Si-28 using the ASP technology and capitalize on the opportunity to solve many supply chain challenges that currently exist.

We intend to demonstrate the capability to produce C-14, Mo-100 and Si-28 at a scale that can support anticipated customer demand for all three isotopes.

Historically, Russia has been the sole supplier of C-14, which is used as a tracer in the development of new pharmaceuticals and agrochemicals. The supply chain has been inherently fragile with inconsistent service. Subject to the supply of feedstock from our customer, we intend to start the enrichment of C-14 during 2024.

Mo-100 as alternative and potentially more convenient production route for Tc-99m used in nuclear medical diagnostic procedures. Mo-99's decay product, technetium-99m (Tc-99m), is used in medical procedures to diagnose heart disease and cancer, to study organ structure and function, and to perform other important medical applications. We intend to offer our Mo-100 to customers that may convert Mo-100 into Mo-99 or directly into Tc-99m, and we believe that the use of Mo-100 in this way will be an attractive alternative route to production of Tc-99m for a number of reasons.

- Only a small number of major reactors located around the world (e.g., Australia, Belgium, the Netherlands and South Africa) produce large-scale amounts of Mo-99, and these reactors are taken off-line periodically for refueling and maintenance and go off-line on an unscheduled basis due to the need for extended repairs, which results in a global Mo-99 supply chain that is lengthy, complex and prone to interruption and has experienced supply shortages. Customers that could use and stockpile Mo-100 would not have to manage the periodic shortages and supply chain challenges related to Mo-99.
- Mo-99 (a radioisotope with a 66-hour half-life) decays and loses activity in transit, so it must be moved through the supply chain quickly to minimize decay losses and it cannot be stockpiled. Mo-100 (a stable isotope of molybdenum that does not decay) will not decay in transit, so the supply chain would not be dependent on elapsed time from production of Mo-100 to the delivery of a Tc-99m dose to a hospital or clinic.
- Mo-99 (with decay product Tc-99m) must be shipped in shielded transport containers that comply with the regulatory requirements for safe transport of radioactive material. Mo-100 is stable (non-radioactive) and therefore does not have the same handling and shipping requirements.

Isotopically enriched silicon is regarded as a promising material for semiconductor quantum information due to very long coherence times and its compatibility with the readily available industrial platform. We believe that the ASP technology is ideally suited to the production of this isotope because ASP technology has the ability to enrich molecules of low molecular mass. Other electronic gasses that can likely be enriched using ASP Technology include disilane and germane.

Continue identifying potential offtake customers and strategic partners for our isotopes.

We have already seen significant interest from potential offtake customers for the isotopes that we intend to produce. In November, 2022 we entered a 25-year supply agreement for highly enriched Mo-100 with BRICEM (Beijing Research Institute of Chemical Engineering Metallurgy). The contract has a value of up to \$27.0 million per annum. We have had or are currently in active dialogue with many other potential customers that could use the entire anticipated annual capacity of an initial plant. In September 2022, we entered into an MOU for a tolling agreement with a potential Canadian Customer for the entire capacity of our C-14 production facility. We are currently in discussions with potential customers that have interest in entering into long term supply agreements for kilogram quantities of Si-28 and larger quantities of Zn-68 and Cl-37.

Demonstrate the capability to produce high-assay low-enriched uranium (HALEU) using the ASP technology and meet anticipated demand for the new generation of HALEU-fueled small modular reactors and advanced reactor designs that are now under development for commercial and government uses.

We plan to begin research and development for the enrichment of uranium to demonstrate our capability to produce HALEU using the ASP technology. We anticipate a future demand for HALEU for the new generation of HALEU-fueled small modular reactors (SMRs) and advanced reactor designs that are now under development for commercial and government uses. SMRs are viewed as being cheaper, safer, and more versatile than traditional large scale nuclear reactors and development of the new technology is receiving considerable funding from the U.S. Department of Energy, as well as from the governments of other countries. There is currently no commercial production of HALEU in the United States and there has been a reliance on delivery from other countries, particularly Russia. We are currently conducting a feasibility study with respect to constructing an enrichment facility in either the United States or an international location. We would need to obtain approval of the U.S. Nuclear Regulatory Commission to produce HALEU in a U.S.-based facility.

Our Strengths

ASP technology developed by Klydon.

The aerodynamic separation technique has its origins in the South African uranium enrichment program in the 1980s and the ASP technology has been developed during the last 18 years by the scientists at Klydon. To date, the scientists at Klydon have constructed two ASP plants for the enrichment of oxygen-18 and silicon-28 in Pretoria, South Africa, which were commissioned in October 2015 and July 2018, respectively. While the technology has not yet been used to enrich either Molybdenum or Uranium or heavier isotopes, we believe the success of the enrichment process for oxygen-18 and silicon-28 has demonstrated the efficacy and commercial scalability of the ASP technology from laboratory to commercial. We have exclusive worldwide licenses from Klydon for the production of all isotopes and, if our research and development is successful (and subject to obtaining applicable regulatory approvals and appropriate licenses), we plan to commercialize many different isotopes produced using the ASP technology. To date, we have completed the construction of one isotope enrichment facility, but we have not yet produced any commercial quantities of isotopes and we have not yet demonstrated the ability to produce any isotope in commercial quantities using ASP technology.

High barriers to entry.

We have exclusive worldwide licenses to the ASP technology for the production of all isotopes. Klydon has spent the last 18 years and tens of millions of dollars developing the aerodynamic separation technique used in the ASP technology, generating critical trade secrets. We believe our competitors lag behind us in terms of the technical expertise of our senior management and the know-how contained in the aerodynamic separation technique, and will be unable to replicate the expected results of the ASP technology, even as we expect to continue to improve the existing technology and processes. Additionally, the high capital costs of development of proprietary technologies, significant lead times required to construct new enrichment facilities, as well as stringent regulatory and operating requirements applicable to enrichment facilities, adds to the significant barriers to entry for smaller competing market participants.

ASP technology is a flexible platform with the potential to produce many different isotopes that could serve a large addressable markets.

ASP technology is a flexible platform, compact in size and weight, and easily scaled to industrial level with number of separation devices added in parallel. The ASP technology also has few moving parts, with low capital and operating costs in comparison to alternatives. The technology is particularly efficient at enriching isotopes of low atomic mass. We believe that, assuming receipt of required regulatory approvals and governmental permits, the ASP technology can be deployed quickly and with a relatively minimal capital cost, to enrich many different isotopes that we believe consumers require both today and in the future in end markets such as healthcare, technology and energy. We also believe that the ASP technology is well-positioned to address a substantial global HALEU market that is contemplating a transition from petroleum-based energy to energy produced in a new generation of HALEU-fuelled SMRs and advanced reactors.

ASP technology is designed to be low cost, low energy, and environmentally friendly.

We recently completed the construction of our first isotope enrichment facility using SP technology located in Pretoria, South Africa. The ASP technology is designed to be scalable, low cost, low energy, and environmentally friendly, with no radioactive waste or hazardous materials produced in the process and planned arrangements to reuse chemical by-products.

Experienced team

Our board of directors and advisers have specialized expertise in isotopes enrichment, R&D, technology, plant development and manufacturing. Dr Einar Ronander, who serves as Chief Scientific Adviser to our board of directors, and Dr Hendrik Strydom, one of our directors, previously co-founded Klydon. The scientific team at Klydon combined has decades of experience in research and development of isotopes enrichment and amassed deep knowledge in the field.

Our board of directors and our management team also has broad experience and successful track records in biopharmaceutical research, chemicals, manufacturing and commercialization, as well as in business, operations, and finance. Our board of directors' and management team's experience was gained at leading companies and financial institutions that include, Barclays Capital, Bear Stearns, Deutsche Bank, Highbridge Capital, Investec Bank, Lehman Brothers, LyondellBasell, Morgan Stanley and Soros Fund Management.

Technical Background

What are Isotopes?

Isotopes are two or more types of atoms that have the same atomic number (number of protons in their nuclei) and position in the periodic table (and hence belong to the same chemical element), and that differ in nucleon numbers (mass numbers) due to different numbers of neutrons in their nuclei. While all isotopes of a given element have almost the same chemical properties, they have different atomic masses and physical properties.

The number of protons within the atom's nucleus is called atomic number and is equal to the number of electrons in the neutral (non-ionized) atom. Each atomic number identifies a specific element, but not the isotope; an atom of a given element may have a wide range in its number of neutrons. The number of nucleons (both protons and neutrons) in the nucleus is the atom's mass number, and each isotope of a given element has a different mass number. For example, carbon-12, carbon-13, and carbon-14 are three isotopes of the element carbon with mass numbers 12, 13, and 14, respectively. The atomic number of carbon is 6, which means that every carbon atom has 6 protons so that the neutron numbers of these isotopes are 6, 7, and 8 respectively.

There are 23 isotopes of Silicon, all of which have 14 protons and 14 neutrons but have between 8 and 30 neutrons. The table below shows a selection of those isotopes. Three isotopes are stable which have mass numbers of 28, 29 and 30 which have 14, 15 and 16 neutrons respectively. The other 20 isotopes are radioactive and decay with short half lives and are therefore do not typically exist in naturally occurring silicon. In naturally occurring silicon, the isotope with atomic mass of 28 is usually the most abundant, typically accounting for approximately 92.22% of the material. The isotope with atomic mass of 29 typically accounts for 4.69% of the material and the isotope with atomic mass of 30 typically accounts for 3.09% of the material.

Molybdenum has 33 known isotopes, ranging in atomic mass from 83 to 115, as well as four metastable nuclear isomers. Seven isotopes occur naturally, with atomic masses of 92, 94, 95, 96, 97, 98, and 100. All unstable isotopes of molybdenum decay into isotopes of zirconium, niobium, technetium, and ruthenium.

Uranium is a naturally occurring radioactive element that has no stable isotope. It has two primordial isotopes, uranium-238 and uranium-235, which have long half-lives and are found in appreciable quantity in the Earth's crust. The decay product, uranium-234 is also found. Other isotopes such as uranium-233 have been produced in breeder reactors. In addition to isotopes found in nature or nuclear reactors, many isotopes with far shorter half-lives have been produced, ranging from U-214 to U-242 (with the exception of U-220 and U-241). The standard atomic weight of natural uranium is 238.02891 with 99.27% of naturally occurring uranium being the isotope with an atomic mass of 238.051.

Selected isotopes of Silicon						Selected isotopes of Molybdenum						Selected isotopes of Uranium					
Nuclide	Protons	Neutrons	Isotopic Mass	Half Life	Natural abundance	Nuclide	Protons	Neutrons	Isotopic Mass	Half Life	Natural abundance	Nuclide	Protons	Neutrons	Isotopic Mass	Half Life	Natural abundance
22	14	8	22.036	29 ms		91	42	49	90.912	15.49 min		225	92	133	225.029	62 ms	
23	14	9	23.025	42.3 ms		92	42	50	91.907	Stable	14.65%	226	92	134	226.029	269 ms	
24	14	10	24.012	140 ms		93	42	51	92.907	4000 y		227	92	135	227.031	1.1 m	
25	14	11	25.004	220 ms		94	42	52	93.905	Stable	9.19%	228	92	136	228.031	9.1 m	
26	14	12	25.992	2.245 s		95	42	53	94.906	Stable	15.87%	229	92	137	229.034	57.8 m	
27	14	13	26.987	4.15 s		96	42	54	95.905	Stable	16.67%	230	92	138	230.034	20.23 d	
28	14	14	27.977	Stable	92.22%	97	42	55	96.906	Stable	9.58%	231	92	139	231.036	4.2 d	
29	14	15	28.977	Stable	4.69%	98	42	56	97.905	Stable	24.29%	232	92	140	232.037	68.9 y	
30	14	16	29.974	Stable	3.09%	99	42	57	98.908	2.75 d		233	92	141	233.04	1.592 e5 y	Trace
31	14	17	30.975	157.36 min		100	42	58	99.907	Stable	9.74%	234	92	142	234.041	2.455 e5 y	Trace
32	14	18	31.974	153 y	trace	101	42	59	100.910	14.61 m		235	92	143	235.044	7.038 e8 y	0.72%
33	14	19	32.978	6.18 s		102	42	60	101.910	11.3 m		236	92	144	236.046	2.342 e7 y	Trace
34	14	20	33.979	2.77 s		103	42	61	102.913	67.5 s		237	92	145	237.049	6.752 d	Trace
35	14	21	34.985	780 ms		104	42	62	103.914	60 s		238	92	146	238.051	4.468 e9 y	99.27%
36	14	22	35.987	450 ms		105	42	63	104.917	35.6 s		239	92	147	239.054	23.45 m	
37	14	23	36.993	90 ms		106	42	64	105.918	8.73 s		240	92	148	240.057	14.1 h	Trace
38	14	24	37.996	90 ms		107	42	65	106.922	3.5 s		242	92	150	242.063	16.8 m	

Methods of Separation and Enrichment of Isotopes

Isotope enrichment is the process of concentrating specific isotopes of a chemical element by removing other isotopes. During the last century, a number of different methods have been developed to separate and enrich isotopes. The current separation or enrichment processes are based either on the atomic weight of the isotope, small differences in chemical reaction rates produced by different atomic weights or are based on properties not directly connected to atomic weight such as nuclear resonances.

Diffusion

Often performed on gases, but also on liquids, the diffusion method relies on the fact that in thermal equilibrium, two isotopes with the same energy will have different average velocities. The lighter atoms (or the molecules containing them) will travel more quickly and be more likely to diffuse through a membrane. The difference in speeds is proportional to the square root of the mass ratio, so the amount of separation is small, and many cascaded stages are needed to obtain high purity. This method is expensive due to the work needed to push gas through a membrane and the many stages necessary.

Centrifugal

Centrifugal methods rapidly rotate the material allowing the heavier isotopes to go closer to an outer radial wall. This too is often done in gaseous form using a Zippe-type centrifuge.

A Zippe-type centrifuge relies on the force resulting from centripetal acceleration to separate molecules according to their mass, and can be applied to most fluids. The dense (heavier) molecules move towards the wall and the lighter ones remain close to the center. The centrifuge consists of a rigid body rotor rotating at full period at high speed. Concentric gas tubes located on the axis of the rotor are used to introduce feed gas into the rotor and extract the heavier and lighter separated streams. For U-235 production, the heavier stream is the waste stream and the lighter stream is the product stream. Modern Zippe-type centrifuges are tall cylinders spinning on a vertical axis, with a vertical temperature gradient applied to create a convective circulation rising in the center and descending at the periphery of the centrifuge. Diffusion between these opposing flows increases the separation by the principle of countercurrent multiplication.

In practice, since there are limits to how tall a single centrifuge can be made, several such centrifuges are connected in series. Each centrifuge receives one input and produces two output lines, corresponding to light and heavy fractions. The input of each centrifuge is the output (light) of the previous centrifuge and the output (heavy) of the following stage. This produces an almost pure light fraction from the output (light) of the last centrifuge and an almost pure heavy fraction from the output (heavy) of the first centrifuge.

Electromagnetic

Electromagnetic separation is mass spectrometry on a large scale, so it is sometimes referred to as mass spectrometry. It uses the fact that charged particles are deflected in a magnetic field and the amount of deflection depends upon the particle's mass. It is very expensive for the quantity produced, as it has an extremely low throughput, but it can allow very high purities to be achieved. This method is often used for processing small amounts of pure isotopes for research or specific use (such as isotopic tracers), but is impractical for industrial use.

Laser

In this method, a laser is tuned to a wavelength which excites only one isotope of the material and ionizes those atoms preferentially. The resonant absorption of light for an isotope is dependent upon its mass and certain hyperfine interactions between electrons and the nucleus, allowing finely tuned lasers to interact with only one isotope. After the atom is ionized it can be removed from the sample by applying an electric field. This method is often abbreviated as AVLIS (atomic vapor laser isotope separation). This method has only recently been developed as laser technology has improved, and is currently not used extensively.

Chemical Methods

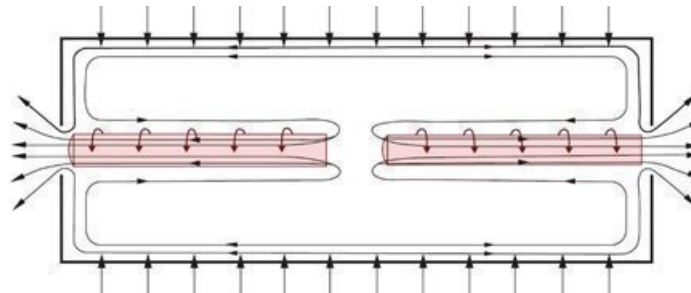
Although isotopes of a single element are normally described as having the same chemical properties, this is not strictly true. In particular, reaction rates are very slightly affected by atomic mass. Techniques using this are most effective for light atoms such as hydrogen. Lighter isotopes tend to react or evaporate more quickly than heavy isotopes, allowing them to be separated. This is how heavy water is produced commercially.

Gravity

Isotopes of carbon, oxygen, and nitrogen can be purified by chilling these gases or compounds nearly to their liquefaction temperature in very tall (200 to 700 feet (61 to 213 m)) columns. The heavier isotopes sink and the lighter isotopes rise, where they are easily collected.

The Aerodynamic Separation Process (ASP) Technology

ASP technology is proprietary technology licensed from Klydon which succeeds earlier work, first detailed in the scientific media in the mid-1970s, relating to an industrial scale enrichment plant for uranium that was constructed utilizing the so-called “stationary-wall centrifuge”. The original technology was highly energy consuming and was not able to compete on an economic basis with other methods of isotope separation. The innovative development of the ASP technology over the past 18 years has culminated in a more advanced separation device that we believe can compete on a commercial scale with other methods of isotope separation. The ASP separation device separates both gas species and isotopes in a volatile state via an approximate flow pattern as shown below.



Gas flow pattern inside ASP separation device.

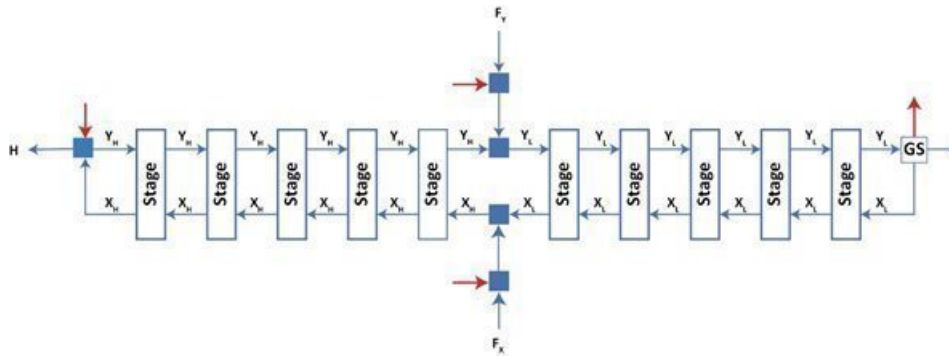
The ASP enrichment process uses an aerodynamic technique similar to a stationary wall centrifuge. The isotope material in raw gas form enters the stationary tube at high speed by tangential injection through finely placed and sized openings in the surface of the tube. The gas then follows a flow pattern that results in two gas vortexes occurring around the geometrical axis of the separator. The isotope material becomes separated in the radial dimension as a result of the spin speed of the isotope material reaching several hundred meters per second. An axial mass flow component in each tube feeds isotope material to the respective ends of the separator where the collection of the portions of isotope material is accomplished.

The advantages of ASP technology are as follows:

- No moving parts, with low capital and operating costs in comparison to alternatives.
- Compact in size and weight.
- Easily scaled to industrial level with number of separation devices added in parallel.
- The separation process occurs inside a closed cylindrical container and is a volume technology, i.e., the process efficiency is not affected by poisoning of surface contaminates as is the case for surface separation processes.
- ASP operates very efficiently at molecular masses below 100 atomic mass units, unlike other separation processes which are more efficient higher masses, which ASP can achieve equally well or to a superior degree.
- ASP easily separates hydrogen gas from other gas components, e.g., harvesting hydrogen gas from carbon monoxide and carbon dioxide and altering the ratio of syngas mixture.
- With the right material choice ASP handles even the most corrosive gases.
- ASP can separate any isotopes that have a gaseous or volatile chemical compound.
- Most of the subsystems are procured from off-the-shelf components.
- An ASP plant can be constructed in any country that adheres to the International Atomic Energy Agency (IAEA) protocols for the protection of dual use technology.

ASP Plant Configuration

The figure below shows a schematic of an ASP cascade in operation. The cascade consists of several enrichment stages, connected in a 1-up-1-down cascade configuration. The stages can be grouped into segments. (This method of organizing stages is not reflected in the figure)



The bold blue arrows represent flows of the element into and out of the cascade:

- H is the product, enriched in the isotope
- L is the tails, stripped of the isotope
- $F = F_x + F_y$ is the feed stream at natural isotopic composition:
- F_x is the feed into the product stream of an adjoining stage.
- F_y is the feed into the tails stream of an adjoin

Each stage in the cascade is operated in one of two configurations:

- (1) A net backward flow of the isotope: $X_i > Y_i$. These stages are referred to as “product”, situated in the so-called “product cascade section”, and their flows are marked with an “H” subscript.
- (2) A net forward flow of isotope: $X_i < Y_i$. These stages are referred to as “tails”, situated in the so-called “tails cascade section”, and their flows are marked with an “L” subscript.

The red arrows represent the addition or extraction of carrier gas from the process. The arrows have been added for clarity and orientation, but the mass flows of the carrier gas will be ignored in the rest of the discussion as it pertains to the isotope mass flows only (as represented by the blue arrows). The carrier gas mass flows can be superimposed on any isotope mass balance using the molar mass characteristics of the ASP stages (see below).

The block marked “GS” represents the gas separator: a piece of equipment used to separate the carrier gas from the element of interest to the degree necessary to provide a suitable reflux stream to the tails cascade section.

The blue squares are simply suitable areas where streams can be split or mixed.

An ASP stage is characterized by functions of Y , the flow of isotope in its tails stream. The characteristics of interest are:

- $\alpha(Y)$: the separation factor between the tails and product streams.
- $MY(Y)$: the molar mass of the tails stream.
- $MX(Y)$: the molar mass of the product stream.
- $P(Y)$: the stage’s power usage.
- $X(\theta, Y)$: the flow of Zinc in the product stream, where $\theta = Y/(X+Y)$ is the cut defined in terms of isotope flows.

Note the following:

- α is the ratio of the tails and product stream abundance ratios.
- Y , $X(\theta, Y)$ and $\alpha(Y)$ describe the stage’s behaviour with regards to Zinc, while $MY(Y)$ and $MX(Y)$ defines its behaviour with regards to the carrier gas.
- P , the stage’s power usage, depends on the ASP separator, but also on factors such as compressor efficiency, friction losses etc. It is therefore a partial function of stage design.
- It is possible to define P_{min} , the theoretical minimum energy usage of a stage, by assuming 100% efficient compressors and no losses in the stage. P_{min} is a function of the ASP separator only. In practice P is a more useful metric, as the contribution of compressor inefficiencies to power consumption is significant.
- Except for X , the stage’s characteristics are not defined in terms of the cut θ , as they are simply not sensitive to it above a certain lower limit θ_{min} . In practice θ_{min} is small enough that it has no influence on the normal operating envelope of the stage.
- X is per definition a function of Y via θ as indicated.

The cut of an ASP stage can be dynamically adjusted to any value larger than θ_{min} , allowing its operating point to be changed online during production.

All stages in the product cascade section are operated at the same point $\langle XH, YH \rangle$, where $XH > YH$, ensuring that a net backward flow of the process element, $H = XH - YH$ is achieved. This corresponds to a cut of less than 50% and ensures a positive flow of enriched product.

All stages in the tails cascade section are operated at the same point $\langle XL, YL \rangle$, where $XL < YL$, ensuring that a net backward flow of the process element, $L = XL - YL$ is achieved. This corresponds to a cut of more than 50% and ensures a positive flow of stripped tails.

Depending on the production requirements of the cascade the product and tails section operation points can be moved relative to each other during production, obtaining different combinations of H and L (and therefore different feeds $F = H + L$). The smaller H (or L) is chosen, the closer the product (or tails) section cut moves to 50%. If all stages are operated at a cut of 50%, the cascade is operated at full reflux, no product, tails, or feed streams are present, and the maximum process element concentration gradient will exist.

ASP Technology In Use

To date, the scientists at Klydon have constructed two ASP plants for the enrichment of oxygen-18 and silicon-28 in Pretoria, South Africa, which were commissioned in October 2015 and July 2018, respectively, and remain fully operational. We believe the success of the enrichment of oxygen-18 and silicon-28 has demonstrated the efficacy and commercial scalability of the ASP technology. We are currently constructing two enrichment plants, which, if successful, will be able to produce C-14, Mo-100 and/or Si-28.

Nuclear Medicine

Nuclear medicine is a medical specialty that utilizes radioactive isotopes, referred to as radionuclides, to diagnose and treat disease. These radionuclides are incorporated into radiopharmaceuticals and introduced into the body by injection, swallowing, or inhalation. Physiologic/metabolic processes in the body concentrate the tracers in specific tissues and organs; the radioactive emissions from the tracers can be used to noninvasively image these processes or kill cells in regions where radionuclides have concentrated.

Other types of noninvasive diagnostic procedures — for example, computed tomography (CT) and magnetic resonance imaging (MRI) — can detect anatomical changes in tissues and organs as the result of disease. Nuclear medicine procedures can often detect the physiological and metabolic changes associated with disease before any anatomical changes occur. Such procedures can be used to identify disease at early stages and evaluate patients' early responses to therapeutic interventions.

Single Photon Emission Computed Tomography (SPECT) generates three-dimensional (3D) images of tissues and organs using radionuclides that emit gamma rays; the most used radionuclide is Technetium-99m (Tc-99m), often referred to as the 'work-horse' of nuclear medicine. Individual gamma rays emitted from the decay of these radionuclides (i.e., single photon emissions) are detected using a gamma camera. This camera technology is used to obtain two-dimensional (2D) images; 3D SPECT images are computer generated from many 2D images recorded at different angles.

Positron Emission Tomography (PET) generates 3D images of tissues and organs using tracers that emit positrons (i.e., positive electrons): for example, fluorine-18 (F-18). Annihilation reactions between the positrons from these radionuclides and electrons present in tissues and organs produce photons. (Two photons are emitted simultaneously for each annihilation reaction and essentially travel in opposite directions.) The photon pairs are detected with a camera having a ring of very fast detectors and electronics. PET images generally have a higher contrast and spatial resolution than do SPECT images. However, PET equipment is more expensive and therefore not as widely available as SPECT equipment. Additionally, most PET tracers have short half-lives (e.g., nitrogen-13 (N-13): 10 minutes, carbon-11 (C-11): 20 minutes, and F-18: 110 minutes), so they must be produced close to their point of use.

Technetium-99m (Tc-99m)—the most widely used radioisotope in Nuclear Imaging

Tc-99m is used in approximately 80 percent of all nuclear medicine procedures performed worldwide each year.

Tc-99m is a particularly useful imaging radionuclide because it:

- Has a sufficiently long half-life (~6 hours) to be usable in nuclear medicine procedures.
- Emits energetic gamma rays (140 kiloelectron volts [keV]) that can be detected efficiently with widely available camera technologies.
- Provides low patient doses for some procedures because of its short half-life and lack of alpha or beta radiations.

Tc-99m-based radiopharmaceuticals are used to diagnose disease in many tissue and organ systems, including bone, brain, heart, kidneys, liver, and lungs. About 50 percent of Tc-99m utilization in the United States is in nuclear cardiology, predominantly for myocardial perfusion imaging which images blood flow through heart muscle.

Because Tc-99m has a half life of just 6 hours, it cannot be stored or shipped long distances and it is currently produced using a technetium generator, which contains Molybdenum-99 which has a half-life of about 66-hours. In the reactor, Mo-99 decays to Tc-99m by emitting a beta particle (an electron). About 88 percent of the decays produce Tc-99m, which subsequently decays to the ground state, Tc-99g, by emitting a gamma ray. About 12 percent of the decays produce Tc-99g directly. Tc-99g decays to stable (i.e., nonradioactive) ruthenium-99 (Ru-99) after emitting a beta particle.

Technetium generators are systems that store Mo-99 and allow its decay product, Tc-99m, to be recovered for use. Most technetium generators are designed to be used with high-specific-activity Mo-99 (>1,000 Ci/g) produced by U-235 fission. The generator consists of an alumina (Al₂O₃) column having the diameter of a large pencil along with associated filters and tubing for obtaining Tc-99m

This apparatus is installed into radiation-shielded packages for shipment to Tc-99m suppliers. The generator includes both the package and its contained apparatus. Technetium generators can contain from 1 to 19 Ci of Mo-99, matched to address the needs and workloads of Tc-99m suppliers

It takes 18-24 hours to prepare technetium generators for shipment. Preparation involves loading the molybdate solution onto the columns and sterilizing them; installing the columns, tubing, and filters into the shielded generator package; and packaging the generators for shipment. Tc-99m generators are typically shipped to Tc-99m suppliers within a day of their manufacture. Generators are shipped in regulatory-compliant boxes. The delivery methods can be air, ground, or a combination of both depending on customer location and contracted transportation network.

Quantum computers are expected to be thousands or millions of times more powerful than the most advanced of today's conventional computers, opening new frontiers and opportunities in many industries, including medicine, artificial intelligence, cybersecurity, global logistics and global financial systems. Many countries around the world are investing heavily in the development of quantum computing technology, with governments and key corporates (such as Intel, IBM, Google, Microsoft and others) vying for leadership in this emerging strategic industry.

ASP Technology for Carbon-14 Enrichment

C-14 is a radioactive isotope of carbon with a half life of 5,700 years that has a natural abundance of 1 part per trillion. The different isotopes of carbon do not differ appreciably in their chemical properties. This resemblance is used in chemical and biological research, in a technique called carbon labelling: carbon-14 atoms can be used to replace nonradioactive carbon, in order to trace chemical and biochemical reactions involving carbon atoms from any given organic compound.

Carbon-14 is produced as a waste product in certain nuclear reactors. In September 2022, we entered into an MOU with a potential Canadian Customer that provides consulting services to many nuclear reactors in North America. Under the terms of the MOU, it is anticipated that the customer will supply C-14 already enriched to at least 0.5%, which it sources from the waste products of nuclear reactors. We will enrich the C-14 to an abundance of over 85%.

The Mo-99 Market

The global medical community depends on a reliable supply of the radioisotope Mo-99 for nuclear medical diagnostic procedures. As previously described, Mo-99's decay product, technetium-99m (Tc-99m), is used in over 40,000 medical procedures in the United States each day to diagnose heart disease and cancer, to study organ structure and function, and to perform other important medical applications.

In 2020, it is estimated (by Future Market Insights Inc, a global market research firm), that the Molybdenum 99 market generated revenues of approximately \$3.8 billion. North America accounted for almost half of the Mo-99 demand. Approximately 62% of Mo-99 was used in hospitals while approximately 38% of Mo-99 use was in diagnostic centers.

The Mo-99 Supply Chain

The global Mo-99 supply chain is inherently fragile. The fragility stems primarily from two factors:

1. Mo-99 and its daughter isotope Tc-99m have short half-lives (66 and 6 hours, respectively) and therefore cannot be stockpiled. These radioisotopes need to be produced and delivered to the supply chain on a weekly or more frequent basis.
2. Global supply of Mo-99 currently relies on a small number of aging reactors worldwide and a small number of suppliers.

The current Mo-99 supply chain is also lengthy and prone to interruption throughout its course.

Recent Government Efforts to Increase Mo-99 Availability

Given the regular supply side shortages in the Mo-99 market, and widely anticipated shutdown of many of the current reactors, there is considerable focus on alternative methods of Tc-99m production. In 2012, Congress passed the American Medical Isotopes Production Act (AMIPA), which directed the National Nuclear Security Administration (NNSA) to establish a technology-neutral program to support the establishment of domestic supplies of Mo-99 without the use of HEU. NNSA has implemented this by competitively awarding 50%/50% cost-shared cooperative agreements to commercial entities and providing funds to the Department of Energy's (DOE) National Laboratories to support development of non-HEU Mo-99 production technologies.

NNSA currently manages cooperative agreements with three U.S. companies, all developing diverse Mo-99 production technologies:

- NorthStar Medical Radioisotopes, LLC (Beloit, Wisconsin)
- Neutron capture technology using molybdenum-98 targets
- Accelerator-based technology using molybdenum-100 targets
- SHINE Technologies, LLC (Janesville, Wisconsin)
- Accelerator with fission technology to produce Mo-99 with an LEU solution target
- Niowave, Inc. (Lansing, Michigan)
- Superconducting electron linear accelerator with fission technology to produce Mo-99 with LEU targets

Mo-100 as an Alternative Intermediate to Produce Mo-99 and Tc-99m

Mo-100 is a stable isotope of molybdenum that does not decay. Naturally occurring molybdenum contains approximately 9.74% molybdenum-100. When highly enriched so that the Molybdenum contains >95% of the Mo-100 isotope, it can be used to produce either Mo-99 or Tc-99 via either photon-induced transmutation of Mo-100 into Mo-99 or via proton bombardment of Mo-100 into Tc-99m. The use of particle accelerators for the production of Mo-99 and direct production of Tc-99m has been studied extensively and the use of a particle accelerator conveys certain advantages and disadvantages. Accelerators produce ion beams and accelerate ions to higher energies by using oscillating electromagnetic fields. The accelerated particle beams have the capability of irradiating specific targets to produce Mo-99 and/or Tc-99m.

We intend to offer our Mo-100 to customers that may convert Mo-100 into Mo-99 or Mo-100 directly into Tc-99m. We believe that customers will be able to convert Mo-100 into Mo-99 using a cyclotron or a linear accelerator. The Mo-99 can then be converted into Tc-99m using a technetium generator. The technetium generators that are currently available will likely require some modifications in order to use the Mo-99 that has been produced via a cyclotron or a linear accelerator. These modifications will likely mean that new generator will require approval by healthcare regulators such as the Food and Drug Administration (FDA) in the United States and the European Medicines Agency (EMA) in Europe.

Customers may convert Mo-100 directly into Tc-99m using a cyclotron, which would eliminate the need for a technetium generator. To date, only one healthcare regulator (Health Canada) has approved the use of Tc-99m that has been directly produced from Mo-100 in a low powered cyclotron. We believe it is likely that healthcare regulators in other countries will also require clinical data to support the use of Tc-99m that is produced directly from Mo-100.

ASP Technology for Silicon-28 Enrichment

Si-28 is a stable isotope of silicon that does not decay. Isotopically enriched Si-28 is regarded as an ideal host material for semiconducting quantum computing due to the lack of Si-29 nuclear spins. The presence of Si-29 in concentrations above 500 parts per million (ppm) (0.05%) prevents effective performance. The lower the concentration of Si-29, the better a silicon quantum processor will perform in terms of computational power, accuracy and reliability. Unlike traditional centrifuges, which are suited to enriching gases with a high molecular mass, ASP Technology is highly suited to of enriching gases with a low molecular mass such as silane (SiH₄).

Quantum computers are expected to be thousands or millions of times more powerful than the most advanced of today's conventional computers, opening new frontiers and opportunities in many industries, including medicine, artificial intelligence, cybersecurity, global logistics and global financial systems. Many countries around the world are under a "take or pay" agreement. The customer will be responsible for all non-enrichment activities and all marketing and sales of all finished product.

ASP Technology for Uranium Enrichment

We believe our ASP technology is also capable of enriching Uranium, which we may be able to commercialize as a nuclear fuel component for use in the new generation of HALEU-fuelled small modular reactors that are now under development for commercial and government uses.

Uranium is a naturally occurring element and is mined from deposits located in Kazakhstan, Canada, Australia, and several other countries including the United States. According to the World Nuclear Association ("WNA"), there are adequate measured resources of natural uranium to fuel nuclear power at current usage rates for about 90 years. In its natural state, uranium is principally comprised of two isotopes: uranium-235 ("U-235") and uranium-238 ("U-238"). The concentration of U-235 in natural uranium is only 0.711% by weight. Most commercial nuclear power reactors require LEU fuel with a U-235 concentration greater than natural uranium and up to 5% by weight. Future reactor designs currently under development will likely require higher U-235 concentration levels of up to 20%. Uranium enrichment is the process by which the concentration of U-235 is increased (see discussion on HALEU demand below).

Separative work units ("SWU") are a standard unit of measurement that represents the effort required to transform a given amount of natural uranium into two components: enriched uranium having a higher percentage of U-235 and depleted uranium having a lower percentage of U-235. The SWU contained in LEU is calculated using an industry standard formula based on the physics of enrichment. The amount of enrichment deemed to be contained in LEU under this formula is commonly referred to as its SWU component and the quantity of natural uranium deemed to be contained in LEU under this formula is referred to as its uranium or "feed" component. Currently, it is fairly common practice to purchase both the SWU and uranium components of LEU from the enrichment company. Therefore, LEU prices typically consist of two prices or components: SWU and uranium.

The following outlines the steps for converting natural uranium into LEU fuel, commonly known as the nuclear fuel cycle:

- **Mining and Milling.** Natural, or unenriched, uranium is removed from the earth in the form of ore and then crushed and concentrated.
- **Conversion.** Uranium ore concentrates ("UO") are combined with fluorine gas to produce uranium hexafluoride ("UF"), a solid at room temperature and a gas when heated. UF is shipped to an enrichment plant.
- **Enrichment.** UF is enriched in a process that increases the concentration of the U isotope in the UF from its natural state of 0.711% up to 5%, or LEU, which is usable as a fuel for current light water commercial nuclear power reactors. Future commercial reactor designs may use uranium enriched up to 20% U, or HALEU.
- **Fuel Fabrication.** LEU is then converted to uranium oxide and formed into small ceramic pellets by fabricators. The pellets are loaded into metal tubes that form fuel assemblies, which are shipped to nuclear power plants. As the advanced reactor market develops, HALEU may be converted to uranium oxide, metal, chloride or fluoride salts, or other forms and loaded into a variety of fuel assembly types optimized for the specific reactor design.
- **Nuclear Power Plant.** The fuel assemblies are loaded into nuclear reactors to create energy from a controlled chain reaction. Nuclear power plants generate approximately 20% of U.S. electricity and 10% of the world's electricity.
- **Used Fuel Storage.** After the nuclear fuel has been in a reactor for several years, its efficiency is reduced and the assembly is removed from the reactor's core. The used fuel is warm and radioactive and is kept in a deep pool of water for several years. Many utilities have elected to then move the used fuel into steel or concrete and steel casks for interim storage.

The World is Transitioning to Newer Smaller Reactors

As the world transitions to a decarbonized electric grid, society is gradually decreasing its reliance on fossil fuels and increasing its reliance on “clean energy”. There appears to be bipartisan support for the growth of nuclear energy and the Biden Administration has identified carbon-free nuclear power as an essential part of achieving a net-zero CO₂ economy by 2050. Nuclear power, through the operating light water reactor fleet and the deployment of advanced reactors, is poised to be an increasing contributor to carbon free energy in the U.S. and internationally. The United States leads the world in technology innovation with more developers of advanced reactors than any other country.

Small modular reactors (SMRs) are advanced nuclear reactors that have a power capacity of up to 300 MW(e) per unit, which is about one-third of the generating capacity of traditional nuclear power reactors. SMRs, which can produce a large amount of low-carbon electricity, are:

- **Small** — physically a fraction of the size of a conventional nuclear power reactor.
- **Modular** — making it possible for systems and components to be factory-assembled and transported as a unit to a location for installation.
- **Reactors** — harnessing nuclear fission to generate heat to produce energy.

Many of the benefits of SMRs are inherently linked to the nature of their design — small and modular. Given their smaller footprint, SMRs can be sited on locations not suitable for larger nuclear power plants. Prefabricated units of SMRs can be manufactured and then shipped and installed on site, making them more affordable to build than large power reactors, which are often custom designed for a particular location, sometimes leading to construction delays. SMRs offer savings in cost and construction time, and they can be deployed incrementally to match increasing energy demand.

In comparison to existing reactors, proposed SMR designs are generally simpler, and the safety concept for SMRs often relies more on passive systems and inherent safety characteristics of the reactor, such as low power and operating pressure. This means that in such cases no human intervention or external power or force is required to shut down systems, because passive systems rely on physical phenomena, such as natural circulation, convection, gravity and self-pressurization. These increased safety margins, in some cases, eliminate or significantly lower the potential for unsafe releases of radioactivity to the environment and the public in case of an accident.

SMRs have reduced fuel requirements. Power plants based on SMRs may require less frequent refueling, every 3 to 7 years, in comparison to between 1 and 2 years for conventional plants. Some SMRs are designed to operate for up to 30 years without refueling. SMRs are under construction or in the licensing stage in Argentina, Canada, China, Russia, South Korea and the United States of America.

Within the last five years significant legislation supporting the development and deployment of advanced reactors has been enacted: the Nuclear Innovation and Modernization Act, the Nuclear Energy Innovation and Capabilities Act, the Energy Act of 2020 and the Infrastructure Investment and Jobs Act. In addition, Congress established and funded the Advanced Reactor Demonstration Program which now supports two advanced reactor demonstrations to be deployed within seven years and eight other advanced reactor projects.

SMRs will require a different grade of enriched Uranium

Many advanced reactors, including the majority of the Advanced Reactor Demonstration Program awardees, will require High Assay Low Enriched Uranium (HALEU), and fuel forms very different from those manufactured for the current Light Water Reactors (LWRs). For example, the current generation of LWRs uses fuel enriched to less than 5% uranium-235. In contrast, many advanced non-LWR designs require enrichments between 5% and 20% with most above 10%.

Currently it is not possible to purchase HALEU between 10% and 20% from a commercial enricher in the United States. In the U.S., the infrastructure for the front-end of the fuel cycle for the utilization of low enriched uranium up to 5% U-235 is well defined. The U.S. has mining, conversion, enrichment, fabrication, and transportation capability. However, the infrastructure for producing and utilizing HALEU, in particular enrichments above 10%, is not established in the U.S. The mining and conversion infrastructure are common to all enrichment levels.

In 2020, the Department of Energy (DOE) selected two companies for awards under the Advanced Reactor Demonstration Program (ARDP) Pathway 1: Advanced Reactor Demonstrations. Both reactor designs require HALEU and can be operational in about seven years. Today, it is estimated that the companies selected for the demonstration pathway will require HALEU for their reactors beginning in 2024 to support fuel fabrication ahead of reactor startup. In addition, one of the companies under Pathway 2: Risk Reduction for Future Demonstrations will require HALEU in the 2024-2025 timeframe and other companies in Pathway 2 and 3 of the ARDP will also require HALEU. Privately funded companies are also working to deploy HALEU fueled reactors by the mid-2020s.

The Nuclear Energy Institute (NEI) believes that it is virtually impossible for HALEU to be provided to these companies in the needed quantities and timeframes from DOE inventories or commercial enrichers located in the U.S or Western Europe. Therefore, acquiring HALEU from other international suppliers will be required in the near term to support the larger goal of deploying advanced reactors in the U.S. in a timely manner. Deploying these reactors before 2030 will support climate goals and position the U.S. to be a strong exporter of advanced reactor technology. Per the recent NEI white paper, a robust domestic HALEU infrastructure is necessary to support both the domestic deployment of advanced reactors and the export of U.S. advanced reactor technologies requiring HALEU.

In a letter to the DOE captioned “Updated Need for High-Assay Low Enriched Uranium” dated December 20, 2021, the NEI provided an estimate of what U.S. HALEU demand may be during the next 15 years:

Estimated Annual Requirements for High Assay Low Enriched Uranium to 2035 (MTU/yr)

Company	A	B	C	D	E	F	G	H	I	J	Total	Cumulative
Year												
2022	0.1	0.4					0.2		1.1	0.0	1.8	1.8
2023	0.1	3.1							4.4	0.1	7.7	9.5
2024	1.0	5.6	0.2	3.0			1.5		6.6	0.1	18.0	27.5
2025	1.0	3.8	0.4	3.0		5.0			11.0	1.6	25.8	53.3
2026	1.0	15.1		4.9		10.0	2.0	24.2	13.2	1.7	72.1	125.4
2027	1.0	26.5		7.9			4.0	24.2	13.2	1.9	78.7	204.1
2028	1.0	37.8		16.6		13.0	23.0	24.2	13.2	2.0	130.8	334.9
2029	1.0	26.3	1.8	30.5	17.0	18.0	14.0	24.2	16.5	2.4	151.7	486.6
2030	1.0	34.4	1.8	40.4	46.0	18.0	30.0	24.2	16.5	2.7	215.0	701.6
2031	23.0	42.5	6.2	53.0	29.0	22.0	33.0	24.2	16.5	2.9	252.3	954.0
2032	35.0	52.9	12.5	67.6	46.0	40.0	50.0	48.4	19.8	3.1	375.3	1329.2
2033	47.0	63.5	32.2	82.1	46.0	32.0	80.0	48.4	19.8	3.2	454.2	1783.4
2034	58.0	76.1	62.4	96.7	46.0	36.0	80.0	48.4	19.8	3.7	527.1	2310.5
2035	70.0	90.9	96.	112.4	91.0	29.0	50.0	48.4	22.0	4.1	613.8	2924.3

Notes:

- The material needs listed above are in metric tons of uranium per year and are a small amount compared to the approximately 2000 MTU used annually by the existing fleet of reactors.
- The material needs listed above include enrichments between 10.9 and 19.75% U-235.
- The year the material is needed is for fuel fabrication. Insertion in the reactor and reactor operations will occur in a later year.
- The material needs that are less than 1 MTU/year are for irradiation samples, lead test rods and lead test fuel assemblies.
- The material needs represent a few scenarios
- The deployment of an advanced fuel design for the existing fleet of light-water reactors.
- The deployment of multiple reactors of the same design that will not require refueling for many years.
- The deployment of reactors that have annual refueling requirements.
- These reactors include a range of sizes from a few Megawatt electric to 100s of Megawatt electric.
- The data above does not include utilities that are considering enrichment between 5% and 10%.

ASP Technology is ideally suited to the production of HALEU

We believe that we are in a very different position to many of the entrenched domestic and international enrichers. Our innovative isotope enrichment process has a number of advantages over traditional gas centrifuges and other novel approaches currently being explored by other companies: cheaper in Capex, faster in construction, more flexible in design and location.

We estimate that the capital cost of constructing an ASP plant for uranium enrichment is approximately 75% cheaper than that of a traditional gas centrifuge enrichment facility. Our manufacturing plants are modular, so our construction time is likely faster and more flexible than competing technologies. Our enrichment facilities are smaller than traditional gas centrifuges which means we can place them near fuel fabrication facilities for enhanced security of production and transportation. Our operating costs of enriching uranium to 15.5% - 19.75% U-235 should be comparable to or cheaper than costs for other methods of uranium enrichment.

The table below compares the ASP process with a traditional gas centrifuge when applied to a 20 mT plant.

	ASP Plant	Gas Centrifuge
Separation mechanism	Stationary Wall Centrifuge	Differential diffusion
Capital Cost per plant	<\$150 million	>\$800 million
Energy use (kWh) per SWU	<500	50-240
Construction time	2-3 years	2-3 years
Levelized cost per SWU*	\$65	\$140

* for enrichment from 0.71% U235 to 5% U235

We are currently conducting a feasibility study with respect to constructing an enrichment facility in either the United States or an international location. Construction of a new ASP enrichment facility in US would be done in three phases. The first phase would involve the construction and validation of an ASP test bench, the engineering design of the first segment and obtaining required permits and licenses from regulators. Excluding the licensing process, we expect this phase would take approximately 9-12 months.

The second phase would involve the construction of the first segment and control systems for the plant and the engineering design of the additional stages. We expect this stage would take approximately 9-12 months, resulting in the plant capable of operating in a close-loop setup which would demonstrate enrichment and start to produce small quantities of enriched Uranium.

The third phase would involve the construction of the remaining segments that will complete the plant and the commissioning phase. We expect this phase would take approximately 20-30 months and the production volume would gradually ramp up to the final capacity of 20 metric tons per year. Importantly, subject to licensure, we can produce commercial quantities of HALEU by 2026 that would satisfy the anticipated demand from all the advanced reactor currently in development. We can supply HALEU at a price lower than the HALEU currently imported from international enrichers and considerably lower than any potential domestic supply that may evolve.

Much of the control systems, compressors and hardware used in a uranium enrichment plant would be similar to parts used to construct our Molybdenum plant in Pretoria. Our molybdenum plant uses molybdenum hexafluoride (MoF6) and a Uranium plant would use uranium hexafluoride (UF6).

Intellectual Property

Our business will depend on the proprietary ASP technology that we licensed from Klydon. To date, we and Klydon have relied exclusively on trade secrets and other intellectual property laws, non-disclosure agreements with our respective employees, consultants, vendors, potential customers and other relevant persons and other measures to protect our intellectual property, and intend to continue to rely on these and other means. As we intend to transition into the commercialization of isotopes, we envision our intellectual property and its security becoming more vital to our future. Pursuing patent protection remains part of the intellectual property protection philosophy and strategy and the advisability of establishing provisional patent rights is continuously assessed on a case-by-case basis in respect of both conceptual aspects and the specific applications thereof. Such assessments are made in consultation with regulatory bodies and with due consideration to the prospects of successfully obtaining patent protection in light of any disclosure constraints that are imposed by such bodies.

NMS Letter

On October 25, 2022, our outside counsel received a letter (the “NMS Letter”) from a law firm acting on behalf of Norsk Medisinsk Syklotronsenter AS (“NMS”), asserting, among other things, that the grant of a license to the ASP technology for the separation of isotopes of Molybdenum that have medical applications to ASP Isotopes Inc. by Klydon violates a pre-existing exclusive sub-license to the ASP technology granted to Radfarma, as more fully described below. NMS and ASP Isotopes had previously been briefly in discussions regarding a potential future collaboration on technology and product development. However, these preliminary discussions have not been active for several months, after death of a lead NMS scientist and ASPI decision to explore other options.

The NMS Letter makes reference to: (1) a license agreement entered into on October 25, 2013 by Klydon and API Labs Pharmaceuticals (Proprietary) Limited (“API Labs”) to license the ASP technology for enriching certain isotopes of the element Molybdenum (“2013 API Labs License”); and (2) an exclusive sub-license to the ASP technology granted on October 1, 2019 to Radfarma, as licensee, by API Labs and SaPhotonica Limited (“SaPhotonica”), as licensors (the “2019 Radfarma Sub-License”). The NMS Letter states that Radfarma is a joint venture that is 45% owned by NMS and 45% owned by SaPhotonica.

The NMS Letter asserts, among other things, that the grant of a license to the ASP technology to ASP Isotopes Inc. by Klydon violates a covenant in the 2019 Radfarma Sub-License that the licensors shall not be entitled, directly or indirectly, to use, grant or otherwise give the rights, or any similar rights, which were granted to Radfarma under the 2019 Radfarma Sub-License to any other person for use in the territory. The sub-license granted to Radfarma in the 2019 Radfarma Sub-License related to the use of intellectual property rights related to the ASP technology for the separation of isotopes of Molybdenum that have medical applications. “Territory” is defined in the 2019 Radfarma Sub-License as “the Kingdom of Norway for the construction of the 20-kilogram capacity plants; and *means the international market where distribution agreements can be produced.*” The NMS Letter asserts that while Klydon purported to give to ASP Isotopes Inc. a license to market the ASP technology globally, these rights were already granted to Radfarma.

The NMS Letter includes a request for ASP Isotopes Inc. to enter into discussions for an agreement with NMS based on terms proposed in previous correspondence from NMS. The previous correspondence from NMS included the following key prerequisites to a possible cooperation between NMS and ASP Isotopes Inc.: (1) NMS will be granted the right to set up an enrichment facility for a Mo-100 in Norway; (2) NMS will be granted the exclusive rights to sales, marketing, and distribution in Europe, while ASPI gets similar rights for the rest of the world; and (3) NMS will support the development of the Mo-100 target production and Mo-99 generator production and if required the sales operations of ASPI.

The NMS Letter does not include a threat of litigation against ASP Isotopes Inc. or any parties to the 2013 API Labs License or 2019 Radfarma Sub-License. However, if the licensed rights granted to us are found to be invalid or unenforceable (in whole or in part), or if our exclusive license agreement with Klydon is terminated or Klydon, as licensor, fails to abide by the terms of our exclusive license agreement, our ability to commercialize our future isotopes would suffer and our business, results of operations and financial condition may be adversely affected. If the prior sub-license granted to Radfarma is found to be valid, we would be required to cease using the ASP technology for the separation of isotopes of Molybdenum that have medical applications (unless we were able to obtain a license from Radfarma), and we would focus our business operations on the enrichment of isotopes other than Molybdenum. For example, instead of continuing to pursue the production of Molybdenum-100, we could focus on the production and commercialization of zinc, silicon and/or chlorine using the ASP technology. We expect that our Mo-100 plant in South Africa would need to be redesigned and retrofitted in order to produce other isotopes, which would take approximately six months and cost approximately \$1.0 million. See “Risk Factors — Risks Related to Our Intellectual Property” — “We have received a letter asserting that the license for the ASP technology granted to us from Klydon, which is critical to our business, may be invalid because these rights were already granted to a third party, Radfarma” and “Our license for the ASP technology with Klydon may be found to infringe third party intellectual property rights.”

Based on information currently available, and after consultation with legal counsel in South Africa, management believes that our exclusive license for the enrichment of Molybdenum-100 and all other isotopes from Klydon are valid and the company will vigorously defend its rights.

Regulatory Environment

We are subject to a variety of laws and regulations, including but not limited to those of the United States and South Africa, that impose regulatory systems that govern many aspects of our operations, including our research and development activities involving the enrichment of isotopes in South Africa. In addition, these jurisdictions impose trade controls requirements that restrict trade to comply with applicable export controls and economic sanctions laws and requirements, and legal requirements that are intended to curtail bribery and corruption.

There are a number of regulators and treaties that govern and control our business and industry. The two principal ones that control and regulate the manufacturing of isotopes at our isotope enrichment facility in South Africa are the International Atomic Energy Agency (IAEA) and the Nuclear Non-Proliferation Treaty (NPT).

The IAEA is an international organization that seeks to promote the peaceful use of nuclear energy, and to inhibit its use for any military purpose, including nuclear weapons. The IAEA was established as an autonomous organization on 29 July 1957. Though established independently of the United Nations through its own international treaty, the IAEA Statute, the IAEA reports to both the United Nations General Assembly and Security Council. The IAEA statute currently has 173 member states, including South Africa.

The IAEA is authorized to conclude agreements with member states, in terms of which agreements the agency would perform certain functions and the relevant member states would be placed under certain obligations. The IAEA has concluded an extensive suite of agreements with South Africa. These agreements can be viewed on the website of the IAEA (<https://www.iaea.org/resources/legal/country-factsheets>) and include agreements that govern the physical protection of nuclear material, the notification of nuclear accidents, assistance in the case of nuclear accidents, nuclear safety, civil liability, and technical cooperation.

The Treaty on the Non-Proliferation of Nuclear Weapons, commonly known as the Non-Proliferation Treaty or NPT, is an international treaty whose objective is to prevent the spread of nuclear weapons and weapons technology, to promote cooperation in the peaceful uses of nuclear energy, and to further the goal of achieving nuclear disarmament and general and complete disarmament. Our South African subsidiary is registered with the South African Council for the Non-Proliferation of Weapons of Mass Destruction in terms of the Non-Proliferation of Weapons of Mass Destruction Act, 1993. Our registration certificate is valid until September 3, 2023. Representatives from the South African Council for the Non-Proliferation of Weapons of Mass Destruction regularly inspect our facility and conduct tests to monitor the activities that are taking place at our facilities.

In South Africa, government Notice 493 relates to nuclear-related dual-use equipment, materials and software and related technologies which can be used in their entirety or in part for the separation of uranium isotopes. ASP is classified as a dual use technology under the protocols of the IAEA and, as such, is subject to the controls that are implemented under these protocols. These controls comprise requirements that include:

- membership of the IAEA and adherence to its protocols;
- membership of the Nuclear Suppliers Group (NSG) and adherence to its protocols;
- agreement to an “additional protocol” in light of uranium enrichment capabilities;
- local laws that require permits for possession, operation and commercialization and regular reporting;
- ad hoc inspections by the IAEA on 24 hour and in some cases 2 hours pre-warning;
- requirement for proposed patent applications to be approved at ministerial level; and
- cross-border technology transfer to be handled by the respective governments and approved by IAEA.

These regulations place strict limitations on what we can and cannot do. Security measures at our production facility and our offices are stringent. Access to our manufacturing plant is highly controlled. All employees and all visitors to the manufacturing plant are pre-screened by the South African Council for the Non-Proliferation of Weapons of Mass Destruction before being allowed employment or entry into the facility. Some of our suppliers also need to be registered with the South African Council for the Non-Proliferation of Weapons of Mass Destruction. Many of our computer systems are not connected to the external internet and confidential information is secured at a controlled location.

Currently, the production, distribution or sale of Mo-100 is not regulated by a healthcare regulator such as the Food and Drug Administration (FDA) in the USA, Health Canada in Canada, the European Medicines Agency in Europe and similar regulators in other countries. However, products that are produced from Mo-100 (such as Mo-99 and Tc-99m in a linear accelerator or cyclotron) are regulated by healthcare regulators and our customers are required to operate under the licensure of these healthcare regulators. Currently, the production and use of Tc-99m from Mo-100 in a cyclotron is only approved in one country (Canada).

Some of our future isotopes may also be regulated by healthcare regulators such as the Food and Drug Administration (FDA) in the USA, Health Canada in Canada, the European Medicines Agency in Europe and similar regulators in other countries.

U.S. laws restrict the ability of U.S. companies, U.S. citizens and U.S. permanent residents, or U.S. persons, from involvement in certain types of transactions with countries, businesses and individuals that have been targeted by U.S. economic sanctions. For example, U.S. persons are precluded from undertaking virtually any activity of any kind on the part of any U.S. person with regard to any potential or actual transactions involving Cuba, Iran and Sudan without the prior approval of the U.S. Department of Treasury's Office of Foreign Assets Control, or OFAC. OFAC also administers U.S. sanctions against a lengthy list of entities and individuals, wherever they may be located, that the United States considers to be closely associated with these sanctioned countries or that are considered terrorists or traffickers in either narcotics or weapons of mass destruction. Furthermore, U.S. economic sanctions forbid U.S. persons from circumventing direct U.S. restrictions or from facilitating transactions by non-U.S. persons if those activities are forbidden to U.S. persons. Penalties for violating provisions such as these can include significant civil and criminal fines, imprisonment and loss of tax credits or export privileges.

The Foreign Corrupt Practices Act of 1977, or the FCPA, as amended by the Omnibus Trade and Competitiveness Act of 1988 and the International Anti-Bribery and Fair Competition Act of 1998, makes it a criminal offense for a U.S. corporation or other U.S. domestic concern to make payments, gifts or give anything of value directly or indirectly to foreign officials for the purpose of obtaining or retaining business, or to obtain any other unfair or improper advantage. In addition, the FCPA imposes accounting standards and requirements on publicly traded U.S. corporations and their foreign affiliates, which are intended to prevent the diversion of corporate funds to the payment of bribes and other improper payments, and to prevent the establishment of "off books" slush funds from which such improper payments can be made. We are also subject to laws and regulations covering subject matter similar to that of the FCPA that have been enacted by countries outside of the United States. For example, the Convention on Combating Bribery of Foreign Public Officials in International Business Transactions was signed by the members of the Organization for Economic Cooperation and Development and certain other countries in December 1997. The Convention requires each signatory to enact legislation that prohibits local persons and firms from making payments to foreign officials for the purpose of obtaining business or securing other unfair advantages from foreign governments. Failure to comply with these laws could subject us to, among other things, penalties and legal expenses, which could harm our reputation and have a material adverse effect on our business, financial condition and results of operations.

Compliance with the myriad of export control laws of the various jurisdictions in which we do business is a challenge for any company involved in export activities within the nuclear and defense end markets. We have compliance systems in our U.S. and non-U.S. subsidiaries to identify those products and technologies that are subject to export control regulatory restrictions and, where required, we obtain authorization from relevant regulatory authorities for sales to foreign buyers or for technology transfers to foreign consultants, companies, universities or foreign national employees. We also have a compliance system that is intended to proactively address potential compliance issues including those related to export control, trade sanctions and embargoes, as well as anti-bribery situations, and we are implementing this through such mechanisms as training, formalizing contracting processes, performing diligence on agents and continuing to improve our record-keeping and auditing practices with respect to third-party relationships and otherwise. Thus far, as part of our compliance system, for instance, we have developed a Code of Ethics and Conduct that informs all of our employees of their compliance obligations. Furthermore, we have developed an ethics and conduct training program that all of our employees are required to undertake, as well as other targeted compliance training relevant to their position, such as specific FCPA training for all of our worldwide controllers. Violations of any of the various U.S. or non-U.S. export control laws can result in significant civil or criminal penalties, or even loss of export privileges, as mentioned above. We recognize that an effective compliance program can help protect the reputation and relationship of a regulated company with the regulatory agencies administering these laws and regulations. In the United States, each of the regulatory agencies administering these laws and regulations has a voluntary disclosure program that offers the possibility of significantly reduced penalties, if any are applicable, and we intend to use these programs as part of our overall compliance program, as necessary.

Employees

As of December 31, 2022, we employed four full-time employees. Presently, we employ 31 people on a full-time basis, 27 of whom work at our newly completed plant in South Africa. Of the total employees, 7 are in Research and Development, 15 are in construction and manufacturing and 5 are in general management. None of our employees are subject to collective bargaining agreements. We consider our relationship with our employees to be good.

Facilities

We lease our research and development facility in Pretoria, South Africa under a lease with a term expiring on December 31, 2030. We believe that our existing facilities are adequate to meet our current needs.

Legal Proceedings

We are currently not a party to any material legal proceedings.

MANAGEMENT

Set forth below is certain biographical and other information regarding our directors and our executive officers as of the date of this Prospectus.

Name	Age	Position(s)
Executive Officers		
Paul E. Mann	46	Chairman and Chief Executive Officer
Hendrik Strydom, Ph.D.	62	Chief Technology Officer and Director
Robert Ainscow	46	Interim Chief Financial Officer
Non-Employee Directors		
Joshua Donfeld	46	Director
Duncan Moore, Ph.D.	63	Director
Sergey Vasnetsov	58	Director
Todd Wider, M.D.	57	Director

The following are brief biographies describing the backgrounds of our executive officers and directors.

Executive Officers

Paul E. Mann co-founded our company in September 2021 and has served as our Chairman and Chief Executive Officer and a member of our board of directors since incorporation. Paul also served as our Chief Financial Officer until September 2022. Prior to ASP Isotopes, Paul was Chief Financial Officer of PolarityTE, Inc. (Nasdaq: PTE), a biotechnology company, from June 2018 until April 2020. Prior to that, he responsible for Healthcare investments at DSAM Partners LLC, a global hedge fund. Earlier in his career, he was a portfolio manager at Highbridge Capital where he managed investments in healthcare and biotechnology. Prior to Highbridge Capital, from August 2013 to March 2016, he worked at Soros Fund Management where he was responsible for billions of dollars of investments in healthcare and chemicals companies. During his career as a healthcare and chemicals investor, Paul has helped create and fund numerous early stage and start-up companies. Prior to moving to the buy-side, Paul spent 11 years as a sell-side analyst at Morgan Stanley and Deutsche Bank. He co-managed the healthcare research team at Morgan Stanley, one of the top ranked teams in Institutional Investor, Greenwich and Reuters. He was also corporate broker to over half the UK Pharmaceutical Companies. Paul started his career as a research scientist at Procter and Gamble and he is named as the inventor of numerous skin creams in the Oil of Olay range of cosmetics. He is also a nonexecutive, independent director at Abeona Therapeutics (NASDAQ: ABEO), where he is the chair of the audit committee, and a director at Healthtech Solution Inc. (OTC: HLTT), where he is chairman of the board and serves on the audit committee. He is the co-founder and Chairman of Varian Biopharma, a private biotechnology company focused on precision oncology. Paul has an MA (Cantab) and an MEng from Cambridge University, UK where he studied Natural Sciences and Chemical Engineering and he is a CFA charter holder.

We believe Mr. Mann's detailed knowledge and unique perspective and insights as our founder and Chief Executive Officer, as well as his prior experience as Chief Financial Officer of another public company and extensive experience managing investments in healthcare, biotechnology and chemicals companies, qualify him to serve on our board of directors and position him well to serve as our Chairman.

Robert Ainscow co-founded our company in September 2021 and served as our VP and Head of Business Development until September 2022 when he was appointed Interim Chief Financial Officer. Prior to ASP Isotopes, Robert was head of capital markets at Zenic Partners Limited from October 2017 to February 2021 and a founder of Bluezest Mortgages since November 2015. Robert has over 20 years' experience in financing operating companies and lending platforms through the provision of structured finance and securitisation structures in the debt capital markets. He has developed, executed and managed innovative structures to fund credit, renewable energy and transport and logistics assets encompassing all major financial jurisdictions, on and offshore. Robert began his career at the first ever internet-bank, First-E; in the investment banking division, WIT-Soundview. Following the ".com" correction he entered mainstream investment banking at U.S. firms Morgan Stanley and Bear Stearns in London where he was an analyst in the Law Division with responsibility for capital markets oversight and a Vice President in the Principal and Asset-Backed Finance Group with responsibility for securitisation respectively. He subsequently worked at Investec bank twice over the subsequent years as well as a variety of directorships, consultancies and investments in start-up and growth phase lending and securitisation platforms.

Hendrik Strydom, Ph.D. has served as our Chief Technology Officer since January 2022 and has served on our board of directors since January 2022. Dr. Strydom co-developed the isotope separation technology, known as “Aerodynamic Separation Process” (ASP). In 1993 Dr. Strydom co-founded SDI Ltd (now named Klydon), a research and development company which developed the ASP. Klydon, where Dr. Strydom currently serves as CEO, successfully exploited the ASP technology by separating Silicon (Si28), Carbon (C13 & C14), Oxygen (O-18) and Molybdenum (Mo-100). Since the commencement of commercial operation of the O-18 plant over 3 years ago, Klydon continues to sell O-18 into the South African radio pharmacy market. Dr. Strydom’s work on separation of isotopes started when he was employed as a scientist at the South African Atomic Energy Corporation (AEC), where he specialized in the laser separation of heavy isotopes. Dr. Strydom left AEC in 1993 to co-found Klydon. Dr. Strydom holds a BSc- Hons (Physics & Maths) (1983) — University of Pretoria, MSc (Physics) (1990) — University of Port Elizabeth, PhD (Physics) (2000) — University of Natal (Durban).

As the founder and CEO of Klydon, Dr. Strydom brings to the Board his detailed knowledge and unique perspective and insights regarding the strategic and operational opportunities and challenges, economic and industry trends, and competitive and financial positioning of our business.

Non-Employee Directors

Joshua Donfeld has served on our board of directors since October 2021. Joshua was most recently (May 2016–October 2020) a co-founding and co-managing partner of Castle Hook Partners, a New York-based investment management fund. At Castle Hook, among other responsibilities, he was responsible for overseeing the fund’s equity investments in sectors such as healthcare and natural resources. Prior to Castle Hook, Mr. Donfeld was a portfolio manager at Soros Fund Management from May 2012–April 2016. At Soros he was responsible for managing a portfolio of assets across public and private investments in industries spanning Energy, Utilities, Materials, Industrials, Healthcare, Consumer, Infrastructure and Technology. Prior to Soros Joshua was a Managing Director at Canyon Partners in Los Angeles where he was responsible for the firm’s Energy and Utilities investments in credit, distressed and equities. Mr. Donfeld has extensive experience in early-stage investing and he has extensive experience in capital markets, capital structuring, business planning, strategic planning, Wall Street management, corporate finance and accounting. Mr. Donfeld graduated Magna Cum Laude from Princeton University with a BA in Economics and a focus on Chinese language/East Asian Studies.

The Board believes that Mr. Donfeld’s significant financial expertise and experience contribute to the Board’s understanding and ability to analyze complex issues, particularly as the Company looks to grow its business, and qualify him to serve on our board of directors.

Duncan Moore, Ph.D. has served on our board of directors since October 2021. Duncan is a partner at East West Capital Partners since May 2008, which has a focus on making investments in the Healthcare Industry in Asia. Previously, from 1991 to 2008, Dr. Moore was a top-ranked pharmaceutical analyst at Morgan Stanley leading the firm’s global healthcare equity research team. Whilst at the University of Cambridge, he co-founded a medical diagnostics company called Ultra Clone with two colleagues which led to the beginnings of a 20-year career in healthcare capital markets analysis. In 1986, he was involved in setting up the BankInvest biotechnology funds and was on its scientific advisory board. Dr. Moore was educated in Edinburgh and went to the University of Leeds where he studied Biochemistry and Microbiology. He has a M.Phil. and Ph.D. from the University of Cambridge where he was also a post-doctoral research fellow. Currently, he is an active investor in biomedical companies as Chairman of Lamellar Biomedical and Allarity Therapeutics A/S (previously Oncology Venture A/S). In addition, he has a board position at Forward Pharma A/S, Cycle Pharma and GH Research. Duncan is the Chairman of the Scottish Life Sciences Association.

We believe that the experience, insights and knowledge Dr. Moore possesses from his leadership roles in business activities are important qualifications, skills and experience that provide valuable assistance to the Board and greatly contribute to the overall knowledge of the Board and its ability to address the issues we confront.

Sergey Vasnetsov has served on our board of directors since October 2021. Sergey has a long history in the chemicals industry as both a senior executive and as an investor. Since June 2016 he has been is the founder and managing partner of ChemBridges LLC, a strategy consulting firm for chemicals companies. From August 2010 to May 2016 Sergey was Senior Vice President Strategic Planning and Transactions and a member of the Executive Leadership Team for LyondellBasell (NYSE: LYB). His responsibilities included long-range financial and strategic planning, capital investments, external and internal benchmarking, cost reduction and profit enhancement programs. Prior to joining LyondellBasell, Sergey was Managing Director, Head of Global Chemicals Equity Research at Barclays Capital and Lehman Brothers. Sergey started his career as a Senior Research Chemist in Catalyst R&D at Union Carbide where he was the author of 8 US and World patents. Sergey has a Master of Science in Catalysis from the University of Novosibirsk, Russia. He was a George Soros Scholar at Oxford University (UK) and later earned an MBA in finance from Rutgers University.

We believe Mr. Vasnetsov's experience and knowledge in the chemicals industry, acquisitions and general business matters, and his demonstrated leadership roles in other business activities are important qualifications, skills and experience that benefits the Board.

Todd Wider, M.D. has served on our board of directors since October 2021. Dr. Wider is the Executive Chairman and Chief Medical Officer of Emendo Biotherapeutics, which focuses on highly specific and differentiated next generation gene editing. Dr. Wider served on the board of directors of ARYA Sciences Acquisition Corp I, which had a successful business combination with Immatics N.V. (IMTX) in 2020. He served on the board of ARYA Sciences Acquisition Corp II, which had a successful business combination with Nautilus Biotechnology (NAUT) in 2021. He also served on the board of ARYA III, which had a successful business combination with Cerevel Therapeutics (CERE) in 2021. He is also on the boards of ARYA Sciences Acquisition Corp IV and V (ARYD and ARYE), Abeona Therapeutics Inc. (Nasdaq: ABEO), Varian Biopharma, Xanadu Bio, and Lyfebulb. Dr. Wider previously consulted with a number of entities in the biotechnology space. Dr. Wider is an active, honorary member of the medical staff of Mount Sinai Hospital in New York, where he worked for over 20 years, focused on reconstructive surgery. Dr. Wider received an MD from Columbia College of Physicians and Surgeons, where he was Rudin Fellow, and an AB, with high honors and Phi Beta Kappa, from Princeton University. He did his residency in general surgery and plastic and reconstructive surgery at Columbia Presbyterian Medical Center, and postdoctoral fellowships in complex reconstructive surgery at Memorial Sloan Kettering Cancer Center, where he was Chief Microsurgery Fellow, and in craniofacial surgery at the University of Miami. Dr. Wider is also a principal in Wider Film Projects, a documentary film company focused on producing films with sociopolitical resonance that have won Academy, Emmy and Peabody Awards.

We believe Dr. Wider, as a result of his vast public and private company board experience at a variety of companies, possesses knowledge and experience in various areas, including business leadership, finance and technology, which strengthens the Board's overall knowledge, capabilities and experience.

Board Composition

Our bylaws provide that our board of directors shall initially consist of six members, and thereafter shall be fixed from time to time by resolution of our board of directors. Currently our board of directors consists of six members: Paul Mann, Joshua Donfeld, Duncan Moore, Hendrik Strydom, Sergey Vasnetsov and Todd Wider.

In accordance with our Certificate of Incorporation, our board of directors are divided into three classes with staggered three-year terms. At each annual meeting of stockholders after the initial classification, the successors to the directors whose terms will then expire and will be elected to serve from the time of election and qualification until the third annual meeting following their election. Our directors will be divided among the three classes as follows:

- the Class I directors will be Paul Mann and Joshua Donfeld, and their terms will expire at the annual meeting of stockholders to be held in 2023;
- the Class II directors will be Sergey Vasnetsov and Duncan Moore, and their terms will expire at the annual meeting of stockholders to be held in 2024; and
- the Class III directors will be Hendrik Strydom and Todd Wider, and their terms will expire at the annual meeting of stockholders to be held in 2025.

Any increase or decrease in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors. This classification of our board of directors may have the effect of delaying or preventing changes in control of our company.

Our board of directors has determined that Donfeld, Moore and Wider are independent directors. In making this determination, our board of directors applied the standards set forth in the rules of Nasdaq and in Rule 10A-3 under the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Our board of directors considered all relevant facts and circumstances known to it in evaluating the independence of these directors, including their current and historical employment, any compensation we have given to them, any transactions we have with them, their beneficial ownership of our capital stock, their ability to exert control over us, all other material relationships they have had with us and the same facts with respect to their immediate family. We intend to rely on a phase-in period under these rules applicable to newly public companies, which will permit fewer than a majority of our board of directors to be independent on the listing date of our Common Stock, provided we satisfy such requirement within one year of the date of listing. Accordingly, we intend to have a majority of our board of directors consist of independent directors within one year of the date our Common Stock is listed on The Nasdaq Capital Market.

Although there is no specific policy regarding diversity in identifying director nominees, both the Nominating and Corporate Governance Committee and the board of directors seek the talents and backgrounds that would be most helpful to us in selecting director nominees. In particular, the Nominating and Corporate Governance Committee, when recommending director candidates to the full board of directors nomination, may consider whether a director candidate, if elected, assists in achieving a mix of board of directors members that represents a diversity of background and experience.

Board Leadership Structure

Our board of directors recognizes that one of its key responsibilities is to evaluate and determine its optimal leadership structure so as to provide effective oversight of management. Our bylaws and corporate governance guidelines, will provide our board of directors with flexibility to combine or separate the positions of Chairman of the Board and Chief Executive Officer. Our board of directors currently believes that our existing leadership structure, under which Paul E. Mann serves as our chief executive officer, is effective, provides the appropriate balance of authority between independent and non-independent directors, and achieves the optimal governance model for us and for our stockholders.

Board Oversight of Risk

Although management is responsible for the day-to-day management of the risks our company faces, our board of directors and its committees take an active role in overseeing management of our risks and have the ultimate responsibility for the oversight of risk management. The board of directors regularly reviews information regarding our operational, financial, legal and strategic risks. Specifically, senior management attends quarterly meetings of the board of directors, provides presentations on operations including significant risks, and is available to address any questions or concerns raised by our board of directors.

In addition, we expect that our three committees will assist the board of directors in fulfilling its oversight responsibilities regarding risk. The Audit Committee will coordinate the Board of Director’s oversight of our internal control over financial reporting, disclosure controls and procedures, related party transactions and code of conduct and management will regularly report to the Audit Committee on these areas. The Compensation Committee will assist the board of directors in fulfilling its oversight responsibilities with respect to the management of risks arising from our compensation policies and programs. The Nominating and Corporate Governance Committee will assist the board of directors in fulfilling its oversight responsibilities with respect to the management of risks associated with board organization, membership and structure, succession planning for our management and directors and corporate governance. When any of the committees receives a report related to material risk oversight, the chairman of the relevant committee will report on the discussion to the full board of directors.

Code of Business Conduct and Ethics

We have adopted a written code of business conduct, that applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. A current copy of the code is posted on the Investor Relations section of our website at www.aspisotopes.com. The information contained on our website is not part of this prospectus. If we make any substantive amendments to, or grant any waivers from, the code of business conduct and ethics for any officer or director, we will disclose the nature of such amendment or waiver on our website or in a current report on Form 8-K within four business days of such amendment or waiver.

Board Committees

Our board of directors has established an audit committee, or the Audit Committee, a compensation committee, or the Compensation Committee, and a nominating and corporate governance committee, or the Nominating and Corporate Governance Committee. Our board of directors may also establish other committees from time to time to assist the board of directors. The composition and functioning of all of our committees will comply with all applicable requirements of the Sarbanes-Oxley Act and Nasdaq and SEC rules and regulations. Each committee's charter is available on our website at www.aspisotopes.com.

Audit Committee

The members of our Audit Committee are Todd Wider, Joshua Donfeld and Duncan Moore, with Mr. Wider serving as chair. Our board of directors has determined that each member of the Audit Committee is "independent" as that term is defined in the SEC and Nasdaq rules, meets the heightened independence requirements for audit committees required under Section 10A of the Exchange Act and related SEC and Nasdaq rules, and has sufficient knowledge in financial and auditing matters to serve on the Audit Committee. Our board of directors has designated Mr. Donfeld as an "audit committee financial expert," as defined under the applicable rules of the SEC. The audit committee's responsibilities include:

- appointing, approving the compensation of and assessing the independence of our independent registered public accounting firm;
- pre-approving auditing and permissible non-audit services, and the terms of such services, to be provided by our independent registered public accounting firm;
- reviewing the overall audit plan with our independent registered public accounting firm and members of management responsible for preparing our financial statements;
- reviewing and discussing with management and our independent registered public accounting firm our annual and quarterly financial statements and related disclosures as well as critical accounting policies and practices used by us;
- coordinating the oversight and reviewing the adequacy of our internal control over financial reporting;
- establishing policies and procedures for the receipt and retention of accounting-related complaints and concerns;
- recommending based upon the audit committee's review and discussions with management and our independent registered public accounting firm whether our audited financial statements should be included in our Annual Report on Form 10-K;
- monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to our financial statements and accounting matters;
- preparing the audit committee report required by SEC rules to be included in our annual proxy statement;
- reviewing all related person transactions for potential conflict of interest situations and approving all such transactions; and
- reviewing quarterly earnings releases.

Compensation Committee

The members of our Compensation Committee are Duncan Moore and Todd Wider with Mr. Moore serving as chair. Our board of directors has determined that each member of the Compensation Committee is "independent" as that term is defined in SEC and Nasdaq rules, meets the heightened independence requirements for compensation committee purposes under Section 10C of the Exchange Act and related SEC and Nasdaq rules, and is a "non-employee director" under Rule 16b-3 under the Exchange Act.

The compensation committee's responsibilities include:

- reviewing and approving our philosophy, policies and plans with respect to the compensation of our chief executive officer;
- making recommendations to our board of directors with respect to the compensation of our chief executive officer and our other executive officers;
- reviewing and assessing the independence of compensation advisors;
- overseeing and administering our equity incentive plans;
- reviewing and making recommendations to our board of directors with respect to director compensation; and
- preparing the Compensation Committee reports on executive compensation, including a "Compensation Discussion and Analysis" disclosure, for inclusion in the company's proxy statement for the annual meeting of shareholders, if and when applicable in accordance with rules and regulations of the SEC.

Nominating and Corporate Governance Committee

Joshua Donfeld, Duncan Moore and Sergey Vasnetsov serves on the Nominating and Corporate Governance Committee, chaired by Mr. Donfeld. We intend to rely on the phase-in rules of Nasdaq with respect to the requirement that the nominating and corporate governance committee be composed entirely of members of our board of directors who satisfy the standards of independence established for independent directors under the Nasdaq rules, as determined by our board of directors. Our board of directors has determined that Messrs. Donfeld and Moore are "independent" as defined in Nasdaq rules. The Nominating and Corporate Governance Committee's responsibilities include:

- developing and recommending to the board of directors' criteria for board and committee membership;
- establishing procedures for identifying and evaluating board of director candidates, including nominees recommended by stockholders;
- reviewing the composition of the board of directors to ensure that it is composed of members containing the appropriate skills and expertise to advise us;
- identifying and screening individuals qualified to become members of the board of directors;
- recommending to the board of directors the persons to be nominated for election as directors and to each of the board's committees;
- developing and recommending to the board of directors a code of business conduct and ethics; and
- overseeing the evaluation of our board of directors and management.

Compensation Committee Interlocks and Insider Participation

None of the members of our Compensation Committee has during the prior fiscal year been one of our officers or employees or had a relationship requiring disclosure under "Certain Relationships and Related Party Transactions." None of our executive officers currently serves, or in the past fiscal year has served, as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving on our board of directors or compensation committee.

EXECUTIVE COMPENSATION

Name and Principal Position		Salary (\$)	Bonus (\$)	Stock	Option	Non-Equity	All Other	Total (\$)
				Award (\$) ⁽⁴⁾	Awards (\$) ⁽⁴⁾	Plan	Compensation	
						(S)	(S)	
Paul Mann, Chairman and Chief Executive Officer ⁽¹⁾	2021	60,000		375,000				435,000
	2022	260,000		4,210,000	1,429,007			5,899,007
Hendrik Strydom, Ph.D., Chief Technology Officer ⁽²⁾	2021							
	2022	240,000		526,000	312,486			1,078,486
Robert Ainscow, Interim Chief Financial Officer ⁽³⁾	2021							
	2022	133,333		1,657,000	173,070			1,963,403

- (1) Mr. Mann served as our Chairman, Chief Executive Officer since September 2021. He also served as our Chief Financial Officer from September 2021 until September 2022.
- (2) Mr. Strydom served as our Chief Technology Officer since January 2022.
- (3) Mr. Ainscow served as our Interim Chief Financial Officer since September 2022.
- (4) In accordance with SEC rules, these columns reflect the aggregate grant date fair value of the restricted stock awards granted during 2022. This amount has been computed in accordance with Financial Accounting Standards Board (FASB), Accounting Standards Codification (ASC) Topic 718. Assumptions used in the calculation of this amount are described in Note 2 to our audited consolidated financial statements included elsewhere in this prospectus. This amount does not reflect the actual economic value that will be realized by Mr. Mann upon the vesting of the stock awards or the sale of the Common Stock underlying such awards.

Outstanding Equity Awards at Fiscal Year-End

The following table sets forth information regarding outstanding option awards held by our named executive officers as of December 31, 2022.

Name	Option Awards				Stock Awards	
	Number of Securities Underlying Unexercised Options Exercisable	Number of Securities Underlying Unexercised Options Unexercisable	Option Exercise Price	Option Expiration Date	Number of Shares of Stock that Have Not Vested	Market Value of Shares that Have Not Vested (7)
Paul Mann	194,444	1,021,556	\$ 2.00	(1)	3,500,000(2)	\$ 5,530,000
Hendrik Strydom, Ph.D.	51,528	213,472	\$ 2.00	(3)	200,000(4)	\$ 316,000
Robert Ainscow	88,750	208,250	\$ 2.00	(5)	650,000(6)	\$ 1,027,000

- (1) The amounts reported include 216,000 options granted on April 4, 2022, which vest on April 4, 2023 and expire on April 4, 2032, and 1,000,000 options granted on June 10, 2022, which vest monthly over three years and expire on June 10, 2032.
- (2) This amount reported reflects (i) 1,500,000 shares of performance-based restricted Common Stock granted by us to Mr. Mann in October 2021, which vest upon achieving certain performance conditions and market conditions upon the third anniversary of the date of grant, (ii) 1,000,000 restricted shares of Common Stock awarded by us to Mr. Mann on November 15, 2022 upon completion of our IPO, which vest annually over four years, and (iii) 1,000,000 restricted shares of our Common Stock awarded by us to Mr. Mann on December 30, 2022, which vest quarterly over one year.
- (3) The amounts reported include 265,000 options granted on June 10, 2022, which vest monthly over three years and expire on June 10, 2032.
- (4) The amount reported includes 200,000 restricted shares of Common Stock awarded by us to Mr. Strydom on November 15, 2022, upon completion of our IPO, which vest annually over two years.
- (5) The amounts reported include (i) 150,000 options granted in October 2021, which vest monthly over 36 months and expire on October 4, 2031, (ii) 12,000 options granted on April 4, 2022, which will vest on April 4, 2023 and expire on April 4, 2032, and (iii) 135,000 options granted on June 10, 2022, which vest monthly over three years and expire on June 10, 2032.
- (6) The amount reported includes (i) 600,000 restricted shares of Common Stock awarded by us to Mr. Ainscow on November 15, 2022, upon completion of our IPO, which vest annually over three years, and (ii) 50,000 restricted shares of our Common Stock awarded by us to Mr. Ainscow on December 30, 2022, which vest quarterly over one year.
- (7) This amount reflects the market value of our Common Stock of \$1.58 per share as of December 31, 2022 multiplied by the amount shown in the column for the number of shares that have not vested.

Executive Officers and Directors

Employment Agreements

Below is a description of our employment agreements with, Paul Mann, our named executive officer for fiscal year 2021, including a discussion of the severance pay and other benefits to be provided in connection with a termination of employment and/or a change in control under the arrangements with our named executive officer. Additionally, below is a description of our employment agreement with Robert Ainscow, our current Interim Chief Financial Officer.

Paul Mann.

We entered into an executive employment agreement with Mr. Mann in October 2021, which governs the current terms of his employment with us as Chief Executive Officer. Pursuant to the agreement, Mr. Mann is entitled to an annual base salary of \$240,000 per annum for the first six months and \$480,000 per annum for the remainder of the employment period, a target annual discretionary bonus equal to 100% of his annual base salary, and milestone-based bonuses paid in shares of our Common Stock based on the achievement of revenue milestones. Annual bonuses will be paid in a mixture of cash and Common Stock, as determined by the compensation committee.

Subject to our achievement of \$4.167 million in average monthly revenues for a trailing three-month period Mr. Mann will be paid a \$1,000,000 bonus. Subject to our achievement of \$8.33 million in average monthly revenues for a trailing three-month period Mr. Mann will be paid an additional \$1,000,000 bonus. Subject to our achievement of \$12.5 million in average monthly revenues for a trailing three-month period Mr. Mann will be paid an additional \$1,000,000 bonus. Subject to our achievement of \$16.67 million in average monthly revenues for a trailing three-month period Mr. Mann will be paid an additional \$1,000,000 bonus. Any earned milestone-based bonuses will be paid within 30 days of the achievement of the applicable revenue goal and the number of vested shares issued to Mr. Mann shall be determined by dividing the \$1,000,000 bonus amount by either the then fair market value per share of Common Stock, as determined in good faith by our board of directors, or the closing sale price of our Common Stock on the trading day immediately preceding the applicable payment date, as reported by the principal trading market for our Common Stock.

Mr. Mann's employment agreement has an initial term of three years and will automatically renew for successive one-year periods unless either party provides notice of termination. Mr. Mann is also entitled to certain severance benefits under the terms of his employment agreement.

Upon a termination of Mr. Mann's employment for any reason, Mr. Mann is entitled to receive a pro-rata annual bonus for the year of termination.

Upon a termination of Mr. Mann's employment for any reason other than due to his voluntary resignation without good reason and which does not occur in connection with a change in control, Mr. Mann will receive continued payment of Mr. Mann's base salary until the end of the then-applicable remaining employment period term and reimbursement of COBRA premiums for up to an 18-month period.

Upon a termination of Mr. Mann's employment due to his death, disability, termination without cause, resignation for good reason, or resignation in connection with a change of control, the vesting and exercisability of all equity awards held by Mr. Mann shall immediately accelerate, so that all such equity awards shall be fully vested and exercisable as of the date of his termination. Additionally, upon such termination Mr. Mann's stock options (as well as any other exercisable equity awards) will remain exercisable until the earlier one year after Mr. Mann's termination or the original maximum permitted term of the equity award.

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On December 20, 2022, the Company entered into an amendment (the “Amended Employment Agreement”) to the executive employment agreement with Mr. Mann dated October 4, 2022. Under the terms of the Amended Employment Agreement:

- Mr. Mann’s employment shall continue for a period of four (4) years following the Amended Employment Agreement’s effective date of December 20, 2022, and automatically renew for successive one (1) year periods unless either party provides the other with notice of non-renewal at least three (3) months prior to expiration.
- Mr. Mann shall receive a base salary of \$480,000 per annum, subject to annual adjustments by the Board after the first year of the Amended Employment Agreement.
- During his employment, Mr. Mann shall receive an equity award equal to two percent (2%) of the Company’s outstanding common shares as of the Company’s immediately preceding fiscal year, which shall be granted on March 1 of each year and vest quarterly over a twelve (12) month period.

All other terms of the Employment Agreement remain in full force and effect.

Robert Ainscow.

We also entered into an executive employment agreement with Robert Ainscow in October 2021 pursuant to which he was appointed as Vice President and Head of Business Development. We entered into an amendment to Mr. Ainscow’s employment agreement in September 2022 in connection with his appointment as Interim Chief Financial Officer. Pursuant to the agreement (as amended), Mr. Ainscow is entitled to an initial base salary of \$160,000 per annum (which will increase to \$300,000 per annum when the company has produced 250 grams of commercial product), a target annual discretionary bonus equal to 40% of his annual base salary, and milestone-based bonuses paid in shares of our Common Stock based on the achievement of revenue milestones. Annual bonuses will be paid in a mixture of cash and Common Stock, as determined by the compensation committee.

Mr. Ainscow’s employment agreement has an initial term of one year and will automatically renew for successive one-year periods unless either party provides notice of termination. Mr. Ainscow is also entitled to certain severance benefits under his employment agreement.

Upon a termination of Mr. Ainscow’s employment for any reason other than due to his voluntary resignation without good reason and which does not occur in connection with a change in control, Mr. Ainscow will receive reimbursement of COBRA premiums for up to an 18-month period.

Upon a termination of Mr. Ainscow’s employment due to his death, disability, or termination without cause, resignation for good reason, or resignation in connection with a change in control the vesting and exercisability of all equity awards held by Mr. Ainscow shall immediately accelerate, so that all such equity awards shall be fully vested and exercisable as of the date of his termination. Additionally, upon such termination Mr. Ainscow’s stock options (as well as any other exercisable equity awards) will remain exercisable until the earlier of one year after Mr. Ainscow’s termination or the original maximum permitted term of the equity award.

Henrik Strydom.

We also entered into an executive employment agreement with Henrik Strydom in January 2022 pursuant to which he was appointed as Executive Vice President and Chief Technology Officer. Pursuant to the agreement, Mr. Strydom is entitled to an initial base salary of \$240,000 per annum (which will increase to \$480,000 per annum when the company has produced 250 grams of commercial product), a target annual discretionary bonus equal to 100% of his annual base salary, and milestone-based bonuses paid in shares of our Common Stock based on the achievement of revenue milestones. Annual bonuses will be paid in a mixture of cash and Common Stock, as determined by the compensation committee.

Subject to our achievement of \$4.167 million in average monthly revenues for a trailing three-month period Mr. Strydom will be paid a \$250,000 bonus. Subject to our achievement of \$8.33 million in average monthly revenues for a trailing three-month period Mr. Strydom will be paid an additional \$250,000 bonus. Subject to our achievement of \$12.5 million in average monthly revenues for a trailing three-month period Mr. Strydom will be paid an additional \$250,000 bonus. Subject to our achievement of \$16.67 million in average monthly revenues for a trailing three-month period Mr. Strydom will be paid an additional \$250,000 bonus. Any earned milestone-based bonuses will be paid within 30 days of the achievement of the applicable revenue goal and the number of vested shares issued to Mr. Strydom shall be determined by dividing the \$250,000 bonus amount by either the then fair market value per share of Common Stock, as determined in good faith by our board of directors, or the closing sale price of our Common Stock on the trading day immediately preceding the applicable payment date, as reported by the principal trading market for our Common Stock.

Mr. Strydom's employment agreement has an initial term of one year and will automatically renew for successive one-year periods unless either party provides notice of termination. Mr. Strydom is also entitled to certain severance benefits under his employment agreement.

Upon a termination of Mr. Strydom's employment for any reason other than due to his voluntary resignation without good reason and which does not occur in connection with a change in control, Mr. Strydom will receive reimbursement of COBRA premiums for up to an 18-month period.

Upon a termination of Mr. Strydom's employment due to his death, disability, or termination without cause, resignation for good reason, or resignation in connection with a change in control the vesting and exercisability of all equity awards held by Mr. Strydom shall immediately accelerate, so that all such equity awards shall be fully vested and exercisable as of the date of his termination. Additionally, upon such termination Mr. Strydom's stock options (as well as any other exercisable equity awards) will remain exercisable until the earlier of one year after Mr. Strydom's termination or the original maximum permitted term of the equity award.

Performance Share Award.

On October 4, 2021 Mr. Mann was awarded 1,500,000 shares of performance-based restricted Common Stock. The number of shares that may become vested and nonforfeitable will range for zero to 1,500,000 and be determined on the third anniversary of the grant (or, if earlier, the date on which a change in control transaction occurs), which is the "measurement date," based on the "adjusted share price" on the measurement date, which will be calculated based on the average of the adjusted closing prices of our Common Stock during the 90 consecutive trading days ending on the specified measurement date, divided by the total number of shares Common Stock outstanding and underlying any convertible preferred stock outstanding as of the measurement date. If, on the measurement date, the "adjusted share price" (a) is less than \$0.25, then all shares subject to the award will be immediately forfeited for no consideration; (b) equals or exceeds \$0.50, then 20% of the shares subject to the award will vest on the measurement date; (c) equals or exceeds \$0.75, then 40% of the shares subject to the award will vest on the measurement date, (d) equals or exceeds \$1.00, then 60% of the shares subject to the award will vest on the measurement date, (e) equals or exceeds \$1.25, then 80% of the shares subject to the award will vest on the measurement date; and (f) equals or exceeds \$1.50, then 100% of the shares subject to the award will vest on the measurement date. The shares subject to the award may also become vested and nonforfeitable before the measurement date; if the adjusted share price exceeds any of the prices described in foregoing clauses (a)-(f) for 90 consecutive trading days before the measurement date, then the corresponding number of shares subject to the award will immediately vest.

2022 Plan Awards at IPO.

We made special one-time awards of restricted stock upon completion of our initial public offering (IPO) to our officers, directors, and consultants in recognition of their contributions to our IPO process and their ongoing service to us as a public company. The shares of restricted stock are subject to time-based vesting and are not subject to further performance-based criteria. Our named executive officer, Mr. Mann, received 1,000,000 shares of restricted stock and Mr. Vasnetsov and Mr. Ainscow each received 600,000 shares of restricted stock. Each of our directors (excluding Messrs. Mann and Vasnetsov) received 200,000 shares of restricted stock. The restricted stock awards to our executives and consultants will become 25% vested on each anniversary date of our IPO and the restricted stock awards to our directors (other than Messrs. Mann and Vasnetsov) will become 50% vested on each of the first and second anniversary of our IPO, subject to continuous service of the participant with us through each such date.

2022 Plan Awards at End of Year.

On December 30, 2022, we made special one-time awards of restricted stock to some of our officers, directors and consultants in recognition of their contributions during the year and their ongoing service to the company. The shares are subject to time-based vesting and are not subject to further performance-based criteria. Mr. Mann received 1,000,000 shares of restricted Common Stock, Mr. Vasnetsov received 500,000 shares of restricted Common Stock and Mr. Ainscow received 50,000 shares of restricted Common Stock. The restricted stock awards will become 25% vested on each March 30, 2023, June 30, 2023, September 30, 2023, and December 30, 2023.

March 1st Stock Awards.

On March 1, 2023, we made special one-time awards of restricted stock to Mr. Mann, pursuant to his Amended Employment Agreement, and to Mr. Vasnetsov, pursuant to his Amended Advisory Agreement. The shares are subject to time-based vesting and are not subject to further performance-based criteria. Mr. Mann received 718,143 shares of restricted Common Stock (or 2% of the Company's outstanding common shares as of the Company's immediately preceding fiscal year), and Mr. Vasnetsov received 538,607 shares of restricted Common Stock (or 1.5% of the Company's outstanding common shares as of the Company's immediately preceding fiscal year). The restricted stock awards will become 25% vested on each June 1, 2023, September 1, 2023, December 1, 2023, and March 1, 2024.

Employee Benefit and Equity Incentive Plans

2022 Equity Incentive Plan

In October 2022 our board of directors adopted, and our stockholders approved, the 2022 Plan, which will become effective immediately prior to the closing of our IPO. We intend to use the 2022 Plan to provide incentives that will assist us to attract, retain, and motivate employees, including officers, consultants, and directors.

We may provide these incentives through the grant of stock options, stock appreciation rights, restricted stock, RSUs, performance shares, and units and other cash-based or share-based awards. In addition, the 2022 Plan contains a mechanism through which we may adopt a deferred compensation arrangement in the future.

A total of 5,000,000 shares of our Common Stock are initially authorized and reserved for future issuance under the 2022 Plan. This reserve will automatically increase on January 1, 2023, and each subsequent anniversary through 2032, by an amount equal to the smaller of:

- 5.0% of the number of shares of Common Stock issued and outstanding on the immediately preceding December 31; and
- an amount determined by our board of directors.

Appropriate adjustments will be made in the number of authorized shares and other numerical limits in the 2022 Plan and in outstanding awards to prevent dilution or enlargement of participants' rights in the event of a stock split or other change in our capital structure. Shares subject to awards which expire or are cancelled or forfeited will again become available for issuance under the 2022 Plan.

The shares available under the 2022 Plan will not be reduced by awards settled in cash. Shares withheld or reacquired by us in satisfaction of our tax withholding obligations pursuant to the exercise or settlement of options or SARs or the vesting or settlement of full value equity awards shall again become available for issuance under the 2022 Plan. The gross number of shares issued upon the exercise of stock appreciation rights or options exercised by means of a net exercise or by tender of previously owned shares will be deducted from the shares available under the 2022 Plan.

The 2022 Plan generally will be administered by the compensation committee of our board of directors, which we refer to as the administrator. Subject to the provisions of the 2022 Plan, the compensation committee will determine in its discretion the persons to whom and the times at which awards are granted, the sizes of such awards and all of their terms and conditions. The compensation committee will have the authority to construe and interpret the terms of the 2022 Plan and awards granted under it. The 2022 Plan provides, subject to certain limitations, for indemnification by us of any director, officer, or employee against all reasonable expenses, including attorneys' fees, incurred in connection with any legal action arising from such person's action or failure to act in administering the 2022 Plan.

In any one year period measured commencing on the date of our annual meeting of stockholders for a particular year that is held following the closing of IPO and ending on the day immediately prior to the date of our annual meeting of stockholders for the next subsequent year, the maximum number of shares of Common Stock subject to stock awards granted under the 2022 Plan or otherwise during any period to any non-employee director, taken together with any cash fees paid by us to such non-employee director during such period for service on the board of directors, will not exceed \$600,000 in total value (calculating the value of any such stock awards based on the grant date fair value of such stock awards for financial reporting purposes), or, with respect to the period in which a non-employee director is first appointed or elected to our board of directors, \$1,000,000.

The 2022 Plan will authorize the compensation committee, without further stockholder approval, to provide for the cancellation of stock options or stock appreciation rights with exercise prices in excess of the fair market value of the underlying shares of Common Stock on the date of grant in exchange for new options or other equity awards with exercise prices equal to the fair market value of the underlying Common Stock on the date of grant or a cash payment or other full value equity awards.

Awards may be granted under the 2022 Plan to our employees, including officers, directors, or consultants or those of any present or future parent or subsidiary corporation or other affiliated entity. All awards will be evidenced by a written agreement between us and the holder of the award and may include any of the following:

- *Stock options.* We may grant non-statutory stock options or incentive stock options (as described in Section 422 of the Code), each of which gives its holder the right, during a specified term (not exceeding ten years) and subject to any specified vesting or other conditions, to purchase a number of shares of our Common Stock at an exercise price per share determined by the administrator, which may not be less than the fair market value of a share of our Common Stock on the date of grant.
- *Stock appreciation rights.* A stock appreciation right, or SAR, gives its holder the right, during a specified term (not exceeding ten years) and subject to any specified vesting or other conditions, to receive the appreciation in the fair market value of our Common Stock between the date of grant of the award and the date of its exercise. We may pay the appreciation in shares of our Common Stock or in cash.
- *Restricted stock.* The administrator may grant restricted stock awards either as a bonus or as a purchase right at a price determined by the administrator. Shares of restricted stock remain subject to forfeiture until vested, based on such terms and conditions as the administrator specifies. Holders of restricted stock will have the right to vote the shares and to receive any dividends paid, except that the dividends may be subject to the same vesting conditions as the related shares.
- *Restricted stock units.* Restricted stock units, or RSUs, represent rights to receive shares of our Common Stock (or their value in cash) at a future date without payment of a purchase price, subject to vesting or other conditions specified by the administrator. Holders of RSUs have no voting rights or rights to receive cash dividends unless and until shares of Common Stock are issued in settlement of such awards. However, the administrator may grant RSUs that entitle their holders to dividend equivalent rights.
- *Performance awards.* Performance awards, consisting of either performance shares or performance units, are awards that will result in a payment to their holder only if specified performance goals are achieved during a specified performance period. The administrator establishes the applicable performance goals based on one or more measures of business performance, such as revenue, gross margin, net income or total stockholder return. To the extent earned, performance awards may be settled in cash, in shares of our Common Stock or a combination of both in the discretion of the administrator. Holders of performance shares or performance units have no voting rights or rights to receive cash dividends unless and until shares of Common Stock are issued in settlement of such awards. However, the administrator may grant performance shares that entitle their holders to dividend equivalent rights.
- *Cash-based awards and other share-based awards.* The administrator may grant cash-based awards that specify a monetary payment or range of payments or other share-based awards that specify a number or range of shares or units that, in either case, are subject to vesting or other conditions specified by the administrator. Settlement of these awards may be in cash or shares of our Common Stock, as determined by the administrator. Their holders will have no voting rights or right to receive cash dividends unless and until shares of our Common Stock are issued pursuant to the awards. The administrator may grant dividend equivalent rights with respect to other share-based awards.

In the event of a change in control as described in the 2022 Plan, the acquiring or successor entity may assume or continue all or any awards outstanding under the 2022 Plan or substitute substantially equivalent awards. The compensation committee may provide for the acceleration of vesting of any or all outstanding awards upon such terms and to such extent as it determines, except that the vesting of all awards held by members of the board of directors who are not employees will automatically be accelerated in full. Any awards that are not assumed, continued, or substituted for in connection with a change in control or are not exercised or settled prior to the change in control will terminate effective as of the time of the change in control. The 2022 Plan will also authorize the compensation committee, in its discretion and without the consent of any participant, to cancel each or any outstanding award denominated in shares upon a change in control in exchange for a payment to the participant with respect to each share subject to the cancelled award of an amount equal to the excess of the consideration to be paid per share of Common Stock in the change in control transaction over the exercise price per share, if any, under the award.

The 2022 Plan will continue in effect until it is terminated by the compensation committee, provided, however, that all awards will be granted, if at all, within ten years of its effective date. The compensation committee may amend, suspend or terminate the 2022 Plan at any time, provided that without stockholder approval, the plan cannot be amended to increase the number of shares authorized, change the class of persons eligible to receive incentive stock options, or effect any other change that would require stockholder approval under any applicable law or listing rule.

2021 Stock Incentive Plan

The 2021 Plan was originally adopted by our board of directors in October 2021 and was amended by our board of directors in August 2022. The maximum aggregate number of shares of Common Stock that may be issued under the 2021 Plan is 7,000,000. Upon the closing of our IPO our board of directors terminated the 2021 Plan and did not grant any further awards under such plan, but the 2021 Plan will continue to govern outstanding awards granted thereunder. Our compensation committee administers the 2021 Plan and has the authority, among other things, to construe and interpret the terms of the 2021 Plan and awards granted thereunder, and is referred to as the administrator of the 2021 Plan in this summary.

The 2021 Plan permits the grant of options. As of June 30, 2022, we had options to purchase 2,266,000 shares of Common Stock outstanding under the 2021 Plan. Appropriate and proportionate adjustments will be made to the number of shares subject to outstanding awards to prevent dilution or enlargement of participants' rights in the event of a recapitalization, reclassification, stock dividend, stock split, reverse stock split, split-up, split-off, spin-off, combination of shares, exchange of shares or similar change in our capital structure, or in the event of payment of a dividend or distribution to our stockholders in a form other than shares (excepting normal cash dividends). All awards will be evidenced by a written agreement between us and the holder of the award and may include any of the following:

- *Stock options.* We may grant non-statutory stock options or incentive stock options (as described in Section 422 of the Code), each of which gives its holder the right, during a specified term (not exceeding ten years) and subject to any specified vesting or other conditions, to purchase a number of shares of our Common Stock at an exercise price per share determined by the administrator, which may not be less than the fair market value of a share of our Common Stock on the date of grant.
- *Restricted stock awards.* We may grant restricted stock awards either as a bonus or as a purchase right at such price as the administrator determines. Shares of restricted stock remain subject to forfeiture until vested, based on such terms and conditions as the administrator specifies. Holders of restricted stock will have the right to vote the shares and to receive any dividends paid, except that the dividends will be subject to the same vesting conditions as the related shares.
- *Restricted stock units.* RSUs represent rights to receive shares of our Common Stock (or their value in cash) at a future date without payment of a purchase price, subject to vesting or other conditions specified by the administrator. Holders of RSUs have no voting rights or rights to receive cash dividends unless and until shares of Common Stock are issued in settlement of such awards. However, the administrator may grant RSUs that entitle their holders to dividend equivalent rights.

In its discretion, our compensation committee may provide for acceleration of the exercisability, vesting or settlement of awards in connection with a “change in control,” as defined under the 2021 Plan, of each or any outstanding award or portion thereof and Common Stock acquired pursuant thereto upon such conditions, including termination of the plan participant’s service prior to, upon or following such change in control, and to such extent as our compensation committee determines. In the event of a change in control, the surviving, continuing, successor or purchasing corporation or other business entity or parent thereof, as the case may be, may, without the consent of any plan participant, either assume or continue the rights and obligations under each or any award or portion thereof outstanding immediately prior to the change in control or substitute for each or any such outstanding award or portion thereof a substantially equivalent award with respect to the stock of the surviving, continuing, successor or purchasing corporation or other business entity or parent thereof, as applicable. Any award or portion thereof which is neither assumed nor continued by the surviving, continuing, successor or purchasing corporation or other business entity or parent thereof in connection with the change in control nor exercised or settled as of the time of consummation of the change in control shall terminate and cease to be outstanding effective as of the time of consummation of the change in control.

Limitation of Liability and Indemnification

Our Certificate of Incorporation will contain provisions that limit the liability of our directors for monetary damages to the fullest extent permitted by Delaware law. Consequently, our directors will not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for:

- any breach of the director’s duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law, or the DGCL; or
- any transaction from which the director derived an improper personal benefit.

Our Certificate of Incorporation and our Bylaws will provide that we are required to indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law. Our Certificate of Incorporation and our Bylaws will also provide that we may indemnify a director, officer, employee or agent (including the advancement of the final disposition of any action or proceeding), and permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under Delaware law. We have entered and expect to continue to enter into agreements to indemnify and advance expenses to our directors, executive officers and other employees as determined by our board of directors. With specified exceptions, these agreements provide for indemnification for related expenses including, among other things, attorneys’ fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding. We believe that these Bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers. We also maintain directors’ and officers’ liability insurance.

The limitation of liability and indemnification provisions in our Certificate of Incorporation and our Bylaws may discourage stockholders from bringing a lawsuit against our directors and officers for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and our stockholders. Further, a stockholder’s investment may be adversely affected to the extent that we pay the costs of settlement and damage.

Director Compensation

The following table sets forth information regarding compensation earned by our non-employee-directors for service on our board of directors during the year ended December 31, 2022. Hendrik Strydom, Ph.D. joined our board of directors in January 2022.

Name	Fees Earned or Paid in Cash (\$)	Stock Awards (\$)	Options (\$)	Total (\$)
Josh Donfeld	—	526,000	111,029	637,029
Duncan Moore, Ph.D.	—	526,000	111,029	637,029
Sergey Vasnetsov	—	3,568,000	—	3,568,000
Todd Wider, M.D.	—	526,000	111,029	637,029

We have entered into director agreements with Messrs. Donfeld, Moore and Wider, pursuant to which we agreed to pay to each such director a fee for his service of \$60,000 per year, payable at the director's discretion in cash or Common Stock at market value. The fee is paid quarterly in arrears (\$15,000 quarterly instalments) on the last business day of each December, March, June and September during the director's term. In addition, we agreed to award a Common Stock award with a market value of \$100,000 on October 13, 2022, and annually each year thereafter during the director's term. Directors who are also our employees will not receive fees for service on our board of directors.

2022 Plan Awards at IPO. Upon completion of our IPO, we made special one-time awards of restricted stock to our officers, directors and consultants in recognition of their contributions to our IPO process and their ongoing service to us as a public company. All of these awards are contingent upon completion of the IPO. The shares of restricted stock are subject to time-based vesting and are not subject to further performance-based criteria. Each of our directors (excluding Messrs. Mann and Vasnetsov) will receive 200,000 shares of restricted stock. The restricted stock awards to our directors (other than Messrs. Mann and Vasnetsov) will become 50% vested on each of the first and second anniversary of the IPO, subject to continuous service of the participant with us through such date. Mr. Vasnetsov will receive 600,000 shares of restricted stock which will become 25% vested on each anniversary of the IPO, subject to continuous service of the participant with us through each such date.

2022 Plan Awards at End of Year. On December 30, 2022, we made special one-time awards of restricted stock to some of our officers, directors and consultants in recognition of their contributions during the year and their ongoing service to the company. Mr. Mann received 1,000,000 shares of restricted Common Stock, Mr. Vasnetsov received 500,000 shares of restricted Common Stock and Mr. Ainscow received 50,000 shares of restricted Common Stock. The restricted stock awards will become 25% vested on each March 30, 2023, June 30, 2023, September 30, 2023, and December 30, 2023.

March 1st Stock Awards. On March 1, 2023, we made special one-time awards of restricted stock to Mr. Mann, pursuant to his Amended Employment Agreement, and to Mr. Vasnetsov, pursuant to his Amended Advisory Agreement. The shares are subject to time-based vesting and are not subject to further performance-based criteria. Mr. Mann received 718,143 shares of restricted Common Stock (or 2% of the Company's outstanding common shares as of the Company's immediately preceding fiscal year), and Mr. Vasnetsov received 538,607 shares of restricted Common Stock (or 1.5% of the Company's outstanding common shares as of the Company's immediately preceding fiscal year). The restricted stock awards will become 25% vested on each June 1, 2023, September 1, 2023, December 1, 2023, and March 1, 2024.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Other than the compensation agreements and other arrangements described in the "Executive Compensation" section of this prospectus and the transactions described below, since September 13, 2021, the date of our incorporation, there has not been and there is not currently proposed, any transaction or series of similar transactions to which we were, or will be, a party in which the amount involved exceeded, or will exceed, \$120,000 and in which any director, executive officer, holder of 5% or more of any class of our capital stock or any member of the immediate family of, or entities affiliated with, any of the foregoing persons, had, or will have, a direct or indirect material interest.

Our Relationship with Klydon Proprietary Limited ("Klydon")

Dr Einar Ronander, who serves as Chief Scientific Adviser to our board of directors, and Dr Hendrik Strydom, one of our directors, previously co-founded and currently serve as Executive Chairperson and Chief Executive Officer, of Klydon. Dr Ronander and Dr Strydom are the controlling shareholders of Klydon through Isotope Separation Technology (Pty) Ltd, a company jointly owned by Dr Ronander and Dr Strydom and the largest shareholder of Klydon. Dr Ronander and Dr Strydom each own approximately 11.9% of our outstanding shares of Common Stock. Dr Ronander and Dr Strydom owns 11.4% of our outstanding shares of Common Stock. As a result, Dr Ronander and Dr Strydom will continue to have significant influence over our business, including pursuant to the agreements described below. The agreements summarized below are filed as exhibits to the registration statement of which this prospectus is a part, and the summaries of these agreements set forth the terms of the agreements that we believe are material. These summaries are qualified in their entirety by reference to the full text of such agreements.

Exclusive Mo-100 License (superseded and replaced by new license (see “Omnibus Klydon License” below)). On September 30, 2021, our subsidiary, ASP Isotopes South Africa (Proprietary) Limited (“ASP South Africa”), as licensee, entered into a license with Klydon, as licensor, pursuant to which ASP South Africa acquired from Klydon an exclusive license to use, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the development and/or otherwise disposing of the ASP technology and production, distribution, marketing and or sale of Mo-100 isotope produced using the ASP technology (as amended on June 8, 2022, the “Mo-100 license”). The intellectual property rights granted to us through the Mo-100 license included all existing and/or future proprietary rights of Klydon relating to the ASP technology, whether or not such rights have been registered including the copyright, designs, know-how, patents and trademarks (although Klydon currently has no such patents, patent applications or copyrights). The exclusive Mo-100 license was royalty-free, had a term of 999 years and was for the global development of the ASP Technology and production of the Mo-100 Isotope and global for the distribution, marketing and sale of the Mo-100 Isotope. No upfront or other payment was made or is owed in connection with the Mo-100 license. Klydon had the right to terminate the exclusivity of the Mo-100 license in the event that the licensee ceased carrying on activities of Mo-100 enrichment for a period of greater than 24 consecutive months. Klydon had no other rights to terminate the Mo-100 license. Effective July 26, 2022, the parties agreed to terminate the Mo-100 license, which was superseded and replaced by a new license agreement (described under the heading “Omnibus Klydon License” below).

Exclusive U-235 License (superseded and replaced by new license (see “Omnibus Klydon License” below)). On January 25, 2022, ASP South Africa, as licensee, entered into a license with Klydon, as licensor, pursuant to which ASP South Africa acquired from Klydon an exclusive license to use, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the development and/or otherwise disposing of the ASP technology and production, distribution, marketing and or sale of U-235 produced using the ASP (as so amended, the “U-235 license”). The exclusive U-235 license was for the global development of the ASP technology and production of U-235 and global for the distribution, marketing and sale of U-235. In connection with the U-235 license we made an upfront payment of \$100,000 and agreed to pay certain royalties (the greater of \$50 per k.g. of U-235 and 10% of profits) and a 33% sublicensing revenue share of any cash consideration we may receive for any sublicenses we may grant. Klydon had the right to terminate the exclusivity of the U-235 license in the event that the licensee ceased carrying on activities of U-235 enrichment for a period longer than 24 consecutive months. Klydon had no other rights to terminate the U-235 license. Effective July 26, 2022, the parties agreed to terminate the U-235 license, which was superseded and replaced by a new license agreement (described under the heading “Omnibus Klydon License” below).

Omnibus Klydon License. On July 26, 2022, ASP Isotopes UK Ltd, as licensee, entered into a license agreement with Klydon, as licensor, pursuant to which ASP Isotopes UK Ltd acquired from Klydon an exclusive license to use, develop, modify, improve, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the production, distribution, marketing and sale of all isotopes produced using the ASP technology (the “Klydon license agreement”). The intellectual property rights granted to us through the Klydon license agreement include all existing and/or future proprietary rights of Klydon relating to the ASP technology, whether or not such rights have been registered including the copyright, designs, know-how, patents and trademarks (although Klydon currently has no such patents, patent applications or copyrights). The Klydon license agreement superseded and replaced the Mo-100 license and U-235 license described above. The Klydon license agreement is royalty-free, has a term of 999 years and is worldwide for the development of the ASP technology and the distribution, marketing and sale of isotopes. Future production of isotopes is limited to member countries of the Nuclear Suppliers Group. In connection with the Klydon license agreement we agreed to make an upfront payment of \$100,000 (to be included within the payments we make under the Turnkey Contract (described below) and deferred payments of \$300,000 over 24 months. Klydon has the right to terminate the exclusivity of the Klydon license agreement in the event that the licensee ceases to carry on activities related to isotope enrichment for a period longer than 24 consecutive months.

Turnkey Contract. On November 1, 2021, ASP South Africa and Klydon, as the contractor, entered into a contract under which Klydon has been appointed to supply to ASP South Africa a complete turnkey Molybdenum-100 enrichment plant (the “Turnkey Contract”). The activities to be undertaken or performed by Klydon include: taking control of the assets acquired in the Molybdo Business Rescue Auction; the design of a Molybdenum-100 enrichment facility with target manufacturing capability of 20 Kg p.a. of 95% and above enriched Molybdenum isotope; the supply of components, equipment and labor required for 20 Kg p.a.; the installation, testing and commissioning of the Molybdenum enrichment plant, including production of targets to be used by customers in cyclotrons; securing all required approvals, regulatory authorizations and other required consents for the operation of the plant; providing training to local ASP Isotopes South Africa (Proprietary) Limited personnel to enable them to operate the plant going forward; and providing warranties in relation to the performance targets of the plant which are required to be met. Klydon will be responsible for liaising with the relevant South African authorities including the South African Non Proliferation Council, the Nuclear Suppliers Group and International Atomic Energy Agency to ensure that the Turnkey Contract and the Molybdenum-100 enrichment plant are compliant with international laws and guidelines. The consideration to be paid by ASP Isotopes South Africa (Proprietary) Limited under the Turnkey Contract is a maximum of \$12.8 million, in the following stages: (1) \$6.8 million in an initial proof of concept stage (which stage will end at the point of first production of Mo-100); and (2) \$6.0 million for increasing production capacity through modular construction (from the expected initial capacity of 5 kg p.a. to 20 kg p.a. of 95% enriched molybdenum-100). The Company’s management expects that the initial proof of concept stage (Phase 1) will be completed during the second half of 2022 and an additional 12 months will be needed for completion of the secondary investment stage (Phase 2).

Acquisition of Silicon-28 Plant Assets. On July 26, 2022, we acquired assets comprising a dormant Silicon-28 aerodynamic separation processing plant from Klydon for ZAR 6,000,000 (which at the then current exchange rate was approximately \$364,000), which will be payable to Klydon on the later of 180 days of the acquisition and the date on which the assets generate any revenues of any nature.

Chief Scientific Adviser Agreement with Dr Ronander. In January 2022, we entered into an agreement with Dr Einar Ronander pursuant to which he agreed to serve as chief scientific adviser to the board of directors for quarterly payments of \$50,000. The agreement has an initial term of one year and will automatically renew for successive one-year periods unless either party provides notice of termination.

Consulting Agreements with Dr Strydom and Dr Ronander. In January 2022, we entered into consulting agreements with Dr Einar Ronander, who serves as Chief Scientific Adviser to our board of directors, and Dr Hendrik Strydom, one of our directors, pursuant to which each of Dr Ronander and Dr Strydom agreed to assist us in developing the ASP technology for the enrichment of uranium and potentially forming a licensing transaction relating to the enrichment of uranium. In addition, Dr Ronander agreed to assist us obtaining all regulatory approvals and permits for the company's operations. The consulting agreements had no upfront cash payment or regular payment but provide for cash payments to the consultants in the event that a licensing upfront payment is paid to the company in connection with any type of licensing transaction relating to the enrichment of uranium, with the amount of such cash payments to the consultants to be determined based upon the date of receipt of any such licensing upfront payment: 25% of any licensing upfront payment received within 3 months will be paid to the consultants (75% retained by the company), 15% of any licensing upfront payment received between 3 – 9 months will be paid to the consultants (85% retained by the company), and 5% of any licensing upfront payment received after 9 months will be paid to the consultants (95% retained by the company). The consulting agreements have no fixed term but either party may terminate the consulting agreement (i) without cause upon 30 days' written notice to the other party or (ii) effective immediately upon written notice to the other party, if the other party breaches the agreement (subject to a 10-day cure period if such breach is capable of cure).

Indemnification Arrangements with Drs Ronander and Strydom. In connection with the other agreements entered into with Dr Einar Ronander and Dr Hendrik Strydom in January 2022, we have agreed to indemnify each of Dr Ronander and Dr Strydom against any and all losses, damages, liabilities, deficiencies, claims, actions, judgments, settlements, interest, awards, penalties, fines, costs, or expenses of whatever kind, including professional fees and reasonable attorneys' fees, that are incurred by the indemnitees, arising out of any claim by a third party creditor related to an agreement such third party creditor entered into with Klydon, Dr Einar and Dr Strydom and Klydon, and Isotope Separation Technology (Pty) Ltd (the largest shareholder of Klydon, which is owned by Dr Ronander and Dr Strydom) in May 2012 related to, among other things, (i) the sale of shares in Isotope Separation Technology (Pty) Ltd by such third party creditor to Dr Ronander and Dr Strydom and (ii) the acknowledgment of certain loan obligations owed by Klydon to Isotope Separation Technology (Pty) Ltd and such third party creditor and the repayment terms for such loan obligations. Our indemnification obligations under the letter agreements with Dr Ronander and Dr Strydom are subject to a maximum aggregate liability of \$3,200,000 (which is approximately the amount that may be owed to the third-party creditor). We are aware of the possibility of claims by the third-party creditor related to the failure by Klydon to make repayment of certain loan obligations under this May 2012 agreement, but no such claim or litigation has been asserted or threatened. We do not believe Klydon, Isotope Separation Technology (Pty) Ltd or any other third party is obligated to provide indemnity against any such claim. We do not believe any payment obligation under our indemnification arrangements with Dr Ronander and Dr Strydom is currently probable.

Advisor Agreement with ChemBridges LLC

We have entered into an Advisor Agreement with ChemBridges LLC dated October 27, 2021. One of our directors, Sergey Vasnetsov, is the President and owner of ChemBridges LLC. Under the Advisor Agreement, ChemBridges LLC agreed to provide subject matter expertise on a wide range of commercial activity and strategic execution of key global business objectives, including but not limited to the advisory services on strategy, M&A, R&D, organic growth, operational optimization, commercial excellence, IR and corporate governance. Compensation under the Advisor Agreement includes (i) an initial grant of 600,000 shares of restricted Common Stock that vest annually over three years and (ii) an award of Common Stock with a value of \$40,000 each quarter for the first 8 calendar quarters following the first anniversary of the Advisor Agreement (totaling \$160,000 annually). We issued 600,000 shares of restricted Common Stock that vest quarterly over one year in connection with an amendment to the Advisor Agreement in July 2022. The Advisor Agreement may be terminated by either party without cause upon 180 days advance written notice. We may terminate the Advisor Agreement for material breach of the agreement if not cured after two weeks' written notice. We will have no obligation to the advisor upon any termination of the agreement except for reimbursement of any unreimbursed expenses and pro-rata vesting of the equity awards issued under the agreement through the effective date of the termination.

On December 12, 2022, the Company entered into a second amendment (the "Amended Advisory Agreement") to the Advisory Agreement with ChemBridges LLC dated October 27, 2021. Under the terms of the Amended Advisory Agreement, ChemBridges LLC shall be eligible to receive up to one and a half percent (1.5%) of the number of shares of Common Stock outstanding as of the Company's immediately preceding fiscal year. The shares shall be granted on March 1 of each year and vest quarterly over a twelve (12) month period.

Indemnification Agreements and Directors' and Officers' Liability Insurance

We have entered into indemnification agreements with each of our directors and executive officers. These agreements, among other things, require us to indemnify each director and executive officer to the fullest extent permitted by Delaware law, including indemnification of expenses such as attorneys' fees, judgments, penalties fines and settlement amounts incurred by the director or executive officer in any action or proceeding, including any action or proceeding by or in right of us, arising out of the person's services as a director or executive officer.

Policies and Procedures for Related Party Transactions

Our board of directors has adopted a written related person transaction policy, setting forth the policies and procedures for the review and approval or ratification of related person transactions. This policy will cover, with certain exceptions set forth in Item 404 of Regulation S-K under the Securities Act, any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships in which we were or are to be a participant, where the amount involved exceeds \$120,000 and a related person had or will have a direct or indirect material interest, including, without limitation, purchases of goods or services by or from the related person or entities in which the related person has a material interest, indebtedness, guarantees of indebtedness and employment by us of a related person. In reviewing and approving any such transactions, our audit committee is tasked to consider all relevant facts and circumstances, including, but not limited to, whether the transaction is on terms comparable to those that could be obtained in an arm's length transaction with an unrelated third party and the extent of the related person's interest in the transaction. All of the transactions described in this section occurred prior to the adoption of this policy.

PRINCIPAL STOCKHOLDERS

The following table sets forth information with respect to the beneficial ownership of our Common Stock as of April 3, 2023, for:

- our named executive officer;
- each of our directors;
- all of our current directors and executive officers as a group; and
- each person, or group of affiliated persons, known by us to be the beneficial owner of more than 5% of our outstanding shares of Common Stock.

We have determined beneficial ownership in accordance with the rules of the SEC, which generally means that a person has beneficial ownership of a security if he or she possesses sole or shared voting or investment power of that security, including options that are currently exercisable or exercisable within 60 days of April 3, 2023. Unless otherwise indicated, to our knowledge, the persons and entities named in the table below have sole voting and sole investment power with respect to all shares that they beneficially own, subject to community property laws where applicable. The information in the table below does not necessarily indicate beneficial ownership for any other purpose, including for purposes of Sections 13(d) and 13(g) of the Securities Act.

We have based our calculation of the percentage of beneficial ownership based upon 37,385,684 shares of our Common Stock outstanding as of April 3, 2023. In computing the number of shares beneficially owned by an individual or entity and the percentage ownership of that individual or entity, shares of Common Stock subject to options, convertible securities or other rights, held by such person that are currently exercisable or will become exercisable within 60 days of April 3, 2023, are considered outstanding. We did not, however, deem such shares outstanding for the purpose of computing the percentage ownership of any other individual or entity.

Unless otherwise indicated, the address of each beneficial owner listed in the table below is c/o 433 Plaza Real, Suite 275, Boca Raton, Florida 33432.

Name of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned	
		Before Offering	After Offering (1)
Greater than 5% Holders:			
Armistice Capital Master Fund Ltd (2)	3,164,557	8.5%	15.5%
Einar Ronander, Ph.D. (3)	2,097,424	5.6%	5.1%
Executive Officers and Directors:			
Paul Mann (4)	6,354,976	16.8%	15.4%
Robert Ainscow (5)	1,040,333	2.8%	2.5%
Hendrick Strydom, Ph.D. (6)	2,385,757	6.4%	5.8%
Josh Donfeld (7)	1,096,000	2.9%	2.7%
Duncan Moore, Ph.D. (8)	496,000	1.3%	1.2%
Sergey Vasnetsov (9)	3,838,607	10.3%	9.4%
Todd Wider, M.D. (10)	496,000	1.3%	1.2%
All current executive officers and directors as a group (7 persons) (12)	15,707,673	40.9%	37.5%

- (1) Assumes the full exercise of the Warrants and PA Warrants.
- (2) The securities are directly held by Armistice Capital Master Fund Ltd., a Cayman Islands exempted company (the “Master Fund”) and may be deemed to be indirectly beneficially owned by: (i) Armistice Capital, LLC (“Armistice Capital”), as the investment manager of the Master Fund; and (ii) Steven Boyd, as the Managing Member of Armistice Capital. Armistice Capital and Steven Boyd disclaim beneficial ownership of the securities except to the extent of their respective pecuniary interests therein. The address of the Master Fund is c/o Armistice Capital, LLC, 510 Madison Avenue, 7th Floor, New York, NY 10022. Armistice Capital Master Fund Ltd. also owns warrants to purchase up to 3,164,557 shares of Common Stock. The warrants contain an ownership limitation such that the holder may not exercise any of such warrants to the extent that such exercise would result in the holder’s beneficial ownership being in excess of 4.99% of the Company’s issued and outstanding Common Stock together with all shares owned by the holder and its affiliates.
- (3) Such shares are held by Carlein Investments (Pty) Ltd whose address is Building 46, CSIR Campus, Meiring Naude Road, Brummeria, Pretoria, 0184. Dr. Ronander has voting and dispositive power over such shares.
- (4) Consists of (i) 1,550,000 shares of Common Stock held by Mr. Mann, (ii) 1,500,000 shares of performance-based restricted Common Stock granted by us to Mr. Mann in October 2021, (iii) 37,500 shares of common stock purchased in our Initial Public Offering, (iv) 1,000,000 restricted shares awarded by us to Mr. Mann on November 15, 2022, which vest over four years (v) 1,000,000 restricted shares of common stock awarded by us to Mr. Mann on December 30, 2022, which vest over one year (vi) 718,143 restricted shares of common stock awarded by us to Mr. Mann on March 1, 2023, which vest over one year, and (vii) 549,333 shares of Common Stock issuable upon exercise of options held by Mr. Mann exercisable within 60 days of April 3, 2023.
- (5) Consists of (i) 250,000 shares of Common Stock held by Mr. Ainscow (ii) 600,000 shares of Common Stock awarded by us to Mr. Ainscow on November 15, 2022, which vest over four years (iii) 50,000 restricted shares of Common Stock awarded by us to Mr. Ainscow on December 30, 2022, which vest over one year, and (iv) 140,333 shares of Common Stock issuable upon exercise of options held by Mr. Ainscow exercisable within 60 days of April 3, 2023.
- (6) Consists of (i) 2,097,474 shares held by Tianne Holdings (Pty) Ltd whose address is Building 46, CSIR Campus, Meiring Naude Road, Brummeria, Pretoria, 0184. Dr. Strydom has voting and dispositive power over such shares, (ii) 200,000 restricted shares of Common Stock awarded by us to Mr. Strydom on November 15, 2022, which vest over two years, and (iii) 88,333 shares of Common Stock issuable upon exercise of options held by Dr. Strydom within 60 days of April 3, 2023.
- (7) Consists of (i) 800,000 shares of Common Stock held by Mr. Donfeld, (ii) 200,000 restricted shares of Common Stock awarded by us to Mr. Donfeld on November 15, 2022, which vest over two years, and (iii) 96,000 shares of Common Stock issuable upon exercise of options held by Mr. Donfeld exercisable within 60 days of April 3, 2023.
- (8) Consists of (i) 200,000 shares of Common Stock held by Mr. Moore, (ii) 200,000 restricted shares of Common Stock awarded by us to Mr. Moore on November 15, 2022, which vest over two years, and (iii) 96,000 shares of Common Stock issuable upon exercise of options held by Dr. Moore exercisable within 60 days of April 3, 2023.
- (9) Consists of (i) 1,000,000 shares held by Elista LLC, (ii) 750,000 shares held by ChemBridges LLC, (iii) 600,000 restricted shares of Common Stock granted by us to ChemBridges LLC in October 2021, which vest quarterly over one year and are subject to forfeiture, (iv) 600,000 restricted shares of Common Stock granted by us to ChemBridges LLC in July 2022, which vest quarterly over one year, (v) 600,000 restricted shares of Common Stock awarded by us to ChemBridges LLC on November 15, 2022, which vest over four years, (vi) 500,000 restricted shares of Common Stock awarded by us to ChemBridges LLC on December 30, 2022, which vest over one year, and (vii) 538,607 restricted shares of Common Stock awarded by us to ChemBridges LLC on March 1, 2023, which vest over one year. Mr. Vasnetsov has voting and dispositive power over the securities held by Elista LLC, whose address is P.O. Box 2291, Toa Baja 00951 Puerto Rico, as trustee of Eliona Trust (a family trust and owner of Elista LLC). Mr. Vasnetsov has voting and dispositive power over the securities held by ChemBridges LLC, whose address is P.O. Box 2291, Toa Baja 00951 Puerto Rico, as the President and owner of ChemBridges LLC.
- (10) Consists of (i) 200,000 shares of Common Stock held by Mr. Wider, (ii) 200,000 restricted shares of Common Stock awarded by us to Mr. Wider on November 15, 2022, which vest over two years, and (iii) 96,000 shares of Common Stock issuable upon exercise of options held by Dr. Wider exercisable within 60 days of April 3, 2023.
- (11) Includes the shares described in notes 3, 4, 5, 6, 7, 8, 9 and 10 above.

DESCRIPTION OF CAPITAL STOCK

General

Our authorized capital stock consists of 500,000,000 shares of Common Stock, par value \$0.01 per share, and 10,000,000 shares of preferred stock, par value \$0.01 per share.

The following descriptions of our capital stock and provisions of our Certificate of Incorporation and our Bylaws, as amended are summaries and are qualified by reference to the full text of those documents, copies of which are with the SEC as exhibits to the registration statement of which this prospectus forms a part. The following summary of relevant provisions of the DGCL is qualified by the full text of such provisions. Because these are only summaries, they do not contain all the information that may be important to you.

Common Stock

Outstanding Shares

As of April 3, 2023, we had 37,385,684 shares of Common Stock outstanding, held of record by 55 holders of record. We have no preferred shares outstanding.

Dividend Rights

Subject to preferences that may apply to any shares of preferred stock outstanding at the time, the holders of our Common Stock will be entitled to receive dividends out of funds legally available if our board of directors, in its discretion, determines to issue dividends and then only at the times and in the amounts that our board of directors may determine.

Voting Rights

Holders of Common Stock are entitled to one vote for each share on all matters submitted to a vote of stockholders.

Our Certificate of Incorporation does not provide for cumulative voting for the election of directors. Our Certificate of Incorporation and Bylaws establish a classified board of directors that is divided into three classes with staggered three-year terms. Only the directors in one class will be subject to election by a plurality of the votes cast at each annual meeting of our stockholders, with the directors in the other classes continuing for the remainder of their respective three-year terms.

No Preemptive or Similar Rights

Our Common Stock is not entitled to preemptive rights, and is not subject to conversion, redemption or sinking fund provisions.

Right to Receive Liquidation Distributions

If we become subject to a liquidation, dissolution or winding-up, the assets legally available for distribution to our stockholders would be distributable ratably among the holders of our Common Stock and any participating preferred stock outstanding at that time, subject to prior satisfaction of all outstanding debt and liabilities and the preferential rights of and the payment of liquidation preferences, if any, on any outstanding shares of preferred stock.

Fully Paid and Non-Assessable

All of the outstanding shares of our Common Stock are, and the shares of our Common Stock are, fully paid and non-assessable and upon issuance of the shares underlying the Warrants will be fully paid and non-assessable.

Authorized but unissued capital stock

The authorized but unissued shares of Common Stock and preferred stock are available for future issuance without stockholder approval, subject to any limitations imposed by the listing standards of Nasdaq. These additional shares may be used for a variety of corporate finance transactions, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved Common Stock and preferred stock could make more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger, or otherwise.

Classified board of directors

Our Certificate of Incorporation provides that our board of directors is divided into three classes, with the classes as nearly equal in number as possible and each class serving three-year staggered terms. Directors may only be removed from our board of directors for cause by the affirmative vote of at least 66⅔ of the voting power of all of our then-outstanding shares of capital stock entitled to vote generally in the election of directors, voting together as a single class. In addition, our Certificate of Incorporation will provide that, subject to the rights granted to one or more series of preferred stock then outstanding, any newly created directorship on the board of directors that results from an increase in the number of directors and any vacancies on our board of directors is filled only by the affirmative vote of a majority of the remaining directors, even if less than a quorum, or by a sole remaining director. A director chosen to fill a position resulting from an increase in the number of directors will hold office until the next election of the director's class and until the director's successor is duly elected and qualified, or until the director's earlier death, resignation or removal. These provisions may have the effect of deferring, delaying, or discouraging hostile takeovers, changes in control of us or changes in our management.

Delaware Anti-Takeover Law

We str subject to Section 203 of the DGCL, which is an anti-takeover law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a business combination with an interested stockholder for a period of three years following the date that the person became an interested stockholder, unless the business combination or the transaction in which the person became an interested stockholder is approved in a prescribed manner. Generally, a business combination includes a merger, asset or stock sale, or another transaction resulting in a financial benefit to the interested stockholder. Generally, an interested stockholder is a person who, together with affiliates and associates, owns 15% or more of the corporation's outstanding voting stock or is the corporation's affiliate or associate and was the owner of 15% or more of the corporation's outstanding voting stock at any time within the three-year period immediately before the date of determination. The existence of this provision may have an anti-takeover effect with respect to transactions that are not approved in advance by our board, including discouraging attempts that might result in a premium over the market price for the shares of Common Stock held by stockholders.

No cumulative voting

Under Delaware law, the right to vote cumulatively does not exist unless the certificate of incorporation specifically authorizes cumulative voting. Our Certificate of Incorporation will not authorize cumulative voting. Therefore, stockholders holding a majority of the shares of our stock entitled to vote generally in the election of directors are able to elect all of our directors.

Special stockholder meetings

Our Certificate of Incorporation will provide that special meetings of our stockholders may be called at any time only by or at the direction of the board of directors, the chair of the board of directors or our Chief Executive Officer. Our Bylaws will prohibit the conduct of any business at a special meeting other than as specified in the notice for such meeting. These provisions may have the effect of deferring, delaying, or discouraging hostile takeovers or changes in control or management.

Director nominations and stockholder proposals

Our Bylaws will establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of the board of directors or a committee of the board of directors. In order for any matter to be "properly brought" before a meeting, a stockholder will have to comply with advance notice requirements and provide us with certain information. Generally, to be timely, a stockholder's notice must be received at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary date of the immediately preceding annual meeting of stockholders. Our Bylaws will also specify requirements as to the form and content of a stockholder's notice. Our Bylaws will allow the chair of a meeting of the stockholders to adopt rules and regulations for the conduct of that meeting that may have the effect of precluding the conduct of certain business at that meeting if the rules and regulations are not followed. These provisions may also defer, delay, or discourage a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to influence or obtain control.

Stockholder action by written consent

Pursuant to Section 228 of the DGCL, any action required to be taken at any annual or special meeting of the stockholders may be taken without a meeting, without prior notice, and without a vote if a consent or consents in writing, setting forth the action so taken, is or are signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares of stock entitled to vote thereon were present and voted, unless the certificate of incorporation provides otherwise. Our Certificate of Incorporation will preclude stockholder action by written consent, subject to the rights of the holders of any series of preferred stock.

Amendment of Certificate of Incorporation or Bylaws

The DGCL provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or bylaws, unless a corporation's certificate of incorporation or bylaws, as the case may be, requires a greater percentage. Our Bylaws may be amended or repealed by a majority vote of our board of directors or by the affirmative vote of the holders of at least $66\frac{2}{3}\%$ of the votes which all our stockholders would be entitled to cast in any annual election of directors. In addition, the affirmative vote of the holders of at least $66\frac{2}{3}\%$ of the votes which all our stockholders would be entitled to cast in any election of directors are required to amend or repeal or to adopt any provisions inconsistent with any of the provisions of our Certificate of Incorporation described above.

The foregoing provisions of our Certificate of Incorporation and our Bylaws could discourage potential acquisition proposals and could delay or prevent a change in control. These provisions are intended to enhance the likelihood of continuity and stability in the composition of our board of directors and in the policies formulated by our board of directors and to discourage certain types of transactions that may involve an actual or threatened change of control. These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal. The provisions also are intended to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, they also may inhibit fluctuations in the market price of our shares of Common Stock that could result from actual or rumored takeover attempts. Such provisions also may have the effect of preventing changes in our management or delaying or preventing a transaction that might benefit you or other minority stockholders.

Exclusive forum

Our Certificate of Incorporation will provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware be the sole and exclusive forum for: (1) any derivative action or proceeding brought on behalf of our company, (2) any action asserting a claim of breach of fiduciary duty owed by any director, officer, agent, or other employee or stockholder of our company to us or our stockholders, (3) any action asserting a claim arising pursuant to any provision of the DGCL, our Certificate of Incorporation or our Bylaws or as to which the DGCL confers jurisdiction on the Court of Chancery of the State of Delaware, or (4) any action asserting a claim governed by the internal affairs doctrine, in each case subject to such Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein. It will further provide that, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States of America shall, to the fullest extent permitted by law, be the sole and exclusive forum for the resolutions of any complaint asserting a cause of action arising under the Securities Act. The exclusive forum clauses described above shall not apply to suits brought to enforce a duty or liability created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. Although we believe these provisions benefit us by providing increased consistency in the application of applicable law in the types of lawsuits to which they apply, the provisions may have the effect of discouraging lawsuits against our directors and officers. The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings and there is uncertainty as to whether a court would enforce such provisions. In addition, investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder. It is possible that, in connection with any applicable action brought against us, a court could find the choice of forum provisions contained in our Certificate of Incorporation to be inapplicable or unenforceable in such action. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and consented to the forum provisions in our Certificate of Incorporation.

Limitations of liability and indemnification

The DGCL authorizes corporations to limit or eliminate the personal liability of directors to corporations and their stockholders for monetary damages for breaches of directors' fiduciary duties, subject to certain exceptions. Our Certificate of Incorporation includes a provision that eliminates the personal liability of directors for monetary damages to the corporation or its stockholders for any breach of fiduciary duty as a director, except to the extent such exemption from liability or limitation thereof is not permitted under the DGCL. The effect of these provisions is to eliminate the rights of us and our stockholders, through stockholders' derivative suits on our behalf, to recover monetary damages from a director for breach of fiduciary duty as a director, including breaches resulting from grossly negligent behavior. However, exculpation does not apply to any breaches of the director's duty of loyalty, any acts or omissions not in good faith or that involve intentional misconduct or knowing violation of law, any authorization of dividends or stock redemptions or repurchases paid or made in violation of the DGCL, or for any transaction from which the director derived an improper personal benefit.

Our Bylaws will generally provide that we must indemnify and advance expenses to our directors and officers to the fullest extent authorized by the DGCL. We also are expressly authorized to carry directors' and officers' liability insurance providing indemnification for our directors, officers and certain employees for some liabilities. We believe these indemnification and advancement provisions and insurance are useful to attract and retain qualified directors and executive officers.

The limitation of liability, indemnification and advancement provisions in our Certificate of Incorporation and our Bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duty. These provisions also may have the effect of reducing the likelihood of derivative litigation against directors and officers, even though such an action, if successful, might otherwise benefit us and our stockholders. In addition, your investment may be adversely affected to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions.

There is currently no pending material litigation or proceeding involving any of our directors, officers or employees for which indemnification is sought.

We intend to enter into an indemnification agreement with each of our directors and executive officers as described in "Certain Relationships and Related Party Transactions — Indemnification agreements." Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors or executive officers, we have been informed that in the opinion of the SEC such indemnification is against public policy and is therefore unenforceable.

Transfer Agent and Registrar

The transfer agent and registrar for our Common Stock is American Stock Transfer & Trust Company, LLC. The transfer agent's address is 6201 15th Avenue, Brooklyn, New York 11219.

Nasdaq Listing

Our Common Stock is listed on the Nasdaq Capital Market under the symbol "ASPI." There is no public market for the Warrants.

SHARES ELIGIBLE FOR FUTURE SALE

We cannot predict the effect, if any, that market sales of shares of our Common Stock or the availability of shares of our Common Stock for sale will have on the market price of our Common Stock prevailing from time to time. Future sales of our Common Stock in the public market, or the availability of such shares for sale in the public market, could adversely affect market prices prevailing from time to time. Sales of our Common Stock in the public market after such restrictions lapse, or the perception that those sales may occur, could adversely affect the prevailing market price at such time and our ability to raise equity capital in the future.

Following the completion of this offering assuming the exercise of the Investor Warrants and PA Warrants, based on the number of shares of our capital stock outstanding as of March 30, 2023, we will have a total of 40,771,760 shares of our Common Stock outstanding. Of these outstanding shares, 15,253,133 shares of Common Stock will be freely tradable.

The remaining outstanding shares of our Common Stock will be deemed “restricted securities” as defined in Rule 144. Restricted securities may be sold in the public market only if they are registered or if they qualify for an exemption from registration under Rule 144 or Rule 701 under the Securities Act, which rules are summarized below. In addition, all of our executive officers and directors with approximately 40.9% of our Common Stock have entered into market standoff agreements with us or lock-up agreements with the underwriters to our IPO under which they have agreed, subject to specific exceptions, not to sell any of our stock for at least 180 days following the date of our IPO or May 15, 2023. As a result of these agreements, subject to the provisions of Rule 144 or Rule 701, shares will be available for sale in the public market as follows:

- 6,550,633 shares being registered hereunder on behalf of the Selling Stockholders named in this registration statement will be immediately available for sale in the public market;
- 1,500,000 shares of Common Stock sold in our IPO in November of 2022 were immediately available for sale in the public market as of such date;
- beginning 181 days after the date of this prospectus, 15,122,951 additional shares of Common Stock will become eligible for sale in the public market, of which 15,122,951 shares will be held by affiliates and subject to the volume and other restrictions of Rule 144, as described below; and
- the remainder of the shares of Common Stock will be eligible for sale in the public market from time to time thereafter, subject in some cases to the volume and other restrictions of Rule 144, as described below.

Lock-Up Agreements

Our officers and directors with approximately 40.9% of our capital stock and securities convertible into or exchangeable for our capital stock have agreed with our IPO underwriters, Revere Securities, LLC, that, subject to certain exceptions, for a period of 180 days after the date of our IPO or until May 15, 2023, we and they will not, and will not cause or direct any of our or their respective affiliates to, without the prior written consent of Revere Securities, LLC, (i) offer, sell, contract to sell, pledge, grant any option to purchase, lend or otherwise dispose of any shares of Common Stock, any options or warrants to purchase any shares of Common Stock or any securities convertible into or exchangeable for or that represent the right to receive shares of our Common Stock, (ii) engage in any hedging or other transaction or arrangement (including, without limitation, any short sale or the purchase or sale of, or entry into, any put or call option, or combination thereof, forward, swap or any other derivative transaction or instrument, however described or defined) which is designed to or which reasonably could be expected to lead to or result in a sale, loan, pledge or other disposition (whether by such holder or someone other than such holder), or transfer of any of the economic consequences of ownership, in whole or in part, directly or indirectly, of any shares of Common Stock or derivative instruments, whether any such transaction or arrangement (or instrument provided for thereunder) would be settled by delivery of Common Stock or other securities, in cash or otherwise, or (iii) otherwise publicly announce any intention to engage in or cause any action or activity described in clauses (i) or (ii) above. Revere Securities, LLC may, in their discretion, release any of the securities subject to lock-up agreements at any time. When determining whether or not to release our Common Stock and other securities from lock-up agreements, Revere Securities, LLC will consider, among other factors, the holder’s reasons for requesting the release, the number of shares for which the release is being requested and market conditions at the time of the request. In the event of such a release or waiver for one of our directors or officers, Revere Securities, LLC shall provide us with notice of the impending release or waiver at least three business days before the effective date of such release or waiver and we will announce the impending release or waiver by issuing a press release at least two business days before the effective date of the release or waiver.

Rule 144

In general, under Rule 144 as currently in effect, once we have been subject to the public company reporting requirements of Section 13 or Section 15(d) of the Exchange Act for at least 90 days, a person who is not deemed to have been one of our affiliates for purposes of the Securities Act at any time during the 90 days preceding a sale and who has beneficially owned the shares of our Common Stock proposed to be sold for at least six months is entitled to sell those shares without complying with the manner of sale, volume limitation or notice provisions of Rule 144, subject to compliance with the public information requirements of Rule 144. If such a person has beneficially owned the shares proposed to be sold for at least one year, including the holding period of any prior owner other than our affiliates, then that person would be entitled to sell those shares without complying with any of the requirements of Rule 144.

LEGAL MATTERS

Hamilton & Associates Law Group, P.A., Boca Raton, Florida will pass upon the validity of the securities offered in this prospectus.

EXPERTS

The consolidated balance sheet of ASP Isotopes Inc. and Subsidiaries as of December 31, 2022 and 2021, and the related consolidated statements of operations and comprehensive loss, changes in stockholders' equity, and cash flows for the year ended December 31, 2022 and for the period from September 13, 2021 (inception) to December 31, 2021, have been audited by EisnerAmper LLP, independent registered public accounting firm, as stated in their report which is included herein, which report includes an explanatory paragraph about the existence of substantial doubt concerning the Company's ability to continue as a going concern. Such financial statements have been included herein in reliance on the report of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement, some of which is contained in exhibits to the registration statement as permitted by the rules and regulations of the SEC. For further information with respect to us and our Common Stock, we refer you to the registration statement, including the exhibits filed as a part of the registration statement. Statements contained in this prospectus concerning the contents of any contract or any other document are not necessarily complete. If a contract or document has been filed as an exhibit to the registration statement, please see the copy of the contract or document that has been filed. Each statement in this prospectus relating to a contract or document filed as an exhibit is qualified in all respects by the filed exhibit. The SEC maintains a website that contains reports, proxy statements and other information about issuers, like us, that file electronically with the SEC. The address of that website is www.sec.gov.

We are subject to the information and reporting requirements of the Exchange Act and, in accordance with this law, will file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information will be available for inspection at the website of the SEC referred to above. We also maintain a website at www.aspisotopes.com where you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. The information on or that can be accessed through our website is not a part of this prospectus and the inclusion of our website address in this prospectus is an inactive textual reference only.

ASP Isotopes Inc.
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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of
ASP Isotopes Inc. and Subsidiaries

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of ASP Isotopes Inc. and Subsidiaries (the “Company”) as of December 31, 2022 and 2021, and the related consolidated statements of operations and comprehensive loss, changes in stockholders’ equity, and cash flows for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021, and the related notes (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of their operations and their cash flows for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021, in conformity with accounting principles generally accepted in the United States of America.

Going Concern

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company has incurred recurring operating losses and negative cash flows from operating activities, which raises substantial doubt about its ability to continue as a going concern. Management’s plans in regards to these matters are also described in Note 1. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s financial statements based on our audit. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (“PCAOB”) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audit, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ EisnerAmper LLP

We have served as the Company’s auditor since 2022.

EISNERAMPER LLP
Iselin, New Jersey
March 31, 2023

**ASP Isotopes Inc.
Consolidated Balance Sheets**

	December 31,	
	2022	2021
Assets		
Current assets:		
Cash	\$ 2,389,140	\$ 2,953,721
Prepaid expenses and other current assets	913,005	267,562
Total current assets	3,302,145	3,221,283
Property and equipment, net	8,200,595	2,988,210
Operating lease right-of-use asset	853,889	933,145
Other noncurrent assets	139,636	—
Total assets	\$ 12,496,265	\$ 7,142,638
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$ 1,354,903	\$ 59,679
Accrued expenses	361,246	42,500
Notes payable	33,854	46,900
Operating lease liability – current	45,903	38,072
Share liability	140,455	116,200
Total current liabilities	1,936,361	303,351
Operating lease liability – noncurrent	742,443	841,623
Total liabilities	2,678,804	1,144,974
Commitments and contingencies (Note 6)		
Stockholders' equity		
Preferred stock, \$0.01 par value; 10,000,000 shares authorized, no shares issued and outstanding at December 31, 2022 and 2021	—	—
Common stock, \$0.01 par value; 500,000,000 shares authorized, 35,907,127 and 20,652,500 shares issued and outstanding at December 31, 2022 and 2021, respectively	359,071	206,525
Additional paid-in capital	16,756,426	8,380,343
Accumulated deficit	(7,553,066)	(2,607,927)
Accumulated other comprehensive income	255,030	18,723
Total stockholders' equity	9,817,461	5,997,664
Total liabilities and stockholders' equity	\$ 12,496,265	\$ 7,142,638

The accompanying notes are an integral part of these consolidated financial statements.

ASP Isotopes Inc.
Consolidated Statements of Operations and Comprehensive Loss

	Year Ended December 31, 2022	For The Period From September 13, 2021 (Inception) Through December 31, 2021
Operating expenses:		
Research and development	\$ 1,273,536	\$ 41,610
General and administrative	3,825,512	2,566,432
Total operating expenses	<u>5,099,048</u>	<u>2,608,042</u>
Loss from operations	(5,099,048)	(2,608,042)
Other income:		
Change in fair value of share liability	150,527	—
Interest income	3,382	115
Total other income	<u>153,909</u>	<u>115</u>
Net loss	<u>\$ (4,945,139)</u>	<u>\$ (2,607,927)</u>
Net loss per share, basic and diluted	<u>\$ (0.18)</u>	<u>\$ (0.16)</u>
Weighted average shares of common stock outstanding, basic and diluted	<u>26,793,748</u>	<u>16,246,432</u>
Other comprehensive loss:		
Net loss	(4,945,139)	(2,607,927)
Foreign currency translation	236,307	18,723
Total comprehensive loss	<u>\$ (4,708,832)</u>	<u>\$ (2,589,204)</u>

The accompanying notes are an integral part of these consolidated financial statements.

ASP Isotopes Inc.
Consolidated Statements of Changes in Stockholders' Equity

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at September 13, 2021 (Inception)	—	\$ —	\$ —	\$ —	\$ —	\$ —
Issuance of common stock to founders	2,000,000	20,000	480,000	—	—	500,000
Issuance of restricted common stock	2,100,000	21,000	(21,000)	—	—	—
Issuance of common stock, net of issuance costs totaling \$342,200	16,552,500	165,525	6,172,275	—	—	6,337,800
Issuance of warrants to purchase common stock	—	—	1,735,841	—	—	1,735,841
Stock-based compensation	—	—	13,227	—	—	13,227
Foreign currency translation	—	—	—	18,723	—	18,723
Net loss	—	—	—	—	(2,607,927)	(2,607,927)
Balance at December 31, 2021	<u>20,652,500</u>	<u>\$ 206,525</u>	<u>\$ 8,380,343</u>	<u>\$ 18,723</u>	<u>\$ (2,607,927)</u>	<u>\$ 5,997,664</u>
Issuance of common stock, net of issuance costs of \$380,747	1,559,780	15,598	2,723,214	—	—	2,738,812
Issuance of common stock in connection with initial public offering, net of issuance costs of \$1,209,496	1,250,000	12,500	3,778,004	—	—	3,790,504
Issuance of common stock upon exercise of warrants	7,194,847	71,948	(71,948)	—	—	—
Issuance of restricted shares	5,250,000	52,500	(52,500)	—	—	—
Stock-based compensation	—	—	1,999,313	—	—	1,999,313
Foreign currency translation	—	—	—	236,307	—	236,307
Net loss	—	—	—	—	(4,945,139)	(4,945,139)
Balance at December 31, 2022	<u>35,907,127</u>	<u>\$ 359,071</u>	<u>\$ 16,756,426</u>	<u>\$ 255,030</u>	<u>\$ (7,553,066)</u>	<u>\$ 9,817,461</u>

The accompanying notes are an integral part of these consolidated financial statements.

ASP Isotopes Inc.
Consolidated Statements of Cash Flows

	Year Ended December 31, 2022	For The Period From September 13, 2021 (Inception) Through December 31, 2021
Cash flows from Operating activities		
Net loss	\$ (4,945,139)	\$ (2,607,927)
Adjustments to reconcile net loss to cash used in operating activities:		
Stock-based compensation	1,999,313	13,227
Issuance of common stock to founders	—	500,000
Issuance of warrant to purchase common stock	—	1,735,841
Issuance of common stock to consultant	50,000	—
Change in fair value of share liability	(150,527)	—
Change in right-of-use lease asset	72,570	19,376
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(671,924)	(267,562)
Other noncurrent assets	(146,435)	—
Accounts payable	570,600	59,679
Accrued expenses	319,048	42,500
Lease liability	(37,399)	(72,826)
Net cash used in operating activities	<u>(2,939,893)</u>	<u>(577,692)</u>
Cash flows from investing activities		
Purchases of property and equipment	(4,473,164)	(2,988,210)
Net cash used in investing activities	<u>(4,473,164)</u>	<u>(2,988,210)</u>
Cash flows from financing Activities		
Proceeds from issuance of common stock	8,119,959	6,680,000
Common stock issuance costs	(1,465,461)	(226,000)
Proceeds from issuance of notes payable	—	46,900
Repayment of notes payable	(13,046)	—
Net cash provided by financing activities	<u>6,641,052</u>	<u>6,500,900</u>
Net change in cash	<u>(772,005)</u>	<u>2,934,998</u>
Effect of exchange rate changes on cash	207,424	18,723
Cash – beginning of period	2,953,721	—
Cash – end of period	<u>\$ 2,389,140</u>	<u>\$ 2,953,721</u>
Supplemental disclosures of non-cash investing and financing activities:		
Share liability for non-cash issuance costs	\$ 124,782	\$ 116,200
Purchase of property and equipment included in accounts payable	\$ 745,628	\$ —
Right-of-use assets obtained in exchange for lease liability	\$ —	\$ 952,521

The accompanying notes are an integral part of these consolidated financial statements.

ASP Isotopes Inc.
Notes to Consolidated Financial Statements

1. Organization

Description of Business

ASP Isotopes Inc. was incorporated in the state of Delaware on September 13, 2021 and has its principal operations in Boca Raton, Florida. ASP Isotopes Inc.'s subsidiary, ASP Isotopes Holdings Limited ("ASP Guernsey"), has its principal operations in Guernsey. ASP Guernsey's subsidiary, ASP Isotopes Holdings South Africa Proprietary Limited ("ASP South Africa"), has its principal operations in South Africa. ASP Isotopes UK Ltd, a wholly-owned subsidiary of the Company, was incorporated in July 2022. Enriched Energy, LLC, a wholly-owned subsidiary of the Company, was incorporated in January 2022. ASP Isotopes Inc. and its subsidiaries are collectively referred to as "the Company" throughout these consolidated statements.

The Company is a pre-commercial stage advanced materials company dedicated to the development of technology and processes that, if successful, will allow for the enrichment of natural isotopes into higher concentration products, which could be used in several industries. The Company has an exclusive license to use proprietary technology, the Aerodynamic Separation Process ("ASP technology"), originally developed and licensed to the Company by Klydon Proprietary Ltd ("Klydon"), for the production, distribution, marketing and sale of all isotopes. The Company's initial focus is on the production and commercialization of enriched Carbon-14 ("C-14"), Molybdenum-100 ("Mo-100") and Silicon-28 ("Si-28"). Klydon has agreed to provide the Company a first commercial-scale isotope enrichment plant located in South Africa. The Company believes the C-14 it may develop using the ASP technology may be used in the development of new pharmaceuticals and agrochemicals. The Company believes that the Mo-100 it may develop using the ASP technology has significant potential advantages for use in the preparation of nuclear imaging agents by radiopharmacies and others in the medical industry. The Company believes the Si-28 it may develop using the ASP technology may be used to develop advanced semiconductors and in quantum computing.

The Company also intends to use the ASP technology to produce enriched Uranium-235 ("U-235"). The Company believes that the U-235 it may develop using the ASP technology may be commercialized as a nuclear fuel component for use in the new generation of HALEU-fueled small modular reactors that are now under development for commercial and government uses. In addition, the Company is considering future development of the ASP technology for the separation of Zinc-68, Ytterbium-176, Zinc-67, Nickel-64 and Xenon-136 for potential use in the healthcare target end market, and Chlorine -37 and Lithium-6 for potential use in the nuclear energy target end market.

In November 2022, the Company completed its IPO, selling an aggregate of 1,250,000 shares of common stock at a price to the public of \$4.00 per share. The Company received net proceeds from the IPO, after deducting underwriting discounts and commissions but before deducting offering costs, of approximately \$3.8 million.

Liquidity and Going Concern Uncertainty

The accompanying consolidated financial statements have been prepared on a basis which assumes the Company is a going concern and do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classifications of liabilities that may result from any uncertainty related to the Company's ability to continue as a going concern. Such adjustments could be material. The Company has experienced net losses and negative cash flows from operating activities since its inception. The Company incurred net losses of \$4,945,139 for the year ended December 31, 2022 and \$2,607,927 for the period from September 13, 2021 (inception) through December 31, 2021. The Company anticipates it will need to continue to raise capital through additional equity and/or debt financings and/or collaborative development agreements to fund its operations.

The Company currently expects that its cash of \$2,389,140 as of December 31, 2022, along with gross proceeds of \$5.0 million received in March 2023 through the issuance of 3,164,557 shares of the Company's common stock at a purchase price of \$1.58 per share and warrants to purchase up to an aggregate of 3,164,557 shares of its common stock with an exercise price of \$1.75 per share, will not be sufficient to fund its operating expenses and capital requirements for more than 12 months from the date the financial statements are issued. These conditions raise substantial doubt about the Company's ability to continue as a going concern. Additional funding will be necessary to complete construction of the first enrichment facility and begin operations, and although the Company has plans to seek additional funding, these plans are not currently probable.

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

There can be no assurance that the Company will achieve or sustain positive cash flows from operations or profitability. The Company is in the process of seeking additional debt and equity financing. However, such funding may not be available on a timely basis on terms acceptable to the Company, or at all. If the Company is unable to raise additional capital when required or on acceptable terms, the Company may be required to further scale back or discontinue the advancement of product candidates, further reduce headcount, reorganize, merge with another entity, or cease operations.

Coronavirus Pandemic

In March 2020, the World Health Organization declared the COVID-19 outbreak a pandemic. In order to mitigate the spread of COVID-19, governments have imposed unprecedented restrictions on business operations, travel and gatherings, resulting in a global economic downturn and other adverse economic and societal impacts. The COVID-19 pandemic and its impacts continue to evolve. We cannot predict the scope and severity of disruptions as a result of COVID-19 or their impacts on us, but business disruptions for us or any of the third parties with whom we engage, including the collaborators, contract organizations, third-party manufacturers, suppliers, regulators and other third parties with whom we conduct business could materially and negatively impact our ability to conduct our business in the manner and on the timelines presently planned. The extent to which the COVID-19 pandemic may impact our business and financial performance will depend on future developments, which are highly uncertain and cannot be predicted with confidence, including the scope and duration of the pandemic, the extent and effectiveness of government restrictions and other actions, including relief measures, implemented to address the impact of the pandemic, and resulting economic impacts.

The actual and perceived impact of the COVID-19 pandemic is changing daily, and its ultimate effect on our business cannot be predicted. As a result, there can be no assurance that we will not experience negative impacts associated with COVID-19, which could be significant. The COVID-19 pandemic may negatively impact our business, financial condition and results of operations, causing interruptions or delays in the Company's programs and services.

2. Basis of Presentation and Summary of Significant Accounting Policies

Basis of Presentation and Use of Estimates

The Company's consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States ("GAAP"). The preparation of the Company's consolidated financial statements requires management to make estimates and assumptions that impact the reported amounts of assets, liabilities and expenses and disclosure in the Company's consolidated financial statements and accompanying notes. The most significant estimates in the Company's consolidated financial statements relate to the valuation of equity instruments and estimating our accrued research and development expenses. Although these estimates are based on the Company's knowledge of current events and actions it may undertake in the future, actual results may materially differ from these estimates and assumptions.

Principles of consolidation

The Company's consolidated financial statements include the accounts of ASP Isotopes Inc. and its subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

Currency and currency translation

The consolidated financial statements are presented in U.S. dollars, the Company's reporting currency. The functional currency of ASP Isotopes Inc. and ASP Guernsey is the U.S. dollar. The functional currency of the Company's subsidiary ASP South Africa is the South African Rand. Adjustments that arise from exchange rate changes on transactions of each group entity denominated in a currency other than the functional currency are included in other income and expense in the consolidated statements of operations. Assets and liabilities of ASP South Africa are recorded in their South African Rand functional currency and translated into the U.S. dollar reporting currency of the Company at the exchange rate on the balance sheet date. Revenue, when recorded, and expenses of ASP South Africa are recorded in their South African Rand functional currency and translated into the U.S. dollar reporting currency of the Company at the average exchange rate prevailing during the reporting period. Resulting translation adjustments are recorded to other comprehensive income (loss).

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

Concentration of Credit Risk and other Risks

Cash balances are maintained at U.S. financial institutions and may exceed the Federal Deposit Insurance Corporation (“FDIC”) insurance limit of \$250,000 per depositor, per insured bank for each account ownership category. Although the Company currently believes that the financial institutions with whom it does business, will be able to fulfill their commitments to the Company, there is no assurance that those institutions will be able to continue to do so. The Company has not experienced any credit losses associated with its balances in such accounts for the years ended December 31, 2022 and 2021.

Our foreign subsidiaries held cash of approximately \$38,000 and \$20,000 as of December 31, 2022 and 2021, respectively, which is included in cash on the consolidated balance sheets. Our strategic plan does not require the repatriation of foreign cash in order to fund our operations in the U.S., and it is our current intention to indefinitely reinvest our foreign cash outside of the U.S. If we were to repatriate foreign cash to the U.S., we would be required to accrue and pay U.S. taxes in accordance with applicable U.S. tax rules and regulations as a result of the repatriation.

Cash

The Company considers all highly liquid investments with original maturities at the date of purchase of three months or less to be cash equivalents. Cash and cash equivalents are stated at fair value and may include money market funds, U.S. Treasury and U.S. government-sponsored agency securities, corporate debt, commercial paper and certificates of deposit. The Company had no cash equivalents as of December 31, 2022 and 2021.

Segment Information

The Company manages its operations as a single segment for the purposes of assessing performance and making operating decisions. The financial information is regularly reviewed by the chief operating decision maker (“CODM”) in deciding how to allocate resources. The Company’s CODM is its chief executive officer.

Fair Value of Financial Instruments

Accounting guidance defines fair value, establishes a consistent framework for measuring fair value, and expands disclosure for each major asset and liability category measured at fair value on either a recurring or nonrecurring basis. Fair value is defined as an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, the accounting guidance establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value as follows:

Level 1: Observable inputs such as quoted prices in active markets;

Level 2: Inputs, other than the quoted prices in active markets, that are observable either directly or indirectly; and

Level 3: Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

The Company’s share liability (Note 9) measured at Level 3 fair value on a recurring basis was \$140,455 as of December 31, 2022. There was a transfer of the share liability from Level 3 to Level 1 as a result of our IPO in the year ended December 31, 2022. The following table provides a reconciliation of the Company’s liabilities measured at fair value on a recurring basis using significant unobservable inputs (Level 1):

	Share Liability
Balance, September 13, 2021	\$ —
Addition on issuance of common stock	116,200
Balance, December 31, 2021	116,200
Addition on issuance of common stock	174,782
Fair value adjustment	(150,527)
Balance, December 31, 2022	\$ 140,455

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

The carrying amounts of accounts payable, accrued expenses and notes payable are considered to be representative of their respective fair values because of the short-term nature of those instruments.

Property and Equipment

Property and equipment include costs of assets constructed, purchased or leased under a finance lease, related delivery and installation costs and interest incurred on significant capital projects during their construction periods. Expenditures for renewals and betterments also are capitalized, but expenditures for normal repairs and maintenance are expensed as incurred. Costs associated with yearly planned major maintenance are generally deferred and amortized over 12 months or until the same major maintenance activities must be repeated, whichever is shorter. The cost and accumulated depreciation applicable to assets retired or sold are removed from the respective accounts, and gains or losses thereon are included in the statement of operations.

We assign the useful lives of our property and equipment based upon our internal engineering estimates, which are reviewed periodically. The estimated useful lives of our property and equipment range from 3 to 5 years, or the shorter of the useful life or remaining life of the lease for leasehold improvements. Depreciation is recorded using the straight-line method.

Construction in progress (Note 3) is carried at cost and consists of specifically identifiable direct and indirect development and construction costs. While under construction, costs of the property are included in construction in progress until the property is placed in service, at which time costs are transferred to the appropriate property and equipment account, including, but not limited to, leasehold improvements or other such accounts.

Leases

In February 2016, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2016 02, “Leases” (“ASC 842”), which establishes a right-of-use model (“ROU”) that requires a lessee to recognize an ROU asset and corresponding lease liability on the balance sheet for all leases with a term longer than 12 months. Leases will be classified as finance or operating, with classification affecting the pattern and classification of expense recognition in the income statement as well as the reduction of the right-of-use asset. The new standard provides a number of optional practical expedients in transition. The Company has elected to apply (i) the practical expedient, which allows us to not separate lease and non-lease components, for new leases and (ii) the short-term lease exemption for all leases with an original term of less than 12 months, for purposes of applying the recognition and measurements requirements in the new standard.

At the inception of an arrangement, the Company determines whether the arrangement is or contains a lease based on specific facts and circumstances, the existence of an identified asset(s), if any, and the Company’s control over the use of the identified asset(s), if applicable. Operating lease liabilities and their corresponding right-of-use assets are recorded based on the present value of future lease payments over the expected lease term. The interest rate implicit in lease contracts is typically not readily determinable. As such, the Company will utilize the incremental borrowing rate, which is the rate incurred to borrow on a collateralized basis over a similar term an amount equal to the lease payments in a similar economic environment, and considering the region in which the ROU asset and liabilities are located.

The Company has elected to combine lease and non-lease components as a single component. Operating leases are recognized on the balance sheet as ROU lease assets, lease liabilities current and lease liabilities non-current. Fixed rents are included in the calculation of the lease balances, while variable costs paid for certain operating and pass-through costs are excluded. Lease expense is recognized over the expected term on a straight-line basis.

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

Impairment of Long-lived Assets

Long-lived assets consist primarily of property and equipment. The Company reviews long-lived assets for impairment whenever events or changes in circumstances indicate the carrying amount of an asset is not recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the future undiscounted net cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured as the amount by which the carrying amount of the asset exceeds the fair value of the assets. Fair value would be assessed using a discounted cash flows or other appropriate measures of fair value. The Company did not recognize any impairment losses for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021.

Research and Development Costs

Research and development costs consist primarily of fees paid to consultants, license fees and facilities costs. Nonrefundable advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received rather than when the payment is made. All research and development costs are expensed as incurred.

General and Administrative Costs

General and administrative expenses consist primarily of salaries and related benefits, including stock-based compensation, related to our executive, finance, business development, legal, human resources and support functions. Other general and administrative expenses include professional fees for auditing, tax, consulting and patent-related services, rent and utilities and insurance.

Stock-based Compensation

Stock-based compensation expense represents the cost of the grant date fair value of employee stock awards recognized over the requisite service period of the awards (usually the vesting period) on a straight-line basis. The Company estimates the fair value of each stock-based award on the date of grant using the Black-Scholes option pricing model. The Black-Scholes option pricing model incorporates various assumptions, such as the value of the underlying common stock, the risk-free interest rate, expected volatility, expected dividend yield, and expected life of the options. Forfeitures are recognized as a reduction of stock-based compensation expense as they occur.

The Company also awards restricted stock to employees and directors. Restricted stock is generally subject to forfeiture if employment terminates prior to the completion of the vesting restrictions. The Company expenses the cost of the restricted stock, which is determined to be the fair market value of the shares of common stock underlying the restricted stock at the date of grant, ratably over the period during which the vesting restrictions lapse.

Equity-based compensation expense is classified in the statement of operations in the same manner in which the award recipients' payroll costs are classified or in which the award recipients' service payments are classified.

Prior to the Company's IPO, there was no public market of the Company's common stock. The fair value of the shares of common stock underlying the Company's share-based awards was estimated on each grant date by the Company's board of directors based on then current facts and circumstances. To determine the fair value of the Company's common stock underlying option grants, the board of directors considered, among other things, input from management and recent third-party financings consummated by the Company. In connection with the preparation of the financial statements for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021, the Company performed a retrospective review of the fair value of its common stock related to the current events available.

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

Income Taxes

Deferred income tax assets and liabilities arise from temporary differences associated with differences between the financial statements and tax basis of assets and liabilities, as measured by the enacted tax rates, which are expected to be in effect when these differences reverse. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized.

The Company has generated net losses since inception and accordingly has not recorded a provision for income taxes.

The Company follows the provisions of ASC 740-10, *Uncertainty in Income Taxes*, or ASC 740-10. The Company has not recognized a liability for any uncertain tax positions. A reconciliation of the beginning and ending amount of unrecognized tax benefits has not been provided since there is no unrecognized benefit since the date of adoption. The Company has not recognized interest expense or penalties as a result of the implementation of ASC 740-10. If there were an unrecognized tax benefit, the Company would recognize interest accrued related to unrecognized tax benefits and penalties in income tax expense.

The Company has identified the United States, Florida, South Africa and Guernsey as its major tax jurisdictions. Refer to Note 12 for further details.

Comprehensive Loss

Comprehensive loss is defined as a change in equity during a period from transactions and other events and circumstances from non-owner sources. The Company's comprehensive loss is comprised of net loss and the effect of currency translation adjustments.

Recently Issued Accounting Pronouncements

The Company has reviewed recently issued accounting pronouncements and plans to adopt those that are applicable to it. The Company does not expect the adoption of any recently issued pronouncements to have a material impact on its results of operations or financial position.

3. Property and Equipment

Property and equipment consist of construction in progress totaling \$8,200,595 and \$2,988,210 at December 31, 2022 and December 31, 2021, respectively.

The Company is currently building out the plant and office space in South Africa. All costs incurred are considered construction in progress because the work is not complete as of December 31, 2022 and 2021. There was no depreciation expense for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021.

4. Accrued Expenses

Accrued expenses consisted primarily of accrued professional fees and employee compensation costs at December 31, 2022. Accrued expenses consisted of accrued employee compensation costs at December 31, 2021.

5. Notes Payable

During 2021, the Company executed promissory notes payable with two individuals with an aggregate principal balance of approximately \$6,900 (35,000 GBP). The notes were due after a period of two months, followed by mutually agreed upon monthly extensions, and do not bear interest. Subsequent to the issuance of the notes payable, one of the individuals became an officer of the Company.

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

In March 2022, one of the promissory notes totaling \$13,046 (10,000 GBP) was repaid in full. As of December 31, 2022, the total promissory notes payable balance was \$33,854 and have been automatically extended on a monthly basis. As of December 31, 2021, the total promissory notes payable balance was \$6,900.

6. Commitments and Contingencies

Klydon Proprietary Limited

In November 2021, the Company entered into an agreement with Klydon Proprietary Limited (“Klydon”) to design and build a plant to enrich Molybdenum in South Africa. The initial phase of the project includes the building of a plant that can support the production of at least 5kgs of Mo-100, and is expected to be completed in the second half of 2023. The contracted cost for this phase is \$6,800,000. The second phase of the project includes the production to be increased to 20kgs of Mo-100 with an additional cost of \$6,000,000. The Company can modify the contract scope and overall costs and the contract can be cancelled by either party. As of December 31, 2022 and 2021, approximately \$7,233,000 and \$1,800,000, respectively, has been paid under this contract and recorded as construction in progress within property and equipment.

Klydon performed a portion of the services required under the Turnkey Contract; however, services were incomplete and many of the services were not completed within the time frame required. As a result, Klydon and ASP South Africa entered into an Acknowledgement of Debt Agreement dated November 30, 2022, whereby Klydon (i) agreed to pledge its assets (the “Pledged Assets”) to ASP South Africa to secure its performance of the Turnkey Contract by December 31, 2022, and (ii) acknowledged that ASP South Africa would suffer damages in the amount of \$6,050,000 (“Damage Amount”) should it fail to perform. Under the Acknowledgement of Debt Agreement, the Pledged Assets would serve as collateral for Klydon’s obligation to pay the Damage Amount should Klydon fail to perform. In connection therewith, also on November 30, 2022, ASP South Africa and Klydon entered into a Deed of Security Agreement whereby, if Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, all of Klydon’s rights of any nature to and interests of any nature in the Pledged Assets would be transferred to ASP South Africa. Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, and the Company plans to perfect its interests in the assets as soon as practicable. The Company does not believe that the amounts owed by Klydon are realizable, nor does the Company know the timing of any recovery payments. Therefore, a loss recovery receivable was not recorded at December 31, 2022.

Two individuals who are officers and board members of Klydon received warrants to purchase common stock of the Company. See Notes 8 and 9.

Contingencies

From time to time, the Company may have certain contingent liabilities that arise in the ordinary course of its business activities. The Company accrues liabilities for such matters when future expenditures are probable and such expenditures can be reasonably estimated.

On October 25, 2022, the Company received a letter from a law firm acting on behalf of Norsk medisinsk syklotronsenter AS (“NMS”), asserting, among other things, that the grant of a license to the ASP technology to the Company by Klydon violates a pre-existing exclusive sub-license to the ASP technology granted to Radfarma. The asserted claims, arbitration and/or litigation could include claims against the Company, the Company’s licensor (Klydon), or Klydon’s present or former sub-licensors alleging infringement of intellectual property rights with respect to the ASP technology on which our company relies. The Company believe these claims have no merit.

7. Lease

The Company accounts for leases in accordance with ASC 842 (Note 2). The Company is party to one operating lease in Pretoria, South Africa for office and laboratory space. The lease commenced in October 2021 with the initial term set to expire in December 2030. The Company has applied the guidance in ASC 842 and has determined that it should be classified as an operating lease. The Company’s incremental borrowing rate is approximately 7.5% based on the remaining lease term of the applicable lease. Consequently, a ROU lease asset of approximately \$952,521 with a corresponding lease liability of approximately \$952,521 based on the present value of the minimum rental payments of such lease was recorded at the inception of the lease. In the consolidated balance sheet at December 31, 2022, the Company has a ROU asset balance of \$853,889 and a current and non-current lease liability of \$45,903 and \$742,443, respectively, relating to the ROU lease asset. The balance of both the ROU lease asset and the lease liabilities primarily consists of future payments under the Company’s lease in South Africa.

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

Quantitative information regarding the Company's lease is as follows:

	Year Ended December 31, 2022	For the period from September 13, 2021 (inception) through December 31, 2021
Lease Cost		
Operating lease cost	\$ 125,667	\$ 19,376
Other Information		
Operating cash flows paid for amounts included in the measurement of lease liabilities	\$ 93,211	\$ 26,582
Operating lease liabilities arising from obtaining right-of-use assets	\$ —	\$ 952,521
Remaining lease term (years)	8.00	9.00
Discount rate	7.5%	7.5%

Future lease payments under noncancelable leases are as follows at December 31, 2022:

	Operating Leases
Future Lease Payments	
2023	\$ 103,543
2024	111,308
2025	119,656
2026	128,631
2027	138,278
Thereafter	480,229
Total lease payments	\$ 1,081,645
Less: imputed interest	(293,299)
Total lease liabilities	\$ 788,346
Less current portion	(45,903)
Lease liability – noncurrent	\$ 742,443

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

8. License Agreements

In September 2021, the Company licensed certain intellectual property from Klydon for the development, production distribution, marketing and sale of Mo-100. The license term is 999 years, unless terminated earlier by either party under certain provisions. Any development efforts improving the intellectual property performed by either Klydon or the Company will be the property of Klydon. There are no upfront, milestone payments, nor royalties on product sales over the term of the license. Two individuals who are officers and board members of Klydon received warrants to purchase common stock of the Company. See Note 9.

In January 2022, the Company licensed certain intellectual property from Klydon for the development, production distribution, marketing and sale of uranium isotope U-235 (“U-235”). The license term is 999 years, unless terminated earlier by either party under certain provisions. Any development efforts improving the intellectual property performed by either Klydon or the Company will be the property of Klydon. The Company paid an upfront fee of \$100,000, which was expensed to research and development expense. The Company is required to pay a nominal royalty per Kg of product sold plus 10% royalties on product net profits over the term of the contract. One of the officers, who is also a board member of Klydon, became a board member and consultant of ASP Isotopes Inc. and an employee of ASP Guernsey in January 2022.

In July 2022, ASP Isotopes UK Ltd (a subsidiary of the Company) entered into a license agreement with Klydon, as licensor, pursuant to which ASP Isotopes UK Ltd acquired from Klydon an exclusive license to use, develop, modify, improve, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the production, distribution, marketing and sale of all isotopes produced using the ASP technology (the “Klydon license agreement”). The Klydon license agreement superseded and replaced the Mo-100 license and U-235 license described in Note 8 above. The Klydon license agreement is royalty-free, has a term of 999 years and is worldwide for the development of the ASP technology and the distribution, marketing and sale of isotopes. Future production of isotopes is limited to member countries of the Nuclear Suppliers Group. In connection with the Klydon license agreement the Company agreed to make an upfront payment of \$100,000 (to be included within the payments we make under the Turnkey Contract) and deferred payments of \$300,000 over 24 months, which was expensed to research and development expense. Klydon has the right to terminate the exclusivity of the Klydon license agreement in the event that the licensee ceases to carry on activities related to isotope enrichment for a period longer than 24 consecutive months. The \$400,000 due to Klydon is in accounts payable as of December 31, 2022.

In July 2022, ASP South Africa acquired assets comprising a dormant Silicon-28 aerodynamic separation processing plant from Klydon for ZAR6,000,000 (which at the then current exchange rate was approximately \$354,000), which was recorded to property and equipment, will be payable to Klydon on the later of 180 days of the acquisition and the date on which the assets generate any revenues of any nature.

9. Stockholders’ Equity

Preferred stock

The Company has 10,000,000 shares of preferred stock authorized, of which no shares were issued and outstanding at December 31, 2022 and December 31, 2021.

Common stock

The Company has 500,000,000 shares of common stock authorized, of which 35,907,127 shares were issued and outstanding at December 31, 2022. Common stockholders are entitled to one vote for each share of outstanding common stock held at all meetings of stockholders and written actions in lieu of meetings. Common stockholders are entitled to receive dividends for each share of outstanding common stock, if and when declared by the Board. No dividends have been declared or paid by the Company through December 31, 2022.

From September 2021 through early November 2021, the Company issued 15,100,000 shares of common stock at \$0.25 per share.

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

From November 2021 through December 2021, the Company issued 1,452,500 shares of common stock at \$2.00 per share. The Company incurred \$26,000 in cash issuance costs and is required to issue 58,100 shares of common stock to the placement agent with an initial fair value of \$16,200, which is recorded as a share liability on the balance sheet.

During 2022, prior to the IPO, the Company issued 1,559,780 shares of common stock at \$2.00 per share for gross proceeds of \$3,119,559. The Company incurred \$255,965 in cash issuance costs and is required to issue 62,391 shares of common stock to the placement agent with an initial fair value of \$24,782, which is recorded as a share liability on the consolidated balance sheet.

In October 2022, the Company amended its agreement with the placement agent for the shares issued from November 2021 through April 2022. The shares of common stock issuable to the placement agent was reduced from 120,491 shares to 57,250 shares. The fair value of the 57,250 shares issuable to the placement agent as of December 31, 2022 was \$90,455, resulting in a change in fair value of share liability of \$50,527 for the year ended December 31, 2022. In March 2023, the Company settled this share liability by issuing 57,250 shares of common stock.

In November 2022, the Company was required to issue shares of common stock with a fair value totaling \$50,000 to a consultant. As of December 31, 2022, these shares had yet to be issued.

In November 2022, the Company completed its IPO, selling an aggregate of 1,250,000 shares of common stock at a price to the public of \$4.00 per share. The Company received net proceeds from the IPO, after deducting underwriting discounts and commissions but before deducting offering costs, of approximately \$3.8 million.

Founder Stock

In September 2021, the Company awarded 2,000,000 shares of common stock to its founders for no cash consideration. The Company determined that the fair value of these shares was \$0.25 per share and recorded stock compensation expense of \$500,000 in 2021.

Common Stock Warrants

In September 2021, the Company issued warrants to purchase 7,230,822 shares of common stock at an exercise price of \$0.01 per share for no cash consideration to two parties for their field of knowledge related to the technical operations of the Company. These warrants were to expire in September 2023. The Company determined that the fair value of common stock was \$0.25 per share. The fair value of these warrants was determined to be \$1,735,841 and was recorded as general and administrative expense.

The fair values of the warrants were estimated based on the Black-Scholes model, using the following assumptions:

Expected volatility	76.5%
Weighted-average risk-free rate	0.21%
Expected term in years	2.00
Expected dividend yield	0%

In January 2022, warrants to purchase 7,230,822 shares of common stock were net share settled into 7,194,847 shares of common stock per the terms of the underlying warrant agreements. No warrants were exercised in 2021.

10. Stock Compensation Plan

Equity Incentive Plan

In October 2021, the Company adopted the 2021 Stock Incentive Plan ("2021 Plan") that provided for the issuance of common stock to employees, nonemployee directors, and consultants. Recipients of incentive stock options are eligible to purchase shares of common stock at an exercise price equal to no less than the estimated fair market value of such stock on the date of grant. The 2021 Plan provided for the grant of incentive stock options, non-statutory stock options, restricted stock, restricted stock units, stock awards and stock appreciation rights. The maximum contractual term of options granted under the 2021 Plan is ten years. The maximum number of shares initially available for issuance under the 2021 Plan was 6,000,000. No further options were available to be issued under the 2021 Plan.

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

In November 2022, the Company adopted the 2022 Equity Incentive Plan (“2022 Plan”) that provides for the issuance of common stock to employees, nonemployee directors, and consultants. Recipients of incentive stock options are eligible to purchase shares of common stock at an exercise price equal to no less than the estimated fair market value of such stock on the date of grant. The 2022 Plan provides for the grant of incentive stock options, non-statutory stock options, restricted stock, restricted stock units, stock awards and stock appreciation rights. The maximum contractual term of options granted under the 2022 Plan is ten years. The number of shares of the Company’s common stock reserved for issuance under the 2022 Plan is equal to 5,000,000, subject to an annual increase, to be added on the first day of each fiscal year, beginning with the fiscal year ending December 31, 2023 and continuing until, and including, the fiscal year ending December 31, 2033, equal to the lesser of 5% of the number of shares of the Company’s common stock outstanding on such date or an amount determined by the Company’s board of directors. As of December 31, 2022, 2,000,000 shares remain available for future grant under the Plan.

Stock Options

The following table sets forth the activity for the Company’s stock options during the periods presented:

	Number of Options	Weighted- Average Exercise Price per Share	Weighted Average Remaining Contractual Term (in Years)	Aggregate Intrinsic Value
Outstanding at September 13, 2021 (inception)	—	\$ —	—	\$ —
Granted	400,000	\$ 0.25		
Outstanding at December 31, 2021	400,000	\$ 0.25	9.8	\$ 700,000
Granted	2,751,000	\$ 2.00		
Forfeited	(250,000)	\$ 0.25		
Outstanding at December 31, 2022	2,901,000	\$ 1.91	9.4	\$ 199,500
Exercisable at December 31, 2022	418,749	\$ 1.76	9.3	\$ 77,583
Vested or expected to vest at December 31, 2022	2,901,000	\$ 1.91	9.4	\$ 199,500

The fair values of the options granted were estimated based on the Black-Scholes model, using the following assumptions:

	Year Ended December 31, 2022
Expected volatility	62.6% – 69.5%
Risk-free interest rate	1.68% – 3.25%
Expected term in years	5.5 – 6.3
Expected dividend yield	—%

For the year ended December 31, 2022, the Company granted 2,751,000 options with an exercise price of \$2.00 per share, of which 288,000 options were issued to nonemployee directors that vest in April 2023 and the remaining options generally vest monthly over three years. The weighted average grant date fair value of options granted during 2022 was \$1.18.

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

During 2021, the Company granted 400,000 options with an exercise price of \$0.25 per share that vest monthly over three years. The weighted-average grant date fair value of options granted during 2021 was \$0.15.

The Company recorded stock compensation from options of \$923,581 and \$4,894 for the year ended December 31, 2022 and the period September 13, 2021 (inception) through December 31, 2021, respectively. As of December 31, 2022, there was \$2,341,524 of unrecognized compensation cost related to non-vested share-based compensation arrangements granted under the Plan, which is expected to be recognized over a weighted average period of approximately 2.2 years.

Stock Awards

In October 2021, the Company issued 1,500,000 shares of restricted common stock to its Chief Executive Officer. The number of shares that vest is dependent on achieving certain performance conditions and dependent market conditions upon the third anniversary from the date of grant. The Company determined that the fair value of this award was \$0.25 per share for a total value of \$375,000. Upon reaching the performance condition, which has not been met as of December 31, 2022, the Company will recognize stock compensation expense over the remaining measurement period.

In October 2021, the Company issued 600,000 shares of restricted common stock to a consultant who is also a member the board of directors, that vest annually over three years. The Company determined that the fair value of this award was \$0.25 per share for a total value of \$150,000. The consulting agreement also included future awards of common stock for continued service, however in March 2023, the consulting agreement was amended and these future awards were cancelled.

In July 2022, the Company issued 600,000 shares of restricted common stock to a consultant who is also a member the board of directors, that vest quarterly over one year. The Company determined that the fair value of this award was \$2.00 per share for a total value of \$1,200,000.

In July 2022, the Company issued 100,000 shares of restricted common stock to a consultant, that vests on the one-year anniversary of the grant. The Company determined that the fair value of this award was \$2.00 per share for a total value of \$200,000.

In November 2022, the Company issued 3,000,000 shares of restricted common stock to certain employees and directors, that vest two to four years from the date of the grant. The Company determined that the fair value of these awards was \$2.63 per share for a total value of \$7,890,000.

In December 2022, the Company issued an aggregate of 1,550,000 shares of restricted common stock to its Chief Executive Officer and Chairman, Interim Chief Financial Officer and a director that vest quarterly over one year from the date of the grant. The Company determined that the fair value of these awards was \$1.58 per share for a total value of \$2,449,000.

The Company recorded stock compensation from stock awards totaling \$1,075,732 and \$8,333 for the year ended December 31, 2022 and the period September 13, 2021 (inception) through December 31, 2021. At December 31, 2022, there is \$10,804,935 of unrecognized compensation cost related to the non-vested portion of stock awards that is expected to be recognized over the next 2.6 years.

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

The following table summarizes vesting of restricted common stock:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
Unvested at September 13, 2021 (inception)	—	\$ —
Granted	2,100,000	0.25
Unvested at December 31, 2021	2,100,000	0.25
Granted	5,250,000	2.24
Vested	(350,000)	1.00
Unvested at December 31 2022	7,000,000	\$ 1.75

Stock-based Compensation Expense

Stock-based compensation expense for all stock awards recognized in the accompanying consolidated statements of operations is as follows:

	Year Ended December 31, 2022	For The Period From September 13, 2021 (Inception) Through December 31, 2021
General and administrative	\$ 1,798,043	\$ 513,227
Research and development	201,270	—
Total	\$ 1,999,313	\$ 513,227

11. Net Loss Per Share

The Company has reported losses since inception and has computed basic net loss per share attributable to common stockholders by dividing net loss attributable to common stockholders by the weighted-average number of shares of Common Stock outstanding for the period, without consideration for potentially dilutive securities. The Company computes diluted net loss per share of Common Stock after giving consideration to all potentially dilutive shares of common stock, including options to purchase common stock and warrants to purchase common stock, outstanding during the period determined using the treasury-stock and if-converted methods, except where the effect of including such securities would be antidilutive. Because the Company has reported net losses since inception, these potential shares of Common Stock have been anti-dilutive and basic and diluted loss per share were the same for all periods presented.

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

The following table sets forth the computation of basic and diluted net loss per share:

	Year Ended December 31, 2022	For The Period From September 13, 2021 (Inception) Through December 31, 2021
Numerator:		
Net loss	\$ (4,945,139)	\$ (2,607,927)
Denominator:		
Weighted average common stock outstanding, basic and diluted	26,793,745	16,246,432
Net loss per share, basic and diluted	<u>\$ (0.18)</u>	<u>\$ (0.16)</u>

The following table sets forth the potentially dilutive securities that have been excluded from the calculation of diluted net loss per share because to include them would be anti-dilutive:

	Year Ended December 31, 2022	For The Period From September 13, 2021 (Inception) Through December 31, 2021
Options to purchase common stock	2,901,000	400,000
Restricted stock	7,000,000	—
Warrants to purchase Common Stock	—	7,230,822
Total shares of common stock equivalents	<u>9,901,000</u>	<u>7,630,822</u>

12. Income Taxes

The components of net loss before taxes are as follows:

	Year Ended December 31, 2022	For the Period From September 13, 2021 (Inception) Through December 31, 2021
Domestic	\$ (3,205,342)	\$ (2,388,630)
Foreign	(1,739,797)	(219,297)
Total net loss before taxes	<u>\$ (4,945,139)</u>	<u>\$ (2,607,927)</u>

The effective tax rate of the Company's provision for income taxes differs from the federal statutory rate for the year ended December 31, 2022 and the period September 13, 2021 (inception) through December 31, 2021 as follows:

	Year Ended December 31, 2022	For The Period From September 13, 2021 (Inception) Through December 31, 2021
Tax computed at federal statutory rate	21.00%	21.00%
Earnings in jurisdictions taxed at rates different from the statutory U.S. federal tax rate	(5.89)%	4.11%
Permanent differences	0.64%	(22.95)%
Other	2.98%	—
Valuation allowance	(18.73)%	(2.16)%
Income tax expense	<u>—</u>	<u>—</u>

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

Deferred income taxes reflect the net tax effects of (a) temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes, and (b) operating losses and tax credit carryforwards. Significant components of deferred tax assets (liabilities) are as follows:

	December 31,	
	2022	2021
Deferred tax assets:		
Net operating loss carryforwards	\$ 496,751	\$ 140,241
Capitalized R&D costs	50,289	—
Share-based compensation	418,019	—
Right-of-use lease liability	243,113	264,249
Total deferred tax assets	1,208,172	404,490
Deferred tax liabilities:		
Share-based compensation	—	(91,691)
Right-of-use lease asset	(230,550)	(261,281)
Total deferred tax liabilities	(230,550)	(352,972)
Total net deferred tax assets	977,622	51,518
Less: valuation allowance	(977,622)	(51,518)
Net deferred taxes	\$ —	\$ —

The Company has no income tax expense due to operating losses incurred for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021. The Company has provided a full valuation allowance on the net deferred tax asset because management has determined that it is more-likely-than-not that the Company will not earn income sufficient to realize the deferred tax assets during a future period. The valuation allowance increased by \$926,104 in 2022 due to the increase in the net deferred tax assets by the same amount; primarily due to net operating loss carryforwards and the mandatory capitalization of qualified research and development expenses in 2022.

As of December 31, 2022, the Company has federal, state and South Africa NOLs available of approximately \$1,657,883, \$1,657,883 and \$459,680, respectively, to offset future taxable income, if any, for federal and state income tax purposes. The state NOLs are carried forward indefinitely until used and never expire. Under the Tax Act, federal NOLs utilized are limited to 80% of taxable income in any year where taxable income is determined without regard to the NOL deduction itself. The Tax Act generally eliminates the ability to carry back any net operating loss to prior taxable years, while allowing unused net operating losses to be carried forward indefinitely.

The Company recognizes a tax benefit from an uncertain tax position when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on the technical merits. Income tax positions must meet a more likely than not recognition threshold to be recognized. The Company's practice is to recognize interest and/or penalties related to income tax matters in income tax expense. The Company had no accrual for interest and penalties on the Company's balance sheets and has not recognized interest and/or penalties in the statements of operations and comprehensive loss for the year ended December 31, 2022 and for the period from September 13, 2021 (inception) through December 31, 2021. Uncertain tax positions are evaluated based upon the facts and circumstances that exist at each reporting period. Subsequent changes in judgment based upon new information may lead to changes in recognition, derecognition, and measurement. Adjustments may result, for example, upon resolution of an issue with the taxing authorities or expiration of a statute of limitations barring an assessment for an issue. As of December 31, 2022 and December 31, 2021, there were no uncertain tax positions.

ASP Isotopes Inc.
Notes to Consolidated Financial Statements (continued)

Ownership changes, as defined in the IRC, may limit the amount of net operating loss carryforwards that can be utilized annually to offset future taxable income pursuant to IRC Section 382 or similar provisions. Subsequent ownership changes could further affect the limitation in future years. The Company has not completed a study to assess whether a change of control has occurred or whether there have been multiple changes of control since the Company's formation due to the significant complexity and cost associated with such study and because there could be additional changes in control in the future. As a result, the Company is not able to estimate the effect of the change in control, if any, on the Company's ability to utilize net operating loss and research and development credit carryforwards in the future.

13. Subsequent Events

In March 2023, the Company received gross proceeds of \$5.0 million through the issuance of 3,164,557 shares of its common stock at a purchase price of \$.58 per share and warrants to purchase up to an aggregate of 3,164,557 shares of its common stock with an exercise price of \$.75 per share. The Company paid the placement agent (i) a total cash fee equal to 7.0% of the aggregate gross proceeds of the offering; (ii) a management fee of 1.0% of the aggregate gross proceeds of the offering; and (iii) reimbursement of certain expenses. In addition, the Company issued to the Placement Agent ("PA") warrants to purchase up to 221,519 shares of the Company's common stock at an exercise price of \$1.975 per share. The PA Warrants are exercisable on or after September 17, 2023 and will expire on September 18, 2028.

The Company has evaluated subsequent events through March 31, 2023, the date on which the accompanying financial statements were issued, and no other events were noted.

**PART II
INFORMATION NOT REQUIRED IN PROSPECTUS**

ITEM 13. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION.

The following table sets forth all expenses to be paid by ASP Isotopes Inc. (the “Registrant”), incurred or to be incurred in connection with the offering, which are inclusive of the fees and expenses incidental to the registration of the selling stockholder shares. All amounts shown are estimates except for the SEC registration fee and the FINRA filing fee.

SEC registration fee	\$
Legal fees and expenses	\$
Accounting fees and expenses	\$
Transfer agent and registrar fees	\$
Miscellaneous expenses	\$
Total	\$

ITEM 14. INDEMNIFICATION OF DIRECTORS AND OFFICERS.

Section 145 of the Delaware General Corporation Law authorizes a court to award, or a corporation’s board of directors to grant, indemnity to directors and officers in terms sufficiently broad to permit such indemnification under certain circumstances for liabilities, including reimbursement for expenses incurred, arising under the Securities Act. The Registrant’s amended and restated certificate of incorporation permits the Registrant to indemnify its directors, officers, employees and other agents to the maximum extent permitted by the Delaware General Corporation Law, and bylaws, as amended provide that we will indemnify its directors and officers and permit the Registrant to indemnify its employees and other agents, in each case to the maximum extent permitted by the Delaware General Corporation Law.

The Registrant has entered into indemnification agreements with its directors and officers, whereby it have agreed to indemnify its directors and officers to the fullest extent permitted by law, including indemnification against expenses and liabilities incurred in legal proceedings to which the director or officer was, or is threatened to be made, a party by reason of the fact that such director or officer is or was a director, officer, employee or agent of the Registrant, provided that such director or officer acted in good faith and in a manner that the director or officer reasonably believed to be in, or not opposed to, the best interest of the Registrant. At present, there is no pending litigation or proceeding involving a director or officer of the Registrant regarding which indemnification is sought, nor is the registrant aware of any threatened litigation that may result in claims for indemnification.

The Registrant maintains insurance policies that indemnify its directors and officers against various liabilities arising under the Securities Act and the Exchange Act that might be incurred by any director or officer in his or her capacity as such.

ITEM 15. RECENT SALES OF UNREGISTERED SECURITIES.

Unregistered sales of equity securities

Set forth below is information regarding unregistered securities issued by us since our inception on September 13, 2021. Also included is the consideration received by us for such securities and information relating to the section of the Securities Act, or rule of the SEC, under which exemption from registration was claimed. None of the following transactions involved any underwriters, underwriting discounts or commissions, or any public offering, except as noted in paragraph 6 below.

1. On September 13, 2021, we closed stock purchase agreements with our founders to issue an aggregate of 2,000,000 shares of common stock in consideration for the purchasers' transfer to the company of all of the purchaser's rights in certain business concepts and technology.
2. On September 15, 2021, we issued two consultants each a warrant to purchase 3,615,411 shares of common stock, with an exercise price per share of \$0.01 and a term of two (2) years, for services. On January 28, 2022, the holders of the warrants exercised their warrants, and the company issued an aggregate of 7,194,847 shares of common stock.
3. In late September 2021, we sold and issued an aggregate of 8,300,000 shares of common stock to a total of 9 accredited investors at a purchase price of \$0.25 per share, for an aggregate purchase price of \$2,075,000.
4. In October 2021 through early November 2021, we sold and issued an aggregate of 6,800,000 shares of common stock to a total of 14 accredited investors at a purchase price of \$0.25 per share, for an aggregate purchase price of \$1,700,000.
5. In October 2021, we issued an aggregate of 1,500,000 shares of our common stock pursuant to a performance share award grant notice to Paul Mann, our Chairman, Chief Executive Officer and director, as consideration for his services to us. In addition, in October 2021, we sold and issued 600,000 shares of our common stock pursuant to a restricted stock award grant notice to a consultant (an entity owned by Sergey Vasnetsov, our director), as consideration for services to us as contemplated by the advisory agreement with us.
6. In late November 2021 through April 2022, we sold and issued an aggregate of 3,012,280 shares of common stock to a total of 74 accredited investors at a purchase price of \$2.00 per share, for an aggregate purchase price of \$6,024,560. Revere Securities LLC acted as placement agent in connection with such offering of shares of our common stock and in connection therewith we agreed to pay to Revere Securities LLC (i) a cash fee equal to 8.0% of the aggregate gross proceeds raised in such offering and (ii) 57,250 shares of our common stock.
7. In July 2022, we issued (i) 600,000 shares of our common stock pursuant to a restricted stock award grant notice to a consultant (an entity owned by Sergey Vasnetsov, our director), as consideration for services to us as contemplated by the advisory agreement (as amended) with us and (ii) 100,000 shares of our common stock pursuant to a restricted stock award grant notice to a consultant as consideration for services to us.
8. In October 2022, we issued to our executive officers, directors and consultants 3,000,000 shares of restricted stock that we executed on November 15, 2022 upon consummation of our IPO.
9. From September 13, 2021, through July 2022, we granted stock options under our 2021 equity incentive plan, as amended (the Prior Plan), to purchase up to an aggregate of 3,151,000 shares of our common stock to our employees, directors and consultants, at a weighted-average exercise price of \$1.78 per share.
10. On March 14, 2023, we entered into a Securities Purchase Agreement (the "Purchase Agreement") with a single institutional investor (the "Purchaser"), pursuant to which the Company issued, in a private placement (the "Private Placement Offering"), an aggregate of (i) 3,164,557 shares (the "Private Placement Shares") of the Company's common stock, par value \$0.01 per share (the "Common Stock") at a purchase price of \$1.58 per share for total gross proceeds of approximately \$5 million, before deducting Placement Agent fees and other offering expenses; and (ii) warrants (the "Investor Warrants") to purchase up to an aggregate of 3,164,557 shares of Common Stock at exercise price of \$1.75 per share. The Investor Warrants are exercisable on or after September 17, 2023 and will expire on September 18, 2028. The Offering closed on March 17, 2023 (the "Closing"). We engaged H.C. Wainwright & Co., LLC (the "Placement Agent") to act as its exclusive placement agent in connection with the Offering, pursuant to an Underwriting Agreement (the "Underwriting Agreement"), dated as of February 15, 2023, between the Company and the Placement Agent. Pursuant to the Underwriting Agreement, we paid the Placement Agent (i) a total cash fee equal to 7.0% of the aggregate gross proceeds of the Offering; (ii) a management fee of 1.0% of the aggregate gross proceeds of the Offering; and (iii) reimbursement of certain expenses. In addition, we issued to the Placement Agent, or its designees warrants (the "PA Warrants") to purchase up to 221,519 shares of Common Stock (the "PA Warrant Shares") at an exercise price of \$1.975 per share. The PA Warrants are exercisable on or after September 17, 2023, and will expire on September 18, 2028.
11. On March 15, 2023, Tianne Holdings (Pty) Ltd, a company controlled by Henrik Strydom, our director, and Carlein Investments (Pty) Ltd, a company controlled by Einar Ronander, a consultant to the Company, each exchanged 1,500,000 shares of our common stock which they held for 1,250 shares of preferred stock of our newly formed subsidiary, Enlightened Isotopes (Pty) Ltd. The 3 million shares were cancelled pursuant to the exchange.

None of the foregoing transactions involved any underwriters, underwriting discounts or commissions, or our public offering, except as noted in paragraph 6 above.

Except as described in the following paragraph, we believe that the transactions described above were exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act (and Regulation D promulgated thereunder). The recipients of the securities in each of these transactions represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof. The sales of these securities were made without any general solicitation or advertising.

The offers, sales and issuances of the securities described in paragraphs (2), (5), (7) and (8) were deemed to be exempt from registration under the Securities Act in reliance on either Rule 701 in that the transactions were under compensatory benefit plans and contracts relating to compensation as provided under Rule 701 or Section 4(a)(2) in that the issuance of securities to the accredited investors did not involve a public offering. The recipients of such securities were our employees, directors or bona fide consultants and received the securities under the Prior Plan.

ITEM 17. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES.

(a) Exhibits

Exhibit Number	Exhibit Description
1.1	Underwriting Agreement H.C. Wainwright.
3.1*	Certificate of Incorporation.
3.2*	Bylaws.
3.3*	Amended and Restated Certificate of Incorporation.
3.4*	Amended and Restated Bylaws.
4.1*+	Form of Warrant.
4.2	Common Stock Purchase Warrant dated March 17, 2023.
4.3	Placement Agent Common Stock Purchase Warrant dated March 17, 2023
5.1	Opinion of Hamilton & Associates Law Group, P.A. dated March 29, 2023
10.1*+	ASP Isotopes Inc. 2021 Stock Incentive Plan, as amended, and form of award agreements thereunder.
10.2*+	ASP Isotopes Inc. 2022 Equity Incentive Plan and form of award agreements thereunder.
10.3*+	Performance Share Award Grant Notice and Performance Share Award Agreement with Paul Mann, dated October 4, 2021, as amended.
10.4*+	Form of Indemnification Agreement between the registrant and each of its directors and executive officers.
10.5*+	Form of Director Agreement.
10.6*+	Executive Employment Agreement by and between the registrant and Paul Mann, dated October 4, 2021.
10.7*+	Executive Employment Agreement by and between ASP Isotopes Guernsey Limited and Hendrik Strydom, dated January 19, 2022.
10.8*+	Executive Employment Agreement by and between ASP Isotopes Guernsey Limited and Robert Ainscow, dated October 4, 2021, as amended.
10.9*	Advisory Agreement by and between the registrant and ChemBridges LLC, dated October 27, 2021, as amended.
10.10*	License Agreement between ASP Isotopes South Africa (Proprietary) Limited (formerly PDS Photonica Holdings South Africa (Proprietary) Limited) and Klydon (Proprietary) Limited dated September 30, 2021, as amended.
10.11*	License Agreement between ASP Isotopes South Africa (Proprietary) Limited and Klydon (Proprietary) Limited dated January 25, 2021.
10.12*	Contract for a Turnkey Molybdenum Enrichment Plan between ASP Isotopes South Africa (Proprietary) Limited (formerly PDS Photonica Holdings South Africa (Proprietary) Limited) and Klydon (Proprietary) Limited dated November 1, 2021.
10.13*	Letter Agreements between the registrant and Dr Einar Ronander and Dr Hendrik Strydom, dated January 2021
10.14*	Chief Scientific Adviser between the registrant and Dr Einar Ronander, dated January 2021
10.15*	Lease for Molybdenum Processing Plant between ASP Isotopes South Africa (Proprietary) Limited (formerly PDS Photonica Holdings South Africa (Proprietary) Limited) and Morgan Creek Properties 311 Pty Ltd.
10.16*	Form of Subscription Agreement (incorporated by reference to Exhibit 10.16 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.17*	License Agreement between ASP Isotopes UK Ltd and Klydon (Proprietary) Limited dated July 26, 2022.
10.18*	Amended Advisory Agreement between the registrant and ChemBridges, LLC, dated December 12, 2022.
10.19*	Amended Executive Employment Agreement between the registrant and Paul Mann effective December 20, 2022.
10.20*+	Acknowledgement of Debt Agreement between ASP Isotopes South Africa (Proprietary) Limited and Klydon (Proprietary) Limited dated November 30, 2022.
10.21*+	Deed of Security Agreement between ASP Isotopes South Africa (Proprietary) Limited and Klydon (Proprietary) Limited dated November 30, 2022.
10.22	Securities Purchase Agreement dated March 14, 2023.
10.23	Registration Rights Agreement dated March 14, 2023.
10.24	Memorandum of Understanding CC Nuclear Inc dated September 19, 2022.
10.25	Contract between Bricem Science and Technology Co and Klydon (Pty) Ltd
10.26	Assignment of Contract between Bricem Science and Technology Co and Klydon (Pty) Ltd.
10.27	Release Agreement between Revere Securities LLC and the Company.
21.1	List of Subsidiaries of the Registrant.
23.1	Consent of EisnerAmper LLP, independent registered public accounting firm.
23.2	Consent of Hamilton & Associates Law Group, P.A. (included in Exhibit 5.1).
107	Filing fee table.

* Previously filed.

+ Management contract or compensatory plan or arrangement.

(b) *Financial Statement Schedules.* All financial statement schedules are omitted because the information called for is not required or is shown either in the consolidated financial statements or in the notes thereto.

(c) *Filing Fee Table.* The Filing Fee Table and related disclosure is filed herewith as Exhibit 107.

ITEM 17. UNDERTAKINGS.

The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in the volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

Provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(A) each prospectus filed pursuant to Rule 424(b)(3) as part of a registration statement as of the date the filed prospectus was deemed part of and included in the registration statement.

(B) each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. *Provided, however,* that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

(5) That, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(6) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act, and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this registration statement on Form S-1 to the registration statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized, in Boca Raton, Florida, on the 5th day of April 2023.

ASP Isotopes Inc.

By: /s/ Paul E Mann
Paul E Mann
Chairman and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement on Form S-1 has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Paul E. Mann</u> Paul E. Mann	Chairman, Chief Executive Officer and Director (Principal Executive Officer)	April 5, 2023
<u>/s/ Robert Ainscow</u> Robert Ainscow	Interim Chief Financial Officer (Principal Financial and Accounting Officer)	April 5, 2023
<u>/s/ Joshua Donfeld</u> Joshua Donfeld	Director	April 5, 2023
<u>/s/ Duncan Moore, Ph.D.</u> Duncan Moore, Ph.D.	Director	April 5, 2023
<u>/s/ Hendrik Strydom, Ph.D.</u> Hendrik Strydom, Ph.D.	Director	April 5, 2023
<u>/s/ Sergey Vasnetsov</u> Sergey Vasnetsov	Director	April 5, 2023
<u>/s/ Todd Wider, M.D.</u> Todd Wider, M.D.	Director	April 5, 2023



February DATE], 2023

STRICTLY CONFIDENTIAL

ASP Isotopes Inc.
433 Plaza Real, Suite 275
Boca Raton, Florida 33432

Attn: Paul E. Mann, Chairman and Chief Executive Officer

Dear Mr. Mann:

This letter agreement (this "Agreement") constitutes the agreement between ASP Isotopes Inc. (the "Company") and H.C. Wainwright & Co., LLC ("Wainwright"), that Wainwright shall serve as the exclusive underwriter, agent or advisor in any offering (each, an "Offering") of equity or equity-linked securities of the Company (the "Securities") during the Term (as hereinafter defined) of this Agreement. The terms of each Offering and the Securities issued in connection therewith shall be mutually agreed upon by the Company and Wainwright and nothing herein implies that Wainwright would have the power or authority to bind the Company and nothing herein implies that the Company shall have an obligation to issue any Securities. It is understood that Wainwright's assistance in an Offering will be subject to the satisfactory completion of such investigation and inquiry into the affairs of the Company as Wainwright deems appropriate under the circumstances and to the receipt of all internal approvals of Wainwright in connection with an Offering. The Company expressly acknowledges and agrees that Wainwright's involvement in an Offering is strictly on a reasonable best efforts basis and that the consummation of an Offering will be subject to, among other things, market conditions. The execution of this Agreement does not constitute a commitment by Wainwright to purchase the Securities and does not ensure a successful Offering of the Securities or the success of Wainwright with respect to securing any other financing on behalf of the Company. Wainwright may retain other underwriters, brokers, dealers or agents on its behalf in connection with an Offering.

A. Compensation: Reimbursement. At the closing of each Offering (each, a "Closing") the Company shall compensate Wainwright as set forth below. For the avoidance of doubt, the terms of this Agreement including the compensation set forth in clauses A.1 through A.4 below specifically exclude certain transactions wherein the Company pursues and enters into certain financings (each a "Permissible Transaction") as follows: (i) equity or other securities to the Company's existing officers, directors and shareholders listed on Exhibit I, (ii) securities issued pursuant to the Company's Incentive Plan, (iii) securities issued as consideration for a merger, acquisition or asset purchase, (iv) the offer or sale of debt, and (v) non-convertible loans, debt financings or other financings not involving a security obtained in the normal course of business; provided, however, that if the Company consummates a brokered financing with Wainwright acting as underwriter, agent or advisor pursuant to each of (i), (iv) and (v) above, then the Company shall pay to Wainwright a Cash Fee (as defined below) equal to 3.5% of the aggregate gross proceeds raised in such financing and issue to Wainwright or its designees Wainwright Warrants (as defined below) equal to 3.5% of the aggregate number of shares of common stock (or common stock equivalent, if applicable) placed in such financing. For the avoidance of doubt, the Company shall be entitled to consummate a non-brokered financing pursuant to each of (i), (iv) and (v) above without paying such Cash Fee and issuing such Wainwright Warrants.

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Member: FINRA/SIPC

1. *Cash Fee.* The Company shall pay to Wainwright a cash fee (the “Cash Fee”), or as to an underwritten Offering an underwriter discount, equal to 7% of the aggregate gross proceeds raised in each Offering.

2. *Warrant Coverage.* The Company shall issue to Wainwright or its designees at each Closing, warrants (the “Wainwright Warrants”) to purchase that number of shares of common stock of the Company equal to 7% of the aggregate number of shares of common stock (or common stock equivalent, if applicable) placed in each Offering (and if an Offering includes a “greenshoe” or “additional investment” component, such number of shares of common stock underlying such “greenshoe” or “additional investment” component, with the Wainwright Warrants issuable upon the exercise of such component). If the Securities included in an Offering are convertible, the Wainwright Warrants shall be determined by dividing the gross proceeds raised in such Offering by the Offering Price (as defined hereunder). The Wainwright Warrants shall be in a customary form reasonably acceptable to Wainwright, have a term of five (5) years and an exercise price equal to 125% of the offering price per share (or unit, if applicable) in the applicable Offering and if such offering price is not available, the market price of the common stock on the date an Offering is commenced (such price, the “Offering Price”). If warrants are issued to investors in an Offering, the Wainwright Warrants shall have the same terms as the warrants issued to investors in the applicable Offering, except that such Wainwright Warrants shall have an exercise price equal to 125% of the Offering Price.

3. *Expense Allowance.* Out of the proceeds of each Closing, the Company also agrees to pay Wainwright (a) a management fee equal to 1.0% of the gross proceeds raised in each Offering; (b) \$25,000 for non-accountable expenses (to be increased to \$35,000 in case a public Offering is contemplated or consummated); and (c) up to \$50,000 for fees and expenses of legal counsel and other out-of-pocket expenses (to be increased to \$100,000 in case a public Offering is contemplated or consummated); plus the additional amount payable by the Company pursuant to Paragraph D.3 hereunder and, if applicable, the costs associated with the use of a third-party electronic road show service (such as NetRoadshow); provided, however, that such amount in no way limits or impairs the indemnification and contribution provisions of this Agreement.

4. *Tail.* Wainwright shall be entitled to compensation under clauses (1) and (2) hereunder, calculated in the manner set forth therein, with respect to any public or private equity or equity-linked offering or other equity or equity-linked financing or capital-raising transaction of equity or equity-linked securities (“Tail Financing”) to the extent that any capital or funds in such Tail Financing is provided to the Company directly or indirectly by investors not previously known to the Company whom Wainwright had first (i) brought over-the-wall during the Term in case of a non-public Offering or (ii) contacted during the Term or introduced to the Company during the Term in case of a public Offering, if such Tail Financing is consummated at any time within the 12-month period following the expiration or termination of this Agreement.

5. *Right of First Refusal.* If, from the date hereof until the 6-month anniversary following consummation of each Offering, the Company or any of its subsidiaries decides to raise funds by means of a public offering (including at-the-market facility) of its equity or a private placement or any other capital-raising financing of equity, equity-linked securities, Wainwright (or any affiliate designated by Wainwright) shall have the right to act as sole book-running manager, sole underwriter or sole placement agent for such financing. If Wainwright or one of its affiliates decides to accept any such engagement, the agreement governing such engagement will contain, among other things, provisions for customary fees for transactions of similar size and nature and the provisions of this Agreement, including indemnification, which are appropriate to such a transaction.

B. Term and Termination of Engagement; Exclusivity. The term of Wainwright's exclusive engagement will begin on the date hereof and end ninety (90) days thereafter (the "Term"). Notwithstanding anything to the contrary contained herein, the Company agrees that the provisions relating to the payment of fees, reimbursement of expenses, right of first refusal, tail, indemnification and contribution, confidentiality, conflicts, independent contractor and waiver of the right to trial by jury will survive any termination or expiration of this Agreement. Notwithstanding anything to the contrary contained herein, the Company has the right to terminate the Agreement for cause in compliance with FINRA Rule 5110(g)(5)(B)(i). The exercise of such right of termination for cause eliminates the Company's obligations with respect to the provisions relating to the tail fees and right of first refusal. Notwithstanding anything to the contrary contained in this Agreement, in the event that an Offering pursuant to this Agreement shall not be carried out for any reason whatsoever during the Term, the Company shall be obligated to pay to Wainwright its actual and accountable out-of-pocket expenses related to an Offering including the fees and disbursements of Wainwright's legal counsel) subject to the maximum amounts and limitations set forth in clause A.1 through A.4 above and, if applicable, for electronic road show service used in connection with an Offering. During Wainwright's engagement hereunder: (i) other than Permissible Transactions, the Company will not, and will not permit its representatives to, other than in coordination with Wainwright, contact or solicit institutions, corporations or other entities or individuals as potential purchasers of the Securities or investment banks in connection with an Offering and (ii) the Company will not pursue any financing transaction which would be in lieu of an Offering. Furthermore, the Company agrees that during Wainwright's engagement hereunder, other than Permissible Transactions, all inquiries from prospective investors will be referred to Wainwright. Additionally, except as set forth hereunder, the Company represents, warrants and covenants that no brokerage or finder's fees or commissions are or will be payable by the Company or any subsidiary of the Company to any broker, financial advisor or consultant, finder, placement agent, investment banker, bank or other third-party with respect to any Offering.

C. Information; Reliance. The Company shall furnish, or cause to be furnished, to Wainwright all information requested by Wainwright for the purpose of rendering services hereunder and conducting due diligence (all such information being the “Information”). In addition, the Company agrees to make available to Wainwright upon request from time to time the officers, directors, accountants, counsel and other advisors of the Company. The Company recognizes and confirms that Wainwright (a) will use and rely on the Information, including any documents provided to investors in each Offering (the “Offering Documents”) which shall include any Purchase Agreement (as defined hereunder), and on information available from generally recognized public sources in performing the services contemplated by this Agreement without having independently verified the same; (b) does not assume responsibility for the accuracy or completeness of the Offering Documents or the Information and such other information; and (c) will not make an appraisal of any of the assets or liabilities of the Company. Upon reasonable request, the Company will meet with Wainwright or its representatives to discuss all information relevant for disclosure in the Offering Documents and will cooperate in any investigation undertaken by Wainwright thereof, including any document included or incorporated by reference therein. At each Offering, at the request of Wainwright, the Company shall deliver such legal letters (including, without limitation, negative assurance letters), opinions, comfort letters, officers’ and secretary certificates and good standing certificates, all in form and substance satisfactory to Wainwright and its counsel as is customary for such Offering. Wainwright shall be a third party beneficiary of any representations, warranties, covenants, closing conditions and closing deliverables made by the Company in any Offering Documents, including representations, warranties, covenants, closing conditions and closing deliverables made to any investor in an Offering.

D. Related Agreements. At each Offering, the Company shall enter into the following additional agreements, as applicable:

1. *Underwritten Offering.* If an Offering is an underwritten Offering, the Company and Wainwright shall enter into a customary underwriting agreement in form and substance satisfactory to Wainwright and its counsel.

2. *Best Efforts Offering.* If an Offering is on a best efforts basis, the sale of Securities to the investors in the Offering will be evidenced by a purchase agreement (“Purchase Agreement”) between the Company and such investors in a form reasonably satisfactory to the Company and Wainwright. Wainwright shall be a third party beneficiary with respect to the representations, warranties, covenants, closing conditions and closing deliverables included in the Purchase Agreement. Prior to the signing of any Purchase Agreement, officers of the Company with responsibility for financial affairs will be available to answer inquiries from prospective investors.

3. *Escrow, Settlement and Closing.* If each Offering is not settled via delivery versus payment (“DVP”), the Company and Wainwright shall enter into an escrow agreement with a third party escrow agent pursuant to which Wainwright’s compensation and expenses shall be paid from the gross proceeds of the Securities sold. If the Offering is settled in whole or in part via DVP, Wainwright shall arrange for its clearing agent to provide the funds to facilitate such settlement; provided, however, if the clearing firm provides the funds in a best efforts offering and subsequent to such delivery an investor fails to provide the necessary funds to the clearing agent for such purchase of Securities, Wainwright shall instruct the clearing agent to promptly return any such Securities to the Company and the Company shall promptly return such investor’s purchase price to the clearing agent. The Company shall pay Wainwright closing costs, which shall also include the reimbursement of the out-of-pocket cost of the escrow agent or clearing agent, as applicable, which closing costs shall not exceed \$15,950.

4. *FINRA Amendments.* Notwithstanding anything herein to the contrary, in the event that Wainwright determines that any of the terms provided for hereunder shall not comply with a FINRA rule, including but not limited to FINRA Rule 5110, then the Company shall agree to amend this Agreement (or include such revisions in the final underwriting agreement) in writing upon the request of Wainwright to comply with any such rules; provided that any such amendments shall not provide for terms that are less favorable to the Company than are reflected in this Agreement.

E. Confidentiality. In the event of the consummation or public announcement of any Offering, Wainwright shall have the right to disclose its participation in such Offering, including, without limitation, the Offering at its cost of “tombstone” advertisements in financial and other newspapers and journals.

F. Indemnity.

1. In connection with the Company’s engagement of Wainwright hereunder, the Company hereby agrees to indemnify and hold harmless Wainwright and its affiliates, and the respective controlling persons, directors, officers, members, shareholders, agents and employees of any of the foregoing (collectively the “Indemnified Persons”), from and against any and all claims, actions, suits, proceedings (including those of shareholders), damages, liabilities and expenses incurred by any of them (including the reasonable fees and expenses of counsel), as incurred, whether or not the Company is a party thereto (collectively a “Claim”), that are (A) related to or arise out of (i) any actions taken or omitted to be taken (including any untrue statements made or any statements omitted to be made) by the Company, or (ii) any actions taken or omitted to be taken by any Indemnified Person in connection with the Company’s engagement of Wainwright, or (B) otherwise relate to or arise out of Wainwright’s activities on the Company’s behalf under Wainwright’s engagement, and the Company shall reimburse any Indemnified Person for all expenses (including the reasonable fees and expenses of counsel) as incurred by such Indemnified Person in connection with investigating, preparing or defending any such claim, action, suit or proceeding, whether or not in connection with pending or threatened litigation in which any Indemnified Person is a party. The Company will not, however, be responsible for any Claim that is finally judicially determined to have resulted from the gross negligence or willful misconduct of any such Indemnified Person for such Claim. The Company further agrees that no Indemnified Person shall have any liability to the Company for or in connection with the Company’s engagement of Wainwright except for any Claim incurred by the Company as a result of such Indemnified Person’s gross negligence or willful misconduct.

2. The Company further agrees that it will not, without the prior written consent of Wainwright, settle, compromise or consent to the entry of any judgment in any pending or threatened Claim in respect of which indemnification may be sought hereunder (whether or not any Indemnified Person is an actual or potential party to such Claim), unless such settlement, compromise or consent includes an unconditional, irrevocable release of each Indemnified Person from any and all liability arising out of such Claim.

3. Promptly upon receipt by an Indemnified Person of notice of any complaint or the assertion or institution of any Claim with respect to which indemnification is being sought hereunder, such Indemnified Person shall notify the Company in writing of such complaint or of such assertion or institution but failure to so notify the Company shall not relieve the Company from any obligation it may have hereunder, except and only to the extent such failure results in the forfeiture by the Company of substantial rights and defenses. If the Company is requested by such Indemnified Person, the Company will assume the defense of such Claim, including the employment of counsel for such Indemnified Person and the payment of the fees and expenses of such counsel, provided, however, that such counsel shall be satisfactory to the Indemnified Person and provided further that if the legal counsel to such Indemnified Person reasonably determines that the use of counsel chosen by the Company to represent such Indemnified Person would present such counsel with a conflict of interest or if the defendant in, or target of, any such Claim, includes an Indemnified Person and the Company, and legal counsel to such Indemnified Person reasonably concludes that there may be legal defenses available to it or other Indemnified Persons different from or in addition to those available to the Company, such Indemnified Person will employ its own separate counsel (including local counsel, if necessary) to represent or defend him, her or it in any such Claim and the Company shall pay the reasonable fees and expenses of such counsel. If such Indemnified Person does not request that the Company assume the defense of such Claim, such Indemnified Person will employ its own separate counsel (including local counsel, if necessary) to represent or defend him, her or it in any such Claim and the Company shall pay the reasonable fees and expenses of such counsel. Notwithstanding anything herein to the contrary, if the Company fails timely or diligently to defend, contest, or otherwise protect against any Claim, the relevant Indemnified Person shall have the right, but not the obligation, to defend, contest, compromise, settle, assert crossclaims, or counterclaims or otherwise protect against the same, and shall be fully indemnified by the Company therefor, including without limitation, for the reasonable fees and expenses of its counsel and all amounts paid as a result of such Claim or the compromise or settlement thereof. In addition, with respect to any Claim in which the Company assumes the defense, the Indemnified Person shall have the right to participate in such Claim and to retain his, her or its own counsel therefor at his, her or its own expense.

4. The Company agrees that if any indemnity sought by an Indemnified Person hereunder is held by a court to be unavailable for any reason then (whether or not Wainwright is the Indemnified Person), the Company and Wainwright shall contribute to the Claim for which such indemnity is held unavailable in such proportion as is appropriate to reflect the relative benefits to the Company, on the one hand, and Wainwright on the other, in connection with Wainwright's engagement referred to above, subject to the limitation that in no event shall the amount of Wainwright's contribution to such Claim exceed the amount of fees actually received by Wainwright from the Company pursuant to Wainwright's engagement. The Company hereby agrees that the relative benefits to the Company, on the one hand, and Wainwright on the other, with respect to Wainwright's engagement shall be deemed to be in the same proportion as (a) the total value paid or proposed to be paid or received by the Company pursuant to the applicable Offering (whether or not consummated) for which Wainwright is engaged to render services bears to (b) the fee paid or proposed to be paid to Wainwright in connection with such engagement.

5. The Company's indemnity, reimbursement and contribution obligations under this Agreement (a) shall be in addition to, and shall in no way limit or otherwise adversely affect any rights that any Indemnified Person may have at law or at equity and (b) shall be effective whether or not the Company is at fault in any way.

G. Limitation of Engagement to the Company. The Company acknowledges that Wainwright has been retained only by the Company, that Wainwright is providing services hereunder as an independent contractor (and not in any fiduciary or agency capacity) and that the Company's engagement of Wainwright is not deemed to be on behalf of, and is not intended to confer rights upon, any shareholder, owner or partner of the Company or any other person not a party hereto as against Wainwright or any of its affiliates, or any of its or their respective officers, directors, controlling persons (within the meaning of Section 15 of the Securities Act or Section 20 of the Securities Exchange Act of 1934, as amended (the "Exchange Act")), employees or agents. Unless otherwise expressly agreed in writing by Wainwright, no one other than the Company is authorized to rely upon this Agreement or any other statements or conduct of Wainwright, and no one other than the Company is intended to be a beneficiary of this Agreement. The Company acknowledges that any recommendation or advice, written or oral, given by Wainwright to the Company in connection with Wainwright's engagement is intended solely for the benefit and use of the Company's management and directors in considering a possible Offering, and any such recommendation or advice is not on behalf of, and shall not confer any rights or remedies upon, any other person or be used or relied upon for any other purpose. Wainwright shall not have the authority to make any commitment binding on the Company. The Company, in its sole discretion, shall have the right to reject any investor introduced to it by Wainwright.

H. Limitation of Wainwright's Liability to the Company. Wainwright and the Company further agree that neither Wainwright nor any of its affiliates or any of its or their respective officers, directors, controlling persons (within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act), employees or agents shall have any liability to the Company, its security holders or creditors, or any person asserting claims on behalf of or in the right of the Company (whether direct or indirect, in contract, tort, for an act of negligence or otherwise) for any losses, fees, damages, liabilities, costs, expenses or equitable relief arising out of or relating to this Agreement or the services rendered hereunder, except for losses, fees, damages, liabilities, costs or expenses that arise out of or are based on any action of or failure to act by Wainwright and that are finally judicially determined to have resulted solely from the gross negligence or willful misconduct of Wainwright.

I. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of New York applicable to agreements made and to be fully performed therein. Any disputes that arise under this Agreement, even after the termination of this Agreement, will be heard only in the state or federal courts located in the City of New York, State of New York. The parties hereto expressly agree to submit themselves to the jurisdiction of the foregoing courts in the City of New York, State of New York. The parties hereto expressly waive any rights they may have to contest the jurisdiction, venue or authority of any court sitting in the City and State of New York. In the event Wainwright or any Indemnified Person is successful in any action, or suit against the Company, arising out of or relating to this Agreement, the final judgment or award entered shall be entitled to have and recover from the Company the costs and expenses incurred in connection therewith, including its reasonable attorneys' fees. Any rights to trial by jury with respect to any such action, proceeding or suit are hereby waived by Wainwright and the Company.

J. Notices. All notices hereunder will be in writing and sent by certified mail, hand delivery, overnight delivery or e-mail, if sent to Wainwright, at the address set forth on the first page hereof, e-mail: notices@hcwco.com, Attention: Head of Investment Banking, and if sent to the Company, to the address set forth on the first page hereof, e-mail: _____, Attention: Chief Executive Officer. Notices sent by certified mail shall be deemed received five days thereafter, notices sent by hand delivery or overnight delivery shall be deemed received on the date of the relevant written record of receipt, notices sent by e-mail shall be deemed received as of the date and time they were sent.

K. Conflicts. The Company acknowledges that Wainwright and its affiliates may have and may continue to have investment banking and other relationships with parties other than the Company pursuant to which Wainwright may acquire information of interest to the Company. Wainwright shall have no obligation to disclose such information to the Company or to use such information in connection with any contemplated transaction.

L. Anti-Money Laundering. To help the United States government fight the funding of terrorism and money laundering, the federal laws of the United States require all financial institutions to obtain, verify and record information that identifies each person with whom they do business. This means Wainwright must ask the Company for certain identifying information, including a government-issued identification number (e.g., a U.S. taxpayer identification number) and such other information or documents that Wainwright considers appropriate to verify the Company's identity, such as certified articles of incorporation, a government-issued business license, a partnership agreement or a trust instrument.

M. Miscellaneous. The Company represents and warrants that it has all requisite power and authority to enter into and carry out the terms and provisions of this Agreement and the execution, delivery and performance of this Agreement does not breach or conflict with any agreement, document or instrument to which it is a party or bound. This Agreement shall not be modified or amended except in writing signed by Wainwright and the Company. This Agreement shall be binding upon and inure to the benefit of both Wainwright and the Company and their respective assigns, successors, and legal representatives. This Agreement constitutes the entire agreement of Wainwright and the Company with respect to the subject matter hereof and supersedes any prior agreements with respect to the subject matter hereof. If any provision of this Agreement is determined to be invalid or unenforceable in any respect, such determination will not affect such provision in any other respect, and the remainder of the Agreement shall remain in full force and effect. This Agreement may be executed in counterparts (including electronic counterparts), each of which shall be deemed an original but all of which together shall constitute one and the same instrument. Signatures to this Agreement transmitted by electronic mail in "portable document format" (.pdf) form, or by any other electronic means intended to preserve the original graphic and pictorial appearance of a document, will have the same effect as physical delivery of the paper document bearing the original signature. The undersigned hereby consents to receipt of this Agreement in electronic form and understands and agrees that this Agreement may be signed electronically. In the event that any signature is delivered by electronic mail (including any electronic signature covered by the U.S. federal E-SIGN Act of 2000, Uniform Electronic Transactions Act, the Electronic Signatures and Records Act or other applicable law, e.g., www.docusign.com) or otherwise by electronic transmission evidencing an intent to sign this Agreement, such electronic mail or other electronic transmission shall create a valid and binding obligation of the undersigned with the same force and effect as if such signature were an original. Execution and delivery of this Agreement by electronic mail or other electronic transmission is legal, valid and binding for all purposes.

In acknowledgment that the foregoing correctly sets forth the understanding reached by Wainwright and the Company, please sign in the space provided below, whereupon this letter shall constitute a binding Agreement as of the date indicated above.

Very truly yours,

H.C. WAINWRIGHT & CO., LLC

By: _____
Name:
Title:
Date:

Accepted and Agreed:

ASP ISOTOPES INC.

By: _____
Name:
Title:

Exhibit I (Existing Shareholders)

[Company to provide]

NEITHER THIS SECURITY NOR THE SECURITIES FOR WHICH THIS SECURITY IS EXERCISABLE HAVE BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO AN AVAILABLE EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS. THIS SECURITY AND THE SECURITIES ISSUABLE UPON EXERCISE OF THIS SECURITY MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT OR OTHER LOAN SECURED BY SUCH SECURITIES.

COMMON STOCK PURCHASE WARRANT

ASP ISOTOPES INC.

Warrant Shares: _____

Issue Date: March _____, 2023

Initial Exercise Date: _____, 2023¹

THIS COMMON STOCK PURCHASE WARRANT (the "Warrant") certifies that, for value received, _____ or its assigns (the "Holder") is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after the date set forth above (the "Initial Exercise Date") and on or prior to 5:00 p.m. (New York City time) on _____² (the "Termination Date") but not thereafter, to subscribe for and purchase from ASP Isotopes Inc., a Delaware corporation (the "Company"), up to _____ shares (as subject to adjustment hereunder, the "Warrant Shares") of Common Stock. The purchase price of one share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b).

Section 1. Definitions. Capitalized terms used and not otherwise defined herein shall have the meanings set forth in that certain Securities Purchase Agreement (the "Purchase Agreement"), dated March 14, 2023, among the Company and the purchasers signatory thereto.

¹ Insert the date that is six months following the date of issuance.

² Insert the date that is the five (5) year anniversary of the Initial Exercise Date, provided that, if such date is not a Trading Day, insert the immediately following Trading Day.

Section 2. Exercise.

a) Exercise of Warrant. Exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company of a duly executed PDF copy submitted by e-mail (or e-mail attachment) of the Notice of Exercise in the form annexed hereto (the "Notice of Exercise"). Within the earlier of (i) two (2) Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined in Section 2(d)(i) herein) following the date of exercise as aforesaid, the Holder shall deliver the aggregate Exercise Price for the Warrant Shares specified in the applicable Notice of Exercise by wire transfer or cashier's check drawn on a United States bank unless the cashless exercise procedure specified in Section 2(c) below is specified in the applicable Notice of Exercise. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation as soon as reasonably practicable of the date on which the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise within one (1) Trading Day of receipt of such notice. **The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.**

b) Exercise Price. The exercise price per share of Common Stock under this Warrant shall be **\$1.75**, subject to adjustment hereunder (the "Exercise Price").

c) Cashless Exercise. If at the time of exercise hereof there is no effective registration statement registering, or the prospectus contained therein is not available for the resale of the Warrant Shares by the Holder, then this Warrant may also be exercised, in whole or in part, at such time by means of a "cashless exercise" in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

(A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) both executed and delivered pursuant to Section 2(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 2(a) hereof on a Trading Day prior to the opening of “regular trading hours” (as defined in Rule 600(b) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) at the option of the Holder, either (y) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (z) the Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. (“Bloomberg”) as of the time of the Holder’s execution of the applicable Notice of Exercise if such Notice of Exercise is executed during “regular trading hours” on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of “regular trading hours” on a Trading Day) pursuant to Section 2(a) hereof or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is both executed and delivered pursuant to Section 2(a) hereof after the close of “regular trading hours” on such Trading Day;

(B) = the Exercise Price of this Warrant, as adjusted hereunder; and

(X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

“Bid Price” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the bid price of the Common Stock for the time in question (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on The Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Securities then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on The Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Securities then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

If Warrant Shares are issued in such a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the Securities Act, the Warrant Shares shall take on the characteristics of the Warrants being exercised, and the holding period of the Warrant Shares being issued may be tacked on to the holding period of this Warrant. The Company agrees not to take any position contrary to this Section 2(c).

d) Mechanics of Exercise.

i. Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder's or its designee's balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system ("DWAC") if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by the Holder or (B) the Warrant Shares are eligible for resale by the Holder without volume or manner-of-sale limitations pursuant to Rule 144 (assuming cashless exercise of the Warrants), and otherwise by physical delivery of a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earliest of (i) two (2) Trading Days after the delivery to the Company of the Notice of Exercise, (ii) one (1) Trading Day after delivery of the aggregate Exercise Price to the Company and (iii) the number of Trading Days comprising the Standard Settlement Period after the delivery to the Company of the Notice of Exercise (such date, the "Warrant Share Delivery Date"). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received by the Warrant Share Delivery Date. If the Company fails for any reason to deliver to the Holder the Warrant Shares subject to a Notice of Exercise by the Warrant Share Delivery Date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Stock on the date of the applicable Notice of Exercise), \$10 per Trading Day (increasing to \$20 per Trading Day on the third Trading Day after the Warrant Share Delivery Date) for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise. The Company agrees to maintain a transfer agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable. As used herein, "Standard Settlement Period" means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Stock as in effect on the date of delivery of the Notice of Exercise.

ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise.

iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2(d)(i) above pursuant to an exercise on or before the Warrant Share Delivery Date, and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "Buy-In"), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with an aggregate sale price giving rise to such purchase obligation of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.

v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share.

vi. Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that, in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

e) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "Attribution Parties")), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Stock Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and the Company shall have no obligation to verify or confirm the accuracy of such determination. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 2(e), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of a Holder, the Company shall within one (1) Trading Day confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding shares of Common Stock was reported. The "Beneficial Ownership Limitation" shall be [4.99%/9.99%] of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant. The Holder, upon notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 2(e), provided that the Beneficial Ownership Limitation in no event exceeds 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock upon exercise of this Warrant held by the Holder and the provisions of this Section 2(e) shall continue to apply. Any increase in the Beneficial Ownership Limitation will not be effective until the 61st day after such notice is delivered to the Company. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant.

Section 3. Certain Adjustments.

a) Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of its Common Stock or any other equity or equity equivalent securities payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon exercise of this Warrant), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding shares of Common Stock into a smaller number of shares, or (iv) issues by reclassification of shares of the Common Stock any shares of capital stock of the Company, then in each case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 3(a) above, if at any time the Company grants, issues or sells any Common Stock Equivalents or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, that to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

c) Pro Rata Distributions. During such time as this Warrant is outstanding, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "Distribution"), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (provided, however, that to the extent that the Holder's right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any shares of Common Stock as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

d) Fundamental Transaction. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company (or any Subsidiary), directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding Common Stock or 50% or more of the voting power of the common equity of the Company, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, merger or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires 50% or more of the outstanding shares of Common Stock or 50% or more of the voting power of the common equity of the Company (each a "Fundamental Transaction"), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 2(e) on the exercise of this Warrant), the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the "Alternate Consideration") receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 2(e) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. Notwithstanding anything to the contrary, in the event of a Fundamental Transaction, the Company or any Successor Entity (as defined below) shall, at the Holder's option, exercisable at any time concurrently with, or within 30 days after, the consummation of the Fundamental Transaction (or, if later, the date of the public announcement of the applicable contemplated Fundamental Transaction), purchase this Warrant from the Holder by paying to the Holder an amount of cash equal to the Black Scholes Value (as defined below) of the remaining unexercised portion of this Warrant on the date of the consummation of such Fundamental Transaction; provided, however, that if the Fundamental Transaction is not within the Company's control, including not approved by the Company's Board of Directors, Holder shall only be entitled to receive from the Company or any Successor Entity the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of this Warrant, that is being offered and paid to the holders of Common Stock of the Company in connection with the Fundamental Transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Stock are given the choice to receive from among alternative forms of consideration in connection with the Fundamental Transaction; provided, further, that if holders of Common Stock of the Company are not offered or paid any consideration in such Fundamental Transaction, such holders of Common Stock will be deemed to have received common stock of the Successor Entity (which Entity may be the Company following such Fundamental Transaction) in such Fundamental Transaction. "Black Scholes Value" means the value of this Warrant based on the Black Scholes Option Pricing Model obtained from the "OV" function on Bloomberg determined as of the day of consummation of the applicable Fundamental Transaction for pricing purposes and reflecting (A) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the time between the date of the public announcement of the applicable contemplated Fundamental Transaction and the Termination Date, (B) an expected volatility equal to the greater of 100% and the 100 day volatility obtained from the HVT function on Bloomberg (determined utilizing a 365 day annualization factor) as of the Trading Day immediately following the public announcement of the applicable contemplated Fundamental Transaction, (C) the underlying price per share used in such calculation shall be the greater of (i) the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in such Fundamental Transaction and (ii) the highest VWAP during the period beginning on the Trading Day immediately preceding the public announcement of the applicable contemplated Fundamental Transaction (or the consummation of the applicable Fundamental Transaction, if earlier) and ending on the Trading Day of the Holder's request pursuant to this Section 3(d) and (D) a remaining option time equal to the time between the date of the public announcement of the applicable contemplated Fundamental Transaction and the Termination Date and (E) a zero cost of borrow. The payment of the Black Scholes Value will be made by wire transfer of immediately available funds (or such other consideration) within the later of (i) five Business Days of the Holder's election and (ii) the date of consummation of the Fundamental Transaction. The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the "Successor Entity") to assume in writing all of the obligations of the Company under this Warrant and the other Transaction Documents in accordance with the provisions of this Section 3(d) pursuant to written agreements in form and substance reasonably satisfactory to the Holder and approved by the Holder (without unreasonable delay) prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall be added to the term "Company" under this Warrant (so that from and after the occurrence or consummation of such Fundamental Transaction, each and every provision of this Warrant and the other Transaction Documents referring to the "Company" shall refer instead to each of the Company and the Successor Entity or Successor Entities, jointly and severally), and the Successor Entity or Successor Entities, jointly and severally with the Company, may exercise every right and power of the Company prior thereto and the Successor Entity or Successor Entities shall assume all of the obligations of the Company prior thereto under this Warrant and the other Transaction Documents with the same effect as if the Company and such Successor Entity or Successor Entities, jointly and severally, had been named as the Company herein.

e) Calculations. All calculations under this Section 3 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding treasury shares, if any) issued and outstanding.

f) Notice to Holder.

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment.

ii. Notice to Allow Exercise by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all holders of the Common Stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company (or any of its Subsidiaries) is a party, any sale or transfer of all or substantially all of its assets, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by email to the Holder at its last email address as it shall appear upon the Warrant Register of the Company, at least 20 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided in this Warrant constitutes, or contains, material, non-public information regarding the Company or any of the Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

g) Voluntary Adjustment By the Company. Subject to the rules and regulations of the Trading Market, the Company may at any time during the term of this Warrant, subject to the prior written consent of the Holder, reduce the then current Exercise Price to any amount and for any period of time deemed appropriate by the Board of Directors of the Company.

Section 4. Transfer of Warrant.

a) Transferability. Subject to compliance with any applicable securities laws and the conditions set forth in Section 4(d) hereof and to the provisions of Section 4.1 of the Purchase Agreement, this Warrant and all rights hereunder (including, without limitation, any registration rights) are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company within three (3) Trading Days of the date on which the Holder delivers an assignment form to the Company assigning this Warrant in full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

b) New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the Issue Date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the “Warrant Register”), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

d) Transfer Restrictions. If, at the time of the surrender of this Warrant in connection with any transfer of this Warrant, the transfer of this Warrant shall not be either (i) registered pursuant to an effective registration statement under the Securities Act and under applicable state securities or blue sky laws or (ii) eligible for resale without volume or manner-of-sale restrictions or current public information requirements pursuant to Rule 144, the Company may require, as a condition of allowing such transfer, that the Holder or transferee of this Warrant, as the case may be, comply with the provisions of Section 5.7 of the Purchase Agreement.

e) Representation by the Holder. The Holder, by the acceptance hereof, represents and warrants that it is acquiring this Warrant and, upon any exercise hereof, will acquire the Warrant Shares issuable upon such exercise, for its own account and not with a view to or for distributing or reselling such Warrant Shares or any part thereof in violation of the Securities Act or any applicable state securities law, except pursuant to sales registered or exempted under the Securities Act.

Section 5. Miscellaneous.

a) No Rights as Stockholder Until Exercise; No Settlement in Cash. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3. Without limiting any rights of a Holder to receive Warrant Shares on a “cashless exercise” pursuant to Section 2(c) or to receive cash payments pursuant to Section 2(d)(i) and Section 2(d)(iv) herein, in no event shall the Company be required to net cash settle an exercise of this Warrant.

b) Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c) Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then such action may be taken or such right may be exercised on the next succeeding Business Day.

d) Authorized Shares.

The Company covenants that, during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Stock may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment. Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

Before taking any action which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e) Jurisdiction. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be determined in accordance with the provisions of the Purchase Agreement.

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies. Without limiting any other provision of this Warrant or the Purchase Agreement, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

h) Notices. Any notice, request or other document required or permitted to be given or delivered to the Holder by the Company shall be delivered in accordance with the notice provisions of the Purchase Agreement.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Stock or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company, on the one hand, and the Holder of this Warrant, on the other hand.

m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

(Signature Page Follows)

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

ASP ISOTOPES INC.

By: _____
Name:
Title:

NOTICE OF EXERCISE

TO: ASP ISOTOPES INC.

(1) The undersigned hereby elects to purchase _____ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

in lawful money of the United States; or

if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

The Warrant Shares shall be delivered to the following DWAC Account Number:

(4) Accredited Investor. The undersigned is an “accredited investor” as defined in Regulation D promulgated under the Securities Act of 1933, as amended.

[SIGNATURE OF HOLDER]

Name of Investing Entity: _____

Signature of Authorized Signatory of Investing Entity: _____

Name of Authorized Signatory: _____

Title of Authorized Signatory: _____

Date: _____

ASSIGNMENT FORM

(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to exercise the Warrant to purchase shares.)

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: _____
(Please Print)

Address: _____
(Please Print)

Phone Number: _____

Email Address: _____

Dated: _____, _____

Holder's Signature: _____

Holder's Address: _____

NEITHER THIS SECURITY NOR THE SECURITIES FOR WHICH THIS SECURITY IS EXERCISABLE HAVE BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO AN AVAILABLE EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS. THIS SECURITY AND THE SECURITIES ISSUABLE UPON EXERCISE OF THIS SECURITY MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT OR OTHER LOAN SECURED BY SUCH SECURITIES.

PLACEMENT AGENT COMMON STOCK PURCHASE WARRANT

ASP ISOTOPES INC.

Warrant Shares: _____

Issue Date: March 17, 2023

Initial Exercise Date: September 17, 2023

THIS PLACEMENT AGENT COMMON STOCK PURCHASE WARRANT (the "Warrant") certifies that, for value received, _____ or its assigns (the "Holder") is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after the date set forth above (the "Initial Exercise Date") and on or prior to 5:00 p.m. (New York City time) on September 18, 2028 (the "Termination Date") but not thereafter, to subscribe for and purchase from ASP Isotopes Inc., a Delaware corporation (the "Company"), up to _____ shares (as subject to adjustment hereunder, the "Warrant Shares") of Common Stock. The purchase price of one share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b). This Warrant is being issued pursuant to that certain engagement letter, dated as of February 15, 2023, by and between the Company and H.C. Wainwright & Co., LLC.

Section 1. Definitions. Capitalized terms used and not otherwise defined herein shall have the meanings set forth in that certain Securities Purchase Agreement (the "Purchase Agreement"), dated March 14, 2023, among the Company and the purchasers signatory thereto.

Section 2. Exercise.

a) Exercise of Warrant. Exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company of a duly executed PDF copy submitted by e-mail (or e-mail attachment) of the Notice of Exercise in the form annexed hereto (the "Notice of Exercise"). Within the earlier of (i) two (2) Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined in Section 2(d)(i) herein) following the date of exercise as aforesaid, the Holder shall deliver the aggregate Exercise Price for the Warrant Shares specified in the applicable Notice of Exercise by wire transfer or cashier's check drawn on a United States bank unless the cashless exercise procedure specified in Section 2(c) below is specified in the applicable Notice of Exercise. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation as soon as reasonably practicable of the date on which the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise within one (1) Trading Day of receipt of such notice. **The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.**

b) Exercise Price. The exercise price per share of Common Stock under this Warrant shall be **\$1.975**, subject to adjustment hereunder (the "Exercise Price").

c) Cashless Exercise. If at the time of exercise hereof there is no effective registration statement registering, or the prospectus contained therein is not available for the resale of the Warrant Shares by the Holder, then this Warrant may also be exercised, in whole or in part, at such time by means of a "cashless exercise" in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

(A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) both executed and delivered pursuant to Section 2(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 2(a) hereof on a Trading Day prior to the opening of “regular trading hours” (as defined in Rule 600(b) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) at the option of the Holder, either (y) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (z) the Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. (“Bloomberg”) as of the time of the Holder’s execution of the applicable Notice of Exercise if such Notice of Exercise is executed during “regular trading hours” on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of “regular trading hours” on a Trading Day) pursuant to Section 2(a) hereof or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is both executed and delivered pursuant to Section 2(a) hereof after the close of “regular trading hours” on such Trading Day;

(B) = the Exercise Price of this Warrant, as adjusted hereunder; and

(X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

“Bid Price” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the bid price of the Common Stock for the time in question (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on The Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Securities then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on The Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Securities then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

If Warrant Shares are issued in such a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the Securities Act, the Warrant Shares shall take on the characteristics of the Warrants being exercised, and the holding period of the Warrant Shares being issued may be tacked on to the holding period of this Warrant. The Company agrees not to take any position contrary to this Section 2(c).

d) Mechanics of Exercise.

i. Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder's or its designee's balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system ("DWAC") if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by the Holder or (B) the Warrant Shares are eligible for resale by the Holder without volume or manner-of-sale limitations pursuant to Rule 144 (assuming cashless exercise of the Warrants), and otherwise by physical delivery of a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earliest of (i) two (2) Trading Days after the delivery to the Company of the Notice of Exercise, (ii) one (1) Trading Day after delivery of the aggregate Exercise Price to the Company and (iii) the number of Trading Days comprising the Standard Settlement Period after the delivery to the Company of the Notice of Exercise (such date, the "Warrant Share Delivery Date"). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received by the Warrant Share Delivery Date. If the Company fails for any reason to deliver to the Holder the Warrant Shares subject to a Notice of Exercise by the Warrant Share Delivery Date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Stock on the date of the applicable Notice of Exercise), \$10 per Trading Day (increasing to \$20 per Trading Day on the third Trading Day after the Warrant Share Delivery Date) for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise. The Company agrees to maintain a transfer agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable. As used herein, "Standard Settlement Period" means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Stock as in effect on the date of delivery of the Notice of Exercise.

ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise.

iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2(d)(i) above pursuant to an exercise on or before the Warrant Share Delivery Date, and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "Buy-In"), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with an aggregate sale price giving rise to such purchase obligation of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.

v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share.

vi. Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that, in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

e) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "Attribution Parties")), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Stock Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and the Company shall have no obligation to verify or confirm the accuracy of such determination. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 2(e), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of a Holder, the Company shall within one (1) Trading Day confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding shares of Common Stock was reported. The "Beneficial Ownership Limitation" shall be 4.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant. The Holder, upon notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 2(e), provided that the Beneficial Ownership Limitation in no event exceeds 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock upon exercise of this Warrant held by the Holder and the provisions of this Section 2(e) shall continue to apply. Any increase in the Beneficial Ownership Limitation will not be effective until the 61st day after such notice is delivered to the Company. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant.

Section 3. Certain Adjustments.

a) Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of its Common Stock or any other equity or equity equivalent securities payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon exercise of this Warrant), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding shares of Common Stock into a smaller number of shares, or (iv) issues by reclassification of shares of the Common Stock any shares of capital stock of the Company, then in each case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 3(a) above, if at any time the Company grants, issues or sells any Common Stock Equivalents or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, that to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

c) Pro Rata Distributions. During such time as this Warrant is outstanding, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "Distribution"), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (provided, however, that to the extent that the Holder's right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any shares of Common Stock as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

d) Fundamental Transaction. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company (or any Subsidiary), directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding Common Stock or 50% or more of the voting power of the common equity of the Company, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, merger or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires 50% or more of the outstanding shares of Common Stock or 50% or more of the voting power of the common equity of the Company (each a "Fundamental Transaction"), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 2(e) on the exercise of this Warrant), the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the "Alternate Consideration") receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 2(e) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. Notwithstanding anything to the contrary, in the event of a Fundamental Transaction, the Company or any Successor Entity (as defined below) shall, at the Holder's option, exercisable at any time concurrently with, or within 30 days after, the consummation of the Fundamental Transaction (or, if later, the date of the public announcement of the applicable contemplated Fundamental Transaction), purchase this Warrant from the Holder by paying to the Holder an amount of cash equal to the Black Scholes Value (as defined below) of the remaining unexercised portion of this Warrant on the date of the consummation of such Fundamental Transaction; provided, however, that if the Fundamental Transaction is not within the Company's control, including not approved by the Company's Board of Directors, Holder shall only be entitled to receive from the Company or any Successor Entity the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of this Warrant, that is being offered and paid to the holders of Common Stock of the Company in connection with the Fundamental Transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Stock are given the choice to receive from among alternative forms of consideration in connection with the Fundamental Transaction; provided, further, that if holders of Common Stock of the Company are not offered or paid any consideration in such Fundamental Transaction, such holders of Common Stock will be deemed to have received common stock of the Successor Entity (which Entity may be the Company following such Fundamental Transaction) in such Fundamental Transaction. "Black Scholes Value" means the value of this Warrant based on the Black Scholes Option Pricing Model obtained from the "OV" function on Bloomberg determined as of the day of consummation of the applicable Fundamental Transaction for pricing purposes and reflecting (A) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the time between the date of the public announcement of the applicable contemplated Fundamental Transaction and the Termination Date, (B) an expected volatility equal to the greater of 100% and the 100 day volatility obtained from the HVT function on Bloomberg (determined utilizing a 365 day annualization factor) as of the Trading Day immediately following the public announcement of the applicable contemplated Fundamental Transaction, (C) the underlying price per share used in such calculation shall be the greater of (i) the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in such Fundamental Transaction and (ii) the highest VWAP during the period beginning on the Trading Day immediately preceding the public announcement of the applicable contemplated Fundamental Transaction (or the consummation of the applicable Fundamental Transaction, if earlier) and ending on the Trading Day of the Holder's request pursuant to this Section 3(d) and (D) a remaining option time equal to the time between the date of the public announcement of the applicable contemplated Fundamental Transaction and the Termination Date and (E) a zero cost of borrow. The payment of the Black Scholes Value will be made by wire transfer of immediately available funds (or such other consideration) within the later of (i) five Business Days of the Holder's election and (ii) the date of consummation of the Fundamental Transaction. The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the "Successor Entity") to assume in writing all of the obligations of the Company under this Warrant and the other Transaction Documents in accordance with the provisions of this Section 3(d) pursuant to written agreements in form and substance reasonably satisfactory to the Holder and approved by the Holder (without unreasonable delay) prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall be added to the term "Company" under this Warrant (so that from and after the occurrence or consummation of such Fundamental Transaction, each and every provision of this Warrant and the other Transaction Documents referring to the "Company" shall refer instead to each of the Company and the Successor Entity or Successor Entities, jointly and severally), and the Successor Entity or Successor Entities, jointly and severally with the Company, may exercise every right and power of the Company prior thereto and the Successor Entity or Successor Entities shall assume all of the obligations of the Company prior thereto under this Warrant and the other Transaction Documents with the same effect as if the Company and such Successor Entity or Successor Entities, jointly and severally, had been named as the Company herein.

e) Calculations. All calculations under this Section 3 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding treasury shares, if any) issued and outstanding.

f) Notice to Holder.

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment.

ii. Notice to Allow Exercise by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all holders of the Common Stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company (or any of its Subsidiaries) is a party, any sale or transfer of all or substantially all of its assets, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by email to the Holder at its last email address as it shall appear upon the Warrant Register of the Company, at least 20 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided in this Warrant constitutes, or contains, material, non-public information regarding the Company or any of the Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

g) Voluntary Adjustment By the Company. Subject to the rules and regulations of the Trading Market, the Company may at any time during the term of this Warrant, subject to the prior written consent of the Holder, reduce the then current Exercise Price to any amount and for any period of time deemed appropriate by the Board of Directors of the Company.

Section 4. Transfer of Warrant.

a) Transferability. Subject to compliance with any applicable securities laws and the conditions set forth in Section 4(d) hereof and to the provisions of Section 4.1 of the Purchase Agreement, this Warrant and all rights hereunder (including, without limitation, any registration rights) are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company within three (3) Trading Days of the date on which the Holder delivers an assignment form to the Company assigning this Warrant in full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

b) New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the Issue Date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the "Warrant Register"), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

d) Transfer Restrictions. If, at the time of the surrender of this Warrant in connection with any transfer of this Warrant, the transfer of this Warrant shall not be either (i) registered pursuant to an effective registration statement under the Securities Act and under applicable state securities or blue sky laws or (ii) eligible for resale without volume or manner-of-sale restrictions or current public information requirements pursuant to Rule 144, the Company may require, as a condition of allowing such transfer, that the Holder or transferee of this Warrant, as the case may be, comply with the provisions of Section 5.7 of the Purchase Agreement.

e) Representation by the Holder. The Holder, by the acceptance hereof, represents and warrants that it is acquiring this Warrant and, upon any exercise hereof, will acquire the Warrant Shares issuable upon such exercise, for its own account and not with a view to or for distributing or reselling such Warrant Shares or any part thereof in violation of the Securities Act or any applicable state securities law, except pursuant to sales registered or exempted under the Securities Act.

Section 5. Miscellaneous.

a) No Rights as Stockholder Until Exercise; No Settlement in Cash. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3. Without limiting any rights of a Holder to receive Warrant Shares on a “cashless exercise” pursuant to Section 2(c) or to receive cash payments pursuant to Section 2(d)(i) and Section 2(d)(iv) herein, in no event shall the Company be required to net cash settle an exercise of this Warrant.

b) Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c) Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then such action may be taken or such right may be exercised on the next succeeding Business Day.

d) Authorized Shares.

The Company covenants that, during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Stock may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment. Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

Before taking any action which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e) Jurisdiction. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be determined in accordance with the provisions of the Purchase Agreement.

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies. Without limiting any other provision of this Warrant or the Purchase Agreement, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

h) Notices. Any notice, request or other document required or permitted to be given or delivered to the address for the Holder in the Warrant Register.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Stock or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company, on the one hand, and the Holder of this Warrant, on the other hand.

m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

(Signature Page Follows)

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

ASP ISOTOPES INC.

By: _____
Name:
Title:

NOTICE OF EXERCISE

TO: ASP ISOTOPES INC.

(1) The undersigned hereby elects to purchase _____ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

in lawful money of the United States; or

if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

The Warrant Shares shall be delivered to the following DWAC Account Number:

(4) Accredited Investor. The undersigned is an “accredited investor” as defined in Regulation D promulgated under the Securities Act of 1933, as amended.

[SIGNATURE OF HOLDER]

Name of Investing Entity: _____

Signature of Authorized Signatory of Investing Entity: _____

Name of Authorized Signatory: _____

Title of Authorized Signatory: _____

Date: _____

ASSIGNMENT FORM

(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to exercise the Warrant to purchase shares.)

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: _____
(Please Print)

Address: _____
(Please Print)

Phone Number: _____

Email Address: _____

Dated: _____, _____

Holder's Signature: _____

Holder's Address: _____

Hamilton & Associates Law Group, P.A.

A Professional Association
Attorneys and Counselors at Law
200 East Palmetto Park Road, Suite 103
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Telephone: 561-416-8956
Firm Website: www.securitieslawyer101.com

April 5, 2023

ASP Isotopes Inc.
433 Plaza Real, Suite 275
Boca Raton, Florida 33432
Attn: Board of Directors

Re: Registration Statement on Form S-1

Ladies and Gentlemen:

We have acted as counsel to ASP Isotopes Inc., a Delaware corporation (the "Company"), in connection with a Registration Statement on Form S-1 (the "Registration Statement") filed by the Company on April 5, 2023, with the Securities and Exchange Commission (the "Commission") pursuant to the Securities Act of 1933, as amended. The Registration Statement relates to the registration by the Company for resale by the selling stockholders listed in the prospectus included as a part of the Registration Statement (the "Selling Stockholders") of 6,550,633 shares of the Company's common stock, par value \$0.01 per share (the "Common Stock"), consisting of (i) 3,164,557 shares of Common Stock (the "Private Placement Shares") issued pursuant to a private placement on March 17, 2023 (the "Private Placement") pursuant to that certain Securities Purchase Agreement dated as of March 14, 2023 (the "Securities Purchase Agreement"); (ii) 3,164,557 shares of Common Stock (the "Warrant Shares") issuable upon the exercise of the warrants (the "Warrants") issued in the Private Placement pursuant to the Securities Purchase Agreement; and (iii) 221,519 shares of Common Stock (the "Placement Agent Warrant Shares") issuable upon the exercise of certain placement agent warrants (the "Placement Agent Warrants") issued in connection with the Private Placement issued to the designees of H.C. Wainwright & Co., LLC as described in further detail in the prospectus.

Documents Examined

In connection with this opinion, we have examined such documents and considered such legal matters as we have deemed necessary and relevant as the basis for the opinions set forth below including, without limitation: (i) the Articles of Incorporation and Bylaws of the Company, each as amended to date; (ii) that certain Securities Purchase Agreement, dated March 14, 2023, by and among the Company and the Selling Stockholders; (iii) that certain Registration Statement, dated April 5, 2023, by and among the Company and the Selling Stockholders; (iv) the Warrants; (v) the Placement Agent Warrants; and (vi) records of meetings and consents of the Board of Directors of the Company provided to us by the Company. With respect to such examination, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as reproduced or certified copies, and the authenticity of the originals of those latter documents. As to questions of fact material to this opinion, we have, to the extent deemed appropriate, relied upon certain representations of certain officers of the Company.

Assumptions and Qualifications

Our opinions set forth below are qualified to the extent that they may be subject to or affected by (i) applicable bankruptcy, insolvency, reorganization, moratorium, usury, fraudulent conveyance or similar laws affecting the rights of creditors generally, and (ii) by general equitable principles and public policy considerations, whether such principles and considerations are considered in a proceeding at law or at equity. Furthermore, we express no opinion as to the availability of any equitable or specific remedy, or as to the successful assertion of any equitable defense, upon any breach of any agreements or obligations referred to therein, or any other matters, inasmuch as the availability of such remedies or defenses may be subject to the discretion of a court. We express no opinion as to the enforceability of any indemnification provision, or as to the enforceability of any provision that may be deemed to constitute liquidated damages.

Based upon and subject to the foregoing, and subject to the qualifications, limitations, exceptions and assumptions set forth herein, we are of the opinion that (i) the Private Placement Shares are duly and validly issued, fully paid and non-assessable shares of the Common Stock of the Company; (ii) upon the due exercise of the Warrants in accordance with the terms thereof and when certificates for the same have been duly executed and countersigned and delivered, the Warrant Shares will be duly and validly issued, fully paid and non-assessable shares of the Common Stock of the Company; and (iii) upon the due exercise of the Placement Agent Warrants in accordance with the terms thereof and when certificates for the same have been duly executed and countersigned and delivered, the Placement Agent Warrant Shares will be duly and validly issued, fully paid and non-assessable shares of the Common Stock of the Company.

We express no opinion herein as to the laws of any state or jurisdiction other than the General Corporation Law of the State of Delaware (including the statutory provisions and all applicable judicial decisions interpreting those laws) and the federal laws of the United States of America.

This opinion speaks only as of the date hereof and we assume no obligation to update or supplement this opinion if any applicable laws change after the date of this opinion or if we become aware after the date of this opinion of any facts, whether existing before or arising after the date hereof, that might change the opinions expressed above.

This opinion is furnished in connection with the filing of the Registration Statement and may not be relied upon for any other purpose without our prior written consent in each instance.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement and to the reference to our firm under the caption "Legal Matters" in the prospectus constituting a part of the Registration Statement. In giving such consent, we do not thereby admit that we are included in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,



Brenda Hamilton
For the Firm

SECURITIES PURCHASE AGREEMENT

This Securities Purchase Agreement (this “Agreement”) is dated as of March 14, 2023, between ASP Isotopes Inc., a Delaware corporation (the “Company”), and each purchaser identified on the signature pages hereto (each, including its successors and assigns, a “Purchaser” and collectively, the “Purchasers”).

WHEREAS, subject to the terms and conditions set forth in this Agreement and pursuant to Section 4(a)(2) of the Securities Act (as defined below), and Rule 506 promulgated thereunder, the Company desires to issue and sell to each Purchaser, and each Purchaser, severally and not jointly, desires to purchase from the Company, securities of the Company as more fully described in this Agreement.

NOW, THEREFORE, IN CONSIDERATION of the mutual covenants contained in this Agreement, and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Company and each Purchaser agree as follows:

**ARTICLE I.
DEFINITIONS**

1.1 Definitions. In addition to the terms defined elsewhere in this Agreement, for all purposes of this Agreement, the following terms have the meanings set forth in this Section 1.1:

“Acquiring Person” shall have the meaning ascribed to such term in Section 4.5.

“Action” shall have the meaning ascribed to such term in Section 3.1(j).

“Affiliate” means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person, as such terms are used in and construed under Rule 405 under the Securities Act.

“Board of Directors” means the board of directors of the Company.

“Business Day” means any day other than Saturday, Sunday or other day on which commercial banks in The City of New York are authorized or required by law to remain closed; provided, however, for clarification, commercial banks shall not be deemed to be authorized or required by law to remain closed due to “stay at home”, “shelter-in-place”, “non-essential employee” or any other similar orders or restrictions or the closure of any physical branch locations at the direction of any governmental authority so long as the electronic funds transfer systems (including for wire transfers) of commercial banks in The City of New York are generally open for use by customers on such day.

“Closing” means the closing of the purchase and sale of the Securities pursuant to Section 2.1.

“Closing Date” means the Trading Day on which all of the Transaction Documents have been executed and delivered by the applicable parties thereto, and all conditions precedent to (i) the Purchasers’ obligations to pay the Subscription Amount and (ii) the Company’s obligations to deliver the Securities, in each case, have been satisfied or waived.

“Commission” means the United States Securities and Exchange Commission.

“Common Stock” means the common stock of the Company, par value \$0.01 per share, and any other class of securities into which such securities may hereafter be reclassified or changed.

“Common Stock Equivalents” means any securities of the Company or the Subsidiaries which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock.

“Common Warrant Shares” means the shares of Common Stock issuable upon exercise of the Common Warrants.

“Common Warrants” means, collectively, the Common Stock purchase warrants delivered to the Purchasers at the Closing in accordance with Section 2.2(a) hereof, which Warrants shall be exercisable six (6) months following the date of issuance and have a term of exercise equal to five years (5) years, in the form of Exhibit B attached hereto.

“Company Counsel” means Hamilton & Associates Law Group, P.A., with offices located at 200 East Palmetto Park Road, Suite 103, Boca Raton, FL 33432.

“Disclosure Time” means, (i) if this Agreement is signed on a day that is not a Trading Day or after 9:00 a.m. (New York City time) and before midnight (New York City time) on any Trading Day, 9:01 a.m. (New York City time) on the Trading Day immediately following the date hereof, unless otherwise instructed as to an earlier time by the Placement Agent, and (ii) if this Agreement is signed between midnight (New York City time) and 9:00 a.m. (New York City time) on any Trading Day, no later than 9:01 a.m. (New York City time) on the date hereof, unless otherwise instructed as to an earlier time by the Placement Agent.

“Effective Date” means the earliest of the date that (a) the initial Registration Statement registering for resale all Shares and Warrant Shares has been declared effective by the Commission, (b) all of the Shares and Warrant Shares have been sold pursuant to Rule 144 or may be sold pursuant to Rule 144 without the requirement for the Company to be in compliance with the current public information required under Rule 144 and without volume or manner-of-sale restrictions, (c) following the one year anniversary of the Closing Date provided that a holder of Shares or Warrant Shares is not then an Affiliate of the Company, or (d) all of the Shares and Warrant Shares may be sold pursuant to an exemption from registration under Section 4(a)(1) of the Securities Act without volume or manner-of-sale restrictions and Company Counsel has delivered to such holders a standing written unqualified opinion that resales may then be made by such holders of the Shares and Warrant Shares pursuant to such exemption which opinion shall be in form and substance reasonably acceptable to such holders.

“Escrow Agent” means Continental Stock Transfer & Trust Company, with offices at 1 State Street, New York, New York 10004.

“Escrow Agreement” means the escrow agreement entered into prior to the Closing Date, by and among the Company, the Escrow Agent and the Placement Agent pursuant to which the Purchasers shall deposit Subscription Amounts with the Escrow Agent to be applied to the transactions contemplated hereunder.

“Evaluation Date” shall have the meaning ascribed to such term in Section 3.1(s).

“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

“Exempt Issuance” means the issuance of (a) shares of Common Stock or options to employees, officers or directors of the Company pursuant to any stock or option plan duly adopted for such purpose, by a majority of the non-employee members of the Board of Directors or a majority of the members of a committee of non-employee directors established for such purpose for services rendered to the Company, (b) warrants to the Placement Agent in connection with the transactions pursuant to this Agreement and any securities upon exercise of warrants to the Placement Agent, securities upon the exercise or exchange of or conversion of any Securities issued hereunder and/or other securities exercisable or exchangeable for or convertible into shares of Common Stock issued and outstanding on the date of this Agreement, provided that such securities have not been amended since the date of this Agreement to increase the number of such securities or to decrease the exercise price, exchange price or conversion price of such securities (other than in connection with stock splits or combinations) or to extend the term of such securities, and (c) securities issued pursuant to acquisitions or strategic transactions approved by a majority of the disinterested directors of the Company, provided that such securities are issued as “restricted securities” (as defined in Rule 144) and carry no registration rights that require or permit the filing of any registration statement in connection therewith during the prohibition period in Section 4.11(a) herein, and provided that any such issuance shall only be to a Person (or to the equityholders of a Person) which is, itself or through its subsidiaries, an operating company or an owner of an asset in a business synergistic with the business of the Company and shall provide to the Company additional benefits in addition to the investment of funds, but shall not include a transaction in which the Company is issuing securities primarily for the purpose of raising capital or to an entity whose primary business is investing in securities.

“FCPA” means the Foreign Corrupt Practices Act of 1977, as amended.

“GAAP” shall have the meaning ascribed to such term in Section 3.1(h).

“Indebtedness” shall have the meaning ascribed to such term in Section 3.1(bb).

“Intellectual Property Rights” shall have the meaning ascribed to such term in Section 3.1(p).

“Lock-Up Agreement” means the Lock-Up Agreement, dated as of the date hereof, by and among the Company and the directors and officers of the Company, in the form of Exhibit D attached hereto.

“Legend Removal Date” shall have the meaning ascribed to such term in Section 4.1(c).

“Liens” means a lien, charge, pledge, security interest, encumbrance, right of first refusal, preemptive right or other restriction.

“Material Adverse Effect” shall have the meaning assigned to such term in Section 3.1(b).

“Material Permits” shall have the meaning ascribed to such term in Section 3.1(n).

“Per Share Purchase Price” equals \$1.58 (less \$0.01 for each Pre-Funded Warrant), subject to adjustment for reverse and forward stock splits, stock dividends, stock combinations and other similar transactions of the Common Stock that occur after the date of this Agreement and prior to the Closing Date.

“Person” means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“Placement Agent” means H.C. Wainwright & Co., LLC.

“Pre-Funded Warrants” means, collectively, the Pre-Funded Common Stock purchase warrants delivered to the Purchasers at the Closing in accordance with Section 2.2(a) hereof, which Pre-Funded Warrants shall be exercisable immediately and will expire when exercised in full, in the form of Exhibit A attached hereto.

“Pre-Funded Warrant Shares” means the shares of Common Stock issuable upon exercise of the Pre-Funded Warrants.

“Proceeding” means an action, claim, suit, investigation or proceeding (including, without limitation, an informal investigation or partial proceeding, such as a deposition), whether commenced or threatened.

“Public Information Failure” shall have the meaning ascribed to such term in Section 4.2(b).

“Public Information Failure Payments” shall have the meaning ascribed to such term in Section 4.2(b).

“Purchaser Party” shall have the meaning ascribed to such term in Section 4.8.

“Registration Rights Agreement” means the Registration Rights Agreement, dated on or about the date hereof, among the Company and the Purchasers, in the form of Exhibit C attached hereto.

“Registration Statement” means a registration statement meeting the requirements set forth in the Registration Rights Agreement and covering the resale by the Purchasers of the Shares and the Warrant Shares.

“Required Approvals” shall have the meaning ascribed to such term in Section 3.1(e).

“Rule 144” means Rule 144 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“Rule 424” means Rule 424 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“SEC Reports” shall have the meaning ascribed to such term in Section 3.1(h).

“Securities” means the Shares, the Warrants and the Warrant Shares.

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Shares” means the shares of Common Stock issued or issuable to each Purchaser pursuant to this Agreement.

“Short Sales” means all “short sales” as defined in Rule 200 of Regulation SHO under the Exchange Act (but shall not be deemed to include locating and/or borrowing shares of Common Stock).

“Subscription Amount” means, as to each Purchaser, the aggregate amount to be paid for Shares and Warrants purchased hereunder as specified below such Purchaser’s name on the signature page of this Agreement and next to the heading “Subscription Amount,” in United States dollars and in immediately available funds (minus, if applicable, a Purchaser’s aggregate exercise price of the Pre-Funded Warrants, which amounts shall be paid as and when such Pre-Funded Warrants are exercised for cash).

“Subsidiary” means any subsidiary of the Company as set forth in the SEC Reports and shall, where applicable, also include any direct or indirect subsidiary of the Company formed or acquired after the date hereof.

“Trading Day” means a day on which the principal Trading Market is open for trading.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market or the New York Stock Exchange (or any successors to any of the foregoing).

“Transaction Documents” means this Agreement, the Warrants, the Registration Rights Agreement, the Escrow Agreement, the Lock-Up Agreements, all exhibits and schedules thereto and hereto and any other documents or agreements executed in connection with the transactions contemplated hereunder.

“Transfer Agent” means American Stock Transfer & Trust Company, LLC, the current transfer agent of the Company, and any successor transfer agent of the Company.

“Variable Rate Transaction” shall have the meaning ascribed to such term in Section 4.11(b).

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on The Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Purchasers of a majority in interest of the Securities then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

“Warrants” means, collectively, the Common Warrants and the Pre-Funded Warrants.

“Warrant Shares” means the shares of Common Stock issuable upon exercise of the Warrants.

**ARTICLE II.
PURCHASE AND SALE**

2.1 Closing. On the Closing Date, upon the terms and subject to the conditions set forth herein, the Company agrees to sell, and the Purchasers, severally and not jointly, agree to purchase, up to an aggregate of \$5,000,000.06 of Shares and Warrants. Notwithstanding anything herein to the contrary, to the extent that a Purchaser determines, in its sole discretion, that such Purchaser's Subscription Amount (together with such Purchaser's Affiliates and any Person acting as a group together with such Purchaser or any of such Purchaser's Affiliates) would cause such Purchaser's beneficial ownership of the shares of Common Stock to exceed the Beneficial Ownership Limitation, or as such Purchaser may otherwise choose, such Purchaser may elect to purchase Pre-Funded Warrants in lieu of the Shares as determined pursuant to Section 2.2(a). The "Beneficial Ownership Limitation" shall be 4.99% (or, at the election of the Purchaser at Closing, 9.99%) of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of the Securities on the Closing Date. In each case, the election to receive Pre-Funded Warrants is solely at the option of the Purchaser. Each Purchaser shall deliver to the Escrow Agent, via wire transfer, immediately available funds equal to such Purchaser's Subscription Amount as set forth on the signature page hereto executed by such Purchaser, and the Company shall deliver to each Purchaser its respective Shares, Pre-Funded Warrants and Common Warrants, as determined pursuant to Section 2.2(a), and the Company and each Purchaser shall deliver the other items set forth in Section 2.2 deliverable at the Closing. Upon satisfaction of the covenants and conditions set forth in Sections 2.2 and 2.3, the Closing shall take place remotely by electronic transfer of the Closing documentation.

2.2 Deliveries.

(a) On or prior to the Closing Date, the Company shall deliver or cause to be delivered to each Purchaser the following:

(i) this Agreement duly executed by the Company;

(ii) a legal opinion of Company Counsel, directed to the Placement Agent and the Purchasers, in a form reasonably acceptable to the Placement Agent and Purchasers;

(iii) a copy of the irrevocable instructions to the Transfer Agent instructing the Transfer Agent to deliver, on an expedited basis, a certificate evidencing a number of Shares equal to such Purchaser's Subscription Amount divided by the Per Share Purchase Price, registered in the name of such Purchaser, or, at the election of such Purchaser, evidence of the issuance of such Purchaser's Shares hereunder as held in DRS book-entry form by the Transfer Agent and registered in the name of such Purchaser, which evidence shall be reasonably satisfactory to such Purchaser;

(iv) if applicable, a Pre-Funded Warrant registered in the name of such Purchaser to purchase up to a number of shares of Common Stock equal to the difference between (A) such Purchaser's Subscription Amount divided by the Per Share Purchase Price applicable to Pre-Funded Warrants and (B) the number of Shares otherwise issuable to such Purchaser that would cause such Purchaser's Beneficial Ownership to be more than the Beneficial Ownership Limitation with an exercise price equal to \$0.01 per share of Common Stock, subject to adjustment therein;

(v) a Warrant registered in the name of such Purchaser to purchase up to a number of shares of Common Stock equal to 100% of the sum of such Purchaser's Shares and Pre-Funded Warrant Shares, with an exercise price equal to \$1.75, subject to adjustment therein;

(vi) the Company shall have provided each Purchaser with the Escrow Agent's wire instructions; and

(vii) the Registration Rights Agreement duly executed by the Company.

(b) On or prior to the Closing Date, each Purchaser shall deliver or cause to be delivered to the Company or the Escrow Agent, as applicable, the following:

(i) this Agreement duly executed by such Purchaser;

(ii) to the Escrow Agent, such Purchaser's Subscription Amount by wire transfer to the account of the Escrow Agent specified in writing by the Company; and

(iii) the Registration Rights Agreement duly executed by such Purchaser.

2.3 Closing Conditions.

(a) The obligations of the Company hereunder in connection with the Closing are subject to the following conditions being met:

(i) the accuracy in all material respects (or, to the extent representations or warranties are qualified by materiality, in all respects) on the Closing Date of the representations and warranties of the Purchasers contained herein (unless as of a specific date therein in which case they shall be accurate in all material respects (or, to the extent representations or warranties are qualified by materiality, in all respects) as of such date);

(ii) all obligations, covenants and agreements of each Purchaser required to be performed at or prior to the Closing Date shall have been performed; and

(iii) the delivery by each Purchaser of the items set forth in Section 2.2(b) of this Agreement.

(b) The respective obligations of the Purchasers hereunder in connection with the Closing are subject to the following conditions being met:

(i) the accuracy in all material respects (or, to the extent representations or warranties are qualified by materiality or Material Adverse Effect, in all respects) when made and on the Closing Date of the representations and warranties of the Company contained herein (unless as of a specific date therein in which case they shall be accurate in all material respects or, to the extent representations or warranties are qualified by materiality or Material Adverse Effect, in all respects) as of such date);

(ii) all obligations, covenants and agreements of the Company required to be performed at or prior to the Closing Date shall have been performed;

(iii) the delivery by the Company of the items set forth in Section 2.2(a) of this Agreement;

(iv) there shall have been no Material Adverse Effect with respect to the Company;

(v) from the date hereof to the Closing Date, trading in the Common Stock shall not have been suspended by the Commission or the Company's principal Trading Market, and, at any time prior to the Closing Date, trading in securities generally as reported by Bloomberg L.P. shall not have been suspended or limited, or minimum prices shall not have been established on securities whose trades are reported by such service, or on any Trading Market, nor shall a banking moratorium have been declared either by the United States or New York State authorities nor shall there have occurred any material outbreak or escalation of hostilities or other national or international calamity of such magnitude in its effect on, or any material adverse change in, any financial market which, in each case, in the reasonable judgment of such Purchaser, makes it impracticable or inadvisable to purchase the Securities at the Closing.

**ARTICLE III.
REPRESENTATIONS AND WARRANTIES**

3.1 Representations and Warranties of the Company. The Company hereby makes the following representations and warranties to each Purchaser:

(a) Subsidiaries. All of the direct and indirect subsidiaries of the Company are set forth in the SEC Reports. The Company owns, directly or indirectly, all of the capital stock or other equity interests of each Subsidiary free and clear of any Liens, and all of the issued and outstanding shares of capital stock of each Subsidiary are validly issued and are fully paid, non-assessable and free of preemptive and similar rights to subscribe for or purchase securities.

(b) Organization and Qualification. The Company and each of the Subsidiaries is an entity duly incorporated or otherwise organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization, with the requisite power and authority to own and use its properties and assets and to carry on its business as currently conducted. Neither the Company nor any Subsidiary is in violation nor default of any of the provisions of its respective certificate or articles of incorporation, bylaws or other organizational or charter documents. Each of the Company and the Subsidiaries is duly qualified to conduct business and is in good standing as a foreign corporation or other entity in each jurisdiction in which the nature of the business conducted or property owned by it makes such qualification necessary, except where the failure to be so qualified or in good standing, as the case may be, could not have or reasonably be expected to result in: (i) a material adverse effect on the legality, validity or enforceability of any Transaction Document, (ii) a material adverse effect on the results of operations, assets, business, prospects or condition (financial or otherwise) of the Company and the Subsidiaries, taken as a whole, or (iii) a material adverse effect on the Company's ability to perform in any material respect on a timely basis its obligations under any Transaction Document (any of (i), (ii) or (iii), a "Material Adverse Effect") and no Proceeding has been instituted in any such jurisdiction revoking, limiting or curtailing or seeking to revoke, limit or curtail such power and authority or qualification.

(c) Authorization; Enforcement. The Company has the requisite corporate power and authority to enter into and to consummate the transactions contemplated by this Agreement and each of the other Transaction Documents and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of this Agreement and each of the other Transaction Documents by the Company and the consummation by it of the transactions contemplated hereby and thereby have been duly authorized by all necessary action on the part of the Company and no further action is required by the Company, the Board of Directors or the Company's stockholders in connection herewith or therewith other than in connection with the Required Approvals. This Agreement and each other Transaction Document to which it is a party has been (or upon delivery will have been) duly executed by the Company and, when delivered in accordance with the terms hereof and thereof, will constitute the valid and binding obligation of the Company enforceable against the Company in accordance with its terms, except (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law.

(d) No Conflicts. Except as set forth in the SEC Reports with respect to the Company's initial public offering, the execution, delivery and performance by the Company of this Agreement and the other Transaction Documents to which it is a party, the issuance and sale of the Securities and the consummation by it of the transactions contemplated hereby and thereby do not and will not (i) conflict with or violate any provision of the Company's or any Subsidiary's certificate or articles of incorporation, bylaws or other organizational or charter documents, or (ii) conflict with, or constitute a default (or an event that with notice or lapse of time or both would become a default) under, result in the creation of any Lien upon any of the properties or assets of the Company or any Subsidiary, or give to others any rights of termination, amendment, anti-dilution or similar adjustments, acceleration or cancellation (with or without notice, lapse of time or both) of, any agreement, credit facility, debt or other instrument (evidencing a Company or Subsidiary debt or otherwise) or other understanding to which the Company or any Subsidiary is a party or by which any property or asset of the Company or any Subsidiary is bound or affected, or (iii) subject to the Required Approvals, conflict with or result in a violation of any law, rule, regulation, order, judgment, injunction, decree or other restriction of any court or governmental authority to which the Company or a Subsidiary is subject (including federal and state securities laws and regulations), or by which any property or asset of the Company or a Subsidiary is bound or affected; except in the case of each of clauses (ii) and (iii), such as could not have or reasonably be expected to result in a Material Adverse Effect.

(e) Filings, Consents and Approvals. The Company is not required to obtain any consent, waiver, authorization or order of, give any notice to, or make any filing or registration with, any court or other federal, state, local or other governmental authority or other Person in connection with the execution, delivery and performance by the Company of the Transaction Documents, other than: (i) the filings required pursuant to Section 4.4 of this Agreement, (ii) the filing with the Commission pursuant to the Registration Rights Agreement, (iii) the notice and/or application(s) to each applicable Trading Market for the issuance and sale of the Securities and the listing of the Shares and Warrant Shares for trading thereon in the time and manner required thereby, and (iv) the filing of Form D with the Commission and such filings as are required to be made under applicable state securities laws (collectively, the "Required Approvals").

(f) Issuance of the Securities. The Securities are duly authorized and, when issued and paid for in accordance with the applicable Transaction Documents, will be duly and validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company other than restrictions on transfer provided for in the Transaction Documents. The Warrant Shares, when issued in accordance with the terms of the Transaction Documents, will be validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company other than restrictions on transfer provided for in the Transaction Documents. The Company has reserved from its duly authorized capital stock the maximum number of shares of Common Stock issuable pursuant to this Agreement and the Warrants.

(g) Capitalization. The capitalization of the Company is set forth in the SEC Reports. Except as set forth in the SEC Reports, the Company has not issued any capital stock since its most recently filed periodic report under the Exchange Act, other than pursuant to the exercise of employee stock options under the Company's stock option plans, the issuance of shares of Common Stock to employees pursuant to the Company's employee stock purchase plans and pursuant to the conversion and/or exercise of Common Stock Equivalents outstanding as of the date of the most recently filed periodic report under the Exchange Act. No Person has any right of first refusal, preemptive right, right of participation, or any similar right to participate in the transactions contemplated by the Transaction Documents. Except set forth in the SEC Reports, there are no outstanding options, warrants, scrip rights to subscribe to, calls or commitments of any character whatsoever relating to, or securities, rights or obligations convertible into or exercisable or exchangeable for, or giving any Person any right to subscribe for or acquire, any shares of Common Stock or the capital stock of any Subsidiary, or contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to issue additional shares of Common Stock or Common Stock Equivalents or capital stock of any Subsidiary. The issuance and sale of the Securities will not obligate the Company or any Subsidiary to issue shares of Common Stock or other securities to any Person (other than the Purchasers). There are no outstanding securities or instruments of the Company or any Subsidiary with any provision that adjusts the exercise, conversion, exchange or reset price of such security or instrument upon an issuance of securities by the Company or any Subsidiary. There are no outstanding securities or instruments of the Company or any Subsidiary that contain any redemption or similar provisions, and there are no contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to redeem a security of the Company or such Subsidiary. The Company does not have any stock appreciation rights or "phantom stock" plans or agreements or any similar plan or agreement. All of the outstanding shares of capital stock of the Company are duly authorized, validly issued, fully paid and nonassessable, have been issued in compliance with all federal and state securities laws, and none of such outstanding shares was issued in violation of any preemptive rights or similar rights to subscribe for or purchase securities. No further approval or authorization of any stockholder, the Board of Directors or others is required for the issuance and sale of the Securities. There are no stockholders agreements, voting agreements or other similar agreements with respect to the Company's capital stock to which the Company is a party or, to the knowledge of the Company, between or among any of the Company's stockholders.

(h) SEC Reports: Financial Statements. The Company has filed all reports, schedules, forms, statements and other documents required to be filed by the Company under the Securities Act and the Exchange Act, including pursuant to Section 13(a) or 15(d) thereof, for the two years preceding the date hereof (or such shorter period as the Company was required by law or regulation to file such material) (the foregoing materials, including the exhibits thereto and documents incorporated by reference therein, being collectively referred to herein as the “SEC Reports”) on a timely basis or has received a valid extension of such time of filing and has filed any such SEC Reports prior to the expiration of any such extension. As of their respective dates, the SEC Reports complied in all material respects with the requirements of the Securities Act and the Exchange Act, as applicable, and none of the SEC Reports, when filed, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The Company has never been subject to Rule 144(i) under the Securities Act. The financial statements of the Company included in the SEC Reports comply in all material respects with applicable accounting requirements and the rules and regulations of the Commission with respect thereto as in effect at the time of filing. Such financial statements have been prepared in accordance with United States generally accepted accounting principles applied on a consistent basis during the periods involved (“GAAP”), except as may be otherwise specified in such financial statements or the notes thereto and except that unaudited financial statements may not contain all footnotes required by GAAP, and fairly present in all material respects the financial position of the Company and its consolidated Subsidiaries as of and for the dates thereof and the results of operations and cash flows for the periods then ended, subject, in the case of unaudited statements, to normal, immaterial, year-end audit adjustments.

(i) Material Changes: Undisclosed Events, Liabilities or Developments. Since the date of the latest audited financial statements included within the SEC Reports, except as set forth in the SEC Reports filed prior to the date hereof, (i) there has been no event, occurrence or development that has had or that could reasonably be expected to result in a Material Adverse Effect, (ii) the Company has not incurred any liabilities (contingent or otherwise) other than (A) trade payables and accrued expenses incurred in the ordinary course of business consistent with past practice and (B) liabilities not required to be reflected in the Company’s financial statements pursuant to GAAP or disclosed in filings made with the Commission, (iii) the Company has not altered its method of accounting, (iv) the Company has not declared or made any dividend or distribution of cash or other property to its stockholders or purchased, redeemed or made any agreements to purchase or redeem any shares of its capital stock and (v) the Company has not issued any equity securities to any officer, director or Affiliate, except pursuant to existing Company stock option plans. The Company does not have pending before the Commission any request for confidential treatment of information. Except for the issuance of the Securities contemplated by this Agreement or as set forth on in the SEC Reports, no event, liability, fact, circumstance, occurrence or development has occurred or exists or is reasonably expected to occur or exist with respect to the Company or its Subsidiaries or their respective businesses, prospects, properties, operations, assets or financial condition that would be required to be disclosed by the Company under applicable securities laws at the time this representation is made or deemed made that has not been publicly disclosed at least 1 Trading Day prior to the date that this representation is made.

(j) Litigation. Except as set forth in the SEC Reports, there is no action, suit, inquiry, notice of violation, proceeding or investigation pending or, to the knowledge of the Company, threatened against or affecting the Company, any Subsidiary or any of their respective properties before or by any court, arbitrator, governmental or administrative agency or regulatory authority (federal, state, county, local or foreign) (collectively, an “Action”), which (i) adversely affects or challenges the legality, validity or enforceability of any of the Transaction Documents or the Securities or (ii) could, if there were an unfavorable decision, have or reasonably be expected to result in a Material Adverse Effect. Neither the Company nor any Subsidiary, nor any director or officer thereof, is or has been the subject of any Action involving a claim of violation of or liability under federal or state securities laws or a claim of breach of fiduciary duty. There has not been, and to the knowledge of the Company, there is not pending or contemplated, any investigation by the Commission involving the Company or any current or former director or officer of the Company. The Commission has not issued any stop order or other order suspending the effectiveness of any registration statement filed by the Company or any Subsidiary under the Exchange Act or the Securities Act.

(k) Labor Relations. No labor dispute exists or, to the knowledge of the Company, is imminent with respect to any of the employees of the Company, which could reasonably be expected to result in a Material Adverse Effect. None of the Company's or its Subsidiaries' employees is a member of a union that relates to such employee's relationship with the Company or such Subsidiary, and neither the Company nor any of its Subsidiaries are a party to a collective bargaining agreement, and the Company and its Subsidiaries believe that their relationships with their employees are good. To the knowledge of the Company, no executive officer of the Company or any Subsidiary is, or is now expected to be, in violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement or non-competition agreement, or any other contract or agreement or any restrictive covenant in favor of any third party, and the continued employment of each such executive officer does not subject the Company or any of its Subsidiaries to any liability with respect to any of the foregoing matters. The Company and its Subsidiaries are in compliance with all U.S. federal, state, local and foreign laws and regulations relating to employment and employment practices, terms and conditions of employment and wages and hours, except where the failure to be in compliance could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(l) Compliance. Neither the Company nor any Subsidiary: (i) is in default under or in violation of (and no event has occurred that has not been waived that, with notice or lapse of time or both, would result in a default by the Company or any Subsidiary under), nor has the Company or any Subsidiary received notice of a claim that it is in default under or that it is in violation of, any indenture, loan or credit agreement or any other agreement or instrument to which it is a party or by which it or any of its properties is bound (whether or not such default or violation has been waived), (ii) is in violation of any judgment, decree or order of any court, arbitrator or other governmental authority or (iii) is or has been in violation of any statute, rule, ordinance or regulation of any governmental authority, including without limitation all foreign, federal, state and local laws relating to taxes, environmental protection, occupational health and safety, product quality and safety and employment and labor matters, except in each case as could not have or reasonably be expected to result in a Material Adverse Effect.

(m) Environmental Laws. The Company and its Subsidiaries (i) are in compliance with all federal, state, local and foreign laws relating to pollution or protection of human health or the environment (including ambient air, surface water, groundwater, land surface or subsurface strata), including laws relating to emissions, discharges, releases or threatened releases of chemicals, pollutants, contaminants, or toxic or hazardous substances or wastes (collectively, "Hazardous Materials") into the environment, or otherwise relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Hazardous Materials, as well as all authorizations, codes, decrees, demands, or demand letters, injunctions, judgments, licenses, notices or notice letters, orders, permits, plans or regulations, issued, entered, promulgated or approved thereunder ("Environmental Laws"); (ii) have received all permits licenses or other approvals required of them under applicable Environmental Laws to conduct their respective businesses; and (iii) are in compliance with all terms and conditions of any such permit, license or approval where in each clause (i), (ii) and (iii), the failure to so comply could be reasonably expected to have, individually or in the aggregate, a Material Adverse Effect.

(n) Regulatory Permits. The Company and the Subsidiaries possess all certificates, authorizations and permits issued by the appropriate federal, state, local or foreign regulatory authorities necessary to conduct their respective businesses as described in the SEC Reports, except where the failure to possess such permits could not reasonably be expected to result in a Material Adverse Effect ("Material Permits"), and neither the Company nor any Subsidiary has received any notice of proceedings relating to the revocation or modification of any Material Permit.

(o) Title to Assets. The Company and the Subsidiaries have good and marketable title in fee simple to all real property owned by them and good and marketable title in all personal property owned by them that is material to the business of the Company and the Subsidiaries, in each case free and clear of all Liens, except for (i) Liens as do not materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company and the Subsidiaries and (ii) Liens for the payment of federal, state or other taxes, for which appropriate reserves have been made therefor in accordance with GAAP and the payment of which is neither delinquent nor subject to penalties. Any real property and facilities held under lease by the Company and the Subsidiaries are held by them under valid, subsisting and enforceable leases with which the Company and the Subsidiaries are in compliance.

(p) Intellectual Property. The Company and the Subsidiaries have, or have rights to use, all patents, patent applications, trademarks, trademark applications, service marks, trade names, trade secrets, inventions, copyrights, licenses and other intellectual property rights and similar rights necessary or required for use in connection with their respective businesses as described in the SEC Reports and which the failure to so have could have a Material Adverse Effect (collectively, the “Intellectual Property Rights”). None of, and neither the Company nor any Subsidiary has received a notice (written or otherwise) that any of, the Intellectual Property Rights has expired, terminated or been abandoned, or is expected to expire or terminate or be abandoned, within two (2) years from the date of this Agreement. Neither the Company nor any Subsidiary has received, since the date of the latest audited financial statements included within the SEC Reports, a written notice of a claim or otherwise has any knowledge that the Intellectual Property Rights violate or infringe upon the rights of any Person, except as could not have or reasonably be expected to not have a Material Adverse Effect. To the knowledge of the Company, all such Intellectual Property Rights are enforceable and there is no existing infringement by another Person of any of the Intellectual Property Rights. The Company and its Subsidiaries have taken reasonable security measures to protect the secrecy, confidentiality and value of all of their intellectual properties, except where failure to do so could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(q) Insurance. The Company and the Subsidiaries are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as are prudent and customary in the businesses in which the Company and the Subsidiaries are engaged, including, but not limited to, directors and officers insurance coverage at least equal to the aggregate Subscription Amount. Neither the Company nor any Subsidiary has any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business without a significant increase in cost.

(r) Transactions with Affiliates and Employees. Except as set forth in the SEC Reports, none of the officers or directors of the Company or any Subsidiary and, to the knowledge of the Company, none of the employees of the Company or any Subsidiary is presently a party to any transaction with the Company or any Subsidiary (other than for services as employees, officers and directors), including any contract, agreement or other arrangement providing for the furnishing of services to or by, providing for rental of real or personal property to or from, providing for the borrowing of money from or lending of money to or otherwise requiring payments to or from any officer, director or such employee or, to the knowledge of the Company, any entity in which any officer, director, or any such employee has a substantial interest or is an officer, director, trustee, stockholder, member or partner, in each case in excess of \$120,000 other than for (i) payment of salary or consulting fees for services rendered, (ii) reimbursement for expenses incurred on behalf of the Company and (iii) other employee benefits, including stock option agreements under any stock option plan of the Company.

(s) Sarbanes-Oxley: Internal Accounting Controls. The Company and the Subsidiaries are in compliance with any and all applicable requirements of the Sarbanes-Oxley Act of 2002, as amended, that are effective as of the date hereof, and any and all applicable rules and regulations promulgated by the Commission thereunder that are effective as of the date hereof and as of the Closing Date. The Company and the Subsidiaries maintain a system of internal accounting controls sufficient to provide reasonable assurance that: (i) transactions are executed in accordance with management’s general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability, (iii) access to assets is permitted only in accordance with management’s general or specific authorization, and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Company and the Subsidiaries have established disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the Company and the Subsidiaries and designed such disclosure controls and procedures to ensure that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Commission’s rules and forms. The Company’s certifying officers have evaluated the effectiveness of the disclosure controls and procedures of the Company and the Subsidiaries as of the end of the period covered by the most recently filed periodic report under the Exchange Act (such date, the “Evaluation Date”). The Company presented in its most recently filed periodic report under the Exchange Act the conclusions of the certifying officers about the effectiveness of the disclosure controls and procedures based on their evaluations as of the Evaluation Date. Since the Evaluation Date, there have been no changes in the internal control over financial reporting (as such term is defined in the Exchange Act) of the Company and its Subsidiaries that have materially affected, or is reasonably likely to materially affect, the internal control over financial reporting of the Company and its Subsidiaries.

(t) Certain Fees. Except for fees payable by the Company to the Placement Agent, no brokerage or finder's fees or commissions are or will be payable by the Company or any Subsidiary to any broker, financial advisor or consultant, finder, placement agent, investment banker, bank or other Person with respect to the transactions contemplated by the Transaction Documents. The Purchasers shall have no obligation with respect to any fees or with respect to any claims made by or on behalf of other Persons for fees of a type contemplated in this Section that may be due in connection with the transactions contemplated by the Transaction Documents.

(u) Private Placement. Assuming the accuracy of the Purchasers' representations and warranties set forth in Section 3.2, no registration under the Securities Act is required for the offer and sale of the Securities by the Company to the Purchasers as contemplated hereby. The issuance and sale of the Securities hereunder does not contravene the rules and regulations of the Trading Market.

(v) Investment Company. The Company is not, and is not an Affiliate of, and immediately after receipt of payment for the Securities, will not be or be an Affiliate of, an "investment company" within the meaning of the Investment Company Act of 1940, as amended. The Company shall conduct its business in a manner so that it will not become an "investment company" subject to registration under the Investment Company Act of 1940, as amended.

(w) Registration Rights. Other than each of the Purchasers, no Person has any right to cause the Company or any Subsidiary to effect the registration under the Securities Act of any securities of the Company or any Subsidiary.

(x) Listing and Maintenance Requirements. The Common Stock is registered pursuant to Section 12(b) or 12(g) of the Exchange Act, and the Company has taken no action designed to, or which to its knowledge is likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act nor has the Company received any notification that the Commission is contemplating terminating such registration. The Company has not, in the 12 months preceding the date hereof, received notice from any Trading Market on which the Common Stock is or has been listed or quoted to the effect that the Company is not in compliance with the listing or maintenance requirements of such Trading Market. The Company is, and has no reason to believe that it will not in the foreseeable future continue to be, in compliance with all such listing and maintenance requirements. The Common Stock is currently eligible for electronic transfer through the Depository Trust Company or another established clearing corporation and the Company is current in payment of the fees to the Depository Trust Company (or such other established clearing corporation) in connection with such electronic transfer.

(y) Application of Takeover Protections. The Company and the Board of Directors have taken all necessary action, if any, in order to render inapplicable any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or other similar anti-takeover provision under the Company's certificate of incorporation (or similar charter documents) or the laws of its state of incorporation that is or could become applicable to the Purchasers as a result of the Purchasers and the Company fulfilling their obligations or exercising their rights under the Transaction Documents, including without limitation as a result of the Company's issuance of the Securities and the Purchasers' ownership of the Securities.

(z) Disclosure. Except with respect to the material terms and conditions of the transactions contemplated by the Transaction Documents, the Company confirms that neither it nor any other Person acting on its behalf has provided any of the Purchasers or their agents or counsel with any information that it believes constitutes or might constitute material, non-public information. The Company understands and confirms that the Purchasers will rely on the foregoing representation in effecting transactions in securities of the Company. All of the disclosure furnished by or on behalf of the Company to the Purchasers regarding the Company and its Subsidiaries, their respective businesses and the transactions contemplated hereby is true and correct and does not contain any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements made therein, in the light of the circumstances under which they were made, not misleading. The press releases disseminated by the Company during the twelve months preceding the date of this Agreement taken as a whole do not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made and when made, not misleading. The Company acknowledges and agrees that no Purchaser makes or has made any representations or warranties with respect to the transactions contemplated hereby other than those specifically set forth in Section 3.2 hereof.

(aa) No Integrated Offering. Assuming the accuracy of the Purchasers' representations and warranties set forth in Section 3.2, neither the Company, nor any of its Affiliates, nor any Person acting on its or their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause this offering of the Securities to be integrated with prior offerings by the Company for purposes of (i) the Securities Act which would require the registration of any such securities under the Securities Act, or (ii) any applicable shareholder approval provisions of any Trading Market on which any of the securities of the Company are listed or designated.

(bb) Solvency. Based on the consolidated financial condition of the Company as of the Closing Date, after giving effect to the receipt by the Company of the proceeds from the sale of the Securities hereunder, (i) the fair saleable value of the Company's assets exceeds the amount that will be required to be paid on or in respect of the Company's existing debts and other liabilities (including known contingent liabilities) as they mature, (ii) the Company's assets do not constitute unreasonably small capital to carry on its business as now conducted and as proposed to be conducted including its capital needs taking into account the particular capital requirements of the business conducted by the Company, consolidated and projected capital requirements and capital availability thereof, and (iii) the current cash flow of the Company, together with the proceeds the Company would receive, were it to liquidate all of its assets, after taking into account all anticipated uses of the cash, would be sufficient to pay all amounts on or in respect of its liabilities when such amounts are required to be paid. The Company does not intend to incur debts beyond its ability to pay such debts as they mature (taking into account the timing and amounts of cash to be payable on or in respect of its debt). The Company has no knowledge of any facts or circumstances which lead it to believe that it will file for reorganization or liquidation under the bankruptcy or reorganization laws of any jurisdiction within one year from the Closing Date. The SEC Reports set forth as of the date hereof all outstanding secured and unsecured Indebtedness of the Company or any Subsidiary, or for which the Company or any Subsidiary has commitments. For the purposes of this Agreement, "Indebtedness" means (x) any liabilities for borrowed money or amounts owed in excess of \$50,000 (other than trade accounts payable incurred in the ordinary course of business), (y) all guaranties, endorsements and other contingent obligations in respect of indebtedness of others, whether or not the same are or should be reflected in the Company's consolidated balance sheet (or the notes thereto), except guaranties by endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business; and (z) the present value of any lease payments in excess of \$50,000 due under leases required to be capitalized in accordance with GAAP. Neither the Company nor any Subsidiary is in default with respect to any Indebtedness.

(cc) Tax Status. Except for matters that would not, individually or in the aggregate, have or reasonably be expected to result in a Material Adverse Effect, the Company and its Subsidiaries each (i) has made or filed all United States federal, state and local income and all foreign income and franchise tax returns, reports and declarations required by any jurisdiction to which it is subject, (ii) has paid all taxes and other governmental assessments and charges that are material in amount, shown or determined to be due on such returns, reports and declarations and (iii) has set aside on its books provision reasonably adequate for the payment of all material taxes for periods subsequent to the periods to which such returns, reports or declarations apply. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company or of any Subsidiary know of no basis for any such claim.

(dd) No General Solicitation. Neither the Company nor any Person acting on behalf of the Company has offered or sold any of the Securities by any form of general solicitation or general advertising. The Company has offered the Securities for sale only to the Purchasers and certain other “accredited investors” within the meaning of Rule 501 under the Securities Act.

(ee) Foreign Corrupt Practices. Neither the Company nor any Subsidiary, nor to the knowledge of the Company or any Subsidiary, any agent or other person acting on behalf of the Company or any Subsidiary, has (i) directly or indirectly, used any funds for unlawful contributions, gifts, entertainment or other unlawful expenses related to foreign or domestic political activity, (ii) made any unlawful payment to foreign or domestic government officials or employees or to any foreign or domestic political parties or campaigns from corporate funds, (iii) failed to disclose fully any contribution made by the Company or any Subsidiary (or made by any person acting on its behalf of which the Company is aware) which is in violation of law or (iv) violated in any material respect any provision of FCPA.

(ff) Accountants. The Company’s accounting firm is EisnerAmper LLP. To the knowledge and belief of the Company, such accounting firm (i) is a registered public accounting firm as required by the Exchange Act and (ii) shall express its opinion with respect to the financial statements to be included in the Company’s Annual Report for the fiscal year ending December 31, 2022.

(gg) No Disagreements with Accountants and Lawyers. There are no disagreements of any kind presently existing, or reasonably anticipated by the Company to arise, between the Company and the accountants and lawyers formerly or presently employed by the Company and the Company is current with respect to any fees owed to its accountants and lawyers which could affect the Company’s ability to perform any of its obligations under any of the Transaction Documents.

(hh) Acknowledgment Regarding Purchasers’ Purchase of Securities. The Company acknowledges and agrees that each of the Purchasers is acting solely in the capacity of an arm’s length purchaser with respect to the Transaction Documents and the transactions contemplated thereby. The Company further acknowledges that no Purchaser is acting as a financial advisor or fiduciary of the Company (or in any similar capacity) with respect to the Transaction Documents and the transactions contemplated thereby and any advice given by any Purchaser or any of their respective representatives or agents in connection with the Transaction Documents and the transactions contemplated thereby is merely incidental to the Purchasers’ purchase of the Securities. The Company further represents to each Purchaser that the Company’s decision to enter into this Agreement and the other Transaction Documents has been based solely on the independent evaluation of the transactions contemplated hereby by the Company and its representatives.

(ii) Acknowledgment Regarding Purchaser’s Trading Activity. Anything in this Agreement or elsewhere herein to the contrary notwithstanding (except for Sections 3.2(g) and 4.13 hereof), it is understood and acknowledged by the Company that: (i) none of the Purchasers has been asked by the Company to agree, nor has any Purchaser agreed, to desist from purchasing or selling, long and/or short, securities of the Company, or “derivative” securities based on securities issued by the Company or to hold the Securities for any specified term, (ii) past or future open market or other transactions by any Purchaser, specifically including, without limitation, Short Sales or “derivative” transactions, before or after the closing of this or future private placement transactions, may negatively impact the market price of the Company’s publicly-traded securities, (iii) any Purchaser, and counter-parties in “derivative” transactions to which any such Purchaser is a party, directly or indirectly, presently may have a “short” position in the Common Stock and (iv) each Purchaser shall not be deemed to have any affiliation with or control over any arm’s length counter-party in any “derivative” transaction. The Company further understands and acknowledges that (y) one or more Purchasers may engage in hedging activities at various times during the period that the Securities are outstanding, including, without limitation, during the periods that the value of the Warrant Shares deliverable with respect to Securities are being determined, and (z) such hedging activities (if any) could reduce the value of the existing stockholders’ equity interests in the Company at and after the time that the hedging activities are being conducted. The Company acknowledges that such aforementioned hedging activities do not constitute a breach of any of the Transaction Documents.

(jj) Regulation M Compliance. The Company has not, and to its knowledge no one acting on its behalf has, (i) taken, directly or indirectly, any action designed to cause or to result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of any of the Securities, (ii) sold, bid for, purchased, or paid any compensation for soliciting purchases of, any of the Securities, or (iii) paid or agreed to pay to any Person any compensation for soliciting another to purchase any other securities of the Company, other than, in the case of clauses (ii) and (iii), compensation paid to the Placement Agent in connection with the placement of the Securities.

(kk) Reserved.

(ll) Form S-3 Eligibility. The Company is eligible to register the resale of the Securities for resale by the Purchaser on Form S-3 or Form S-1 promulgated under the Securities Act.

(mm) Stock Option Plans. Each stock option granted by the Company under the Company's stock option plan was granted (i) in accordance with the terms of the Company's stock option plan and (ii) with an exercise price at least equal to the fair market value of the Common Stock on the date such stock option would be considered granted under GAAP and applicable law. No stock option granted under the Company's stock option plan has been backdated. The Company has not knowingly granted, and there is no and has been no Company policy or practice to knowingly grant, stock options prior to, or otherwise knowingly coordinate the grant of stock options with, the release or other public announcement of material information regarding the Company or its Subsidiaries or their financial results or prospects.

(nn) Cybersecurity. (i)(x) There has been no security breach or other compromise of or relating to any of the Company's or any Subsidiary's information technology and computer systems, networks, hardware, software, data (including the data of its respective customers, employees, suppliers, vendors and any third party data maintained by or on behalf of it), equipment or technology (collectively, "IT Systems and Data") and (y) the Company and the Subsidiaries have not been notified of, and has no knowledge of any event or condition that would reasonably be expected to result in, any security breach or other compromise to its IT Systems and Data; (ii) the Company and the Subsidiaries are presently in compliance with all applicable laws or statutes and all judgments, orders, rules and regulations of any court or arbitrator or governmental or regulatory authority, internal policies and contractual obligations relating to the privacy and security of IT Systems and Data and to the protection of such IT Systems and Data from unauthorized use, access, misappropriation or modification, except as would not, individually or in the aggregate, have a Material Adverse Effect; (iii) the Company and the Subsidiaries have implemented and maintained commercially reasonable safeguards to maintain and protect its material confidential information and the integrity, continuous operation, redundancy and security of all IT Systems and Data; and (iv) the Company and the Subsidiaries have implemented backup and disaster recovery technology consistent with industry standards and practices.

(oo) Office of Foreign Assets Control. Neither the Company nor any Subsidiary nor, to the Company's knowledge, any director, officer, agent, employee or affiliate of the Company or any Subsidiary is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department ("OFAC").

(pp) U.S. Real Property Holding Corporation. The Company is not and has never been a U.S. real property holding corporation within the meaning of Section 897 of the Internal Revenue Code of 1986, as amended, and the Company shall so certify upon Purchaser's request.

(qq) Bank Holding Company Act. Neither the Company nor any of its Subsidiaries or Affiliates is subject to the Bank Holding Company Act of 1956, as amended (the "BHCA") and to regulation by the Board of Governors of the Federal Reserve System (the "Federal Reserve"). Neither the Company nor any of its Subsidiaries or Affiliates owns or controls, directly or indirectly, five percent (5%) or more of the outstanding shares of any class of voting securities or twenty-five percent or more of the total equity of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve. Neither the Company nor any of its Subsidiaries or Affiliates exercises a controlling influence over the management or policies of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve.

(rr) Money Laundering. The operations of the Company and its Subsidiaries are and have been conducted at all times in compliance with applicable financial record-keeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, applicable money laundering statutes and applicable rules and regulations thereunder (collectively, the "Money Laundering Laws"), and no Action or Proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any Subsidiary with respect to the Money Laundering Laws is pending or, to the knowledge of the Company or any Subsidiary, threatened.

(ss) No Disqualification Events. With respect to the Securities to be offered and sold hereunder in reliance on Rule 506 under the Securities Act, none of the Company, any of its predecessors, any affiliated issuer, any director, executive officer, other officer of the Company participating in the offering hereunder, any beneficial owner of 20% or more of the Company's outstanding voting equity securities, calculated on the basis of voting power, nor any promoter (as that term is defined in Rule 405 under the Securities Act) connected with the Company in any capacity at the time of sale (each, an "Issuer Covered Person" and, together, "Issuer Covered Persons") is subject to any of the "Bad Actor" disqualifications described in Rule 506(d)(1)(i) to (viii) under the Securities Act (a "Disqualification Event"), except for a Disqualification Event covered by Rule 506(d)(2) or (d)(3). The Company has exercised reasonable care to determine whether any Issuer Covered Person is subject to a Disqualification Event. The Company has complied, to the extent applicable, with its disclosure obligations under Rule 506(e), and has furnished to the Purchasers a copy of any disclosures provided thereunder.

(tt) Other Covered Persons. Other than the Placement Agent, the Company is not aware of any person (other than any Issuer Covered Person) that has been or will be paid (directly or indirectly) remuneration for solicitation of purchasers in connection with the sale of any Securities.

(uu) Notice of Disqualification Events. The Company will notify the Purchasers and the Placement Agent in writing, prior to the Closing Date of (i) any Disqualification Event relating to any Issuer Covered Person and (ii) any event that would, with the passage of time, reasonably be expected to become a Disqualification Event relating to any Issuer Covered Person.

3.2 Representations and Warranties of the Purchasers. Each Purchaser, for itself and for no other Purchaser, hereby represents and warrants as of the date hereof and as of the Closing Date to the Company as follows (unless as of a specific date therein, in which case they shall be accurate as of such date):

(a) Organization; Authority. Such Purchaser is either an individual or an entity duly incorporated or formed, validly existing and in good standing under the laws of the jurisdiction of its incorporation or formation with full right, corporate, partnership, limited liability company or similar power and authority to enter into and to consummate the transactions contemplated by the Transaction Documents and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of the Transaction Documents and performance by such Purchaser of the transactions contemplated by the Transaction Documents have been duly authorized by all necessary corporate, partnership, limited liability company or similar action, as applicable, on the part of such Purchaser. Each Transaction Document to which it is a party has been duly executed by such Purchaser, and when delivered by such Purchaser in accordance with the terms hereof, will constitute the valid and legally binding obligation of such Purchaser, enforceable against it in accordance with its terms, except (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law.

(b) Understandings or Arrangements. Such Purchaser is acquiring the Securities as principal for its own account and has no direct or indirect arrangement or understandings with any other persons to distribute or regarding the distribution of such Securities (this representation and warranty not limiting such Purchaser's right to sell the Securities pursuant to the Registration Statement or otherwise in compliance with applicable federal and state securities laws). Such Purchaser understands that the Securities are "restricted securities" and have not been registered under the Securities Act or any applicable state securities law and is acquiring such Securities as principal for his, her or its own account and not with a view to or for distributing or reselling such Securities or any part thereof in violation of the Securities Act or any applicable state securities law, has no present intention of distributing any of such Securities in violation of the Securities Act or any applicable state securities law and has no direct or indirect arrangement or understandings with any other persons to distribute or regarding the distribution of such Securities in violation of the Securities Act or any applicable state securities law (this representation and warranty not limiting such Purchaser's right to sell such Securities pursuant to the Registration Statement or otherwise in compliance with applicable federal and state securities laws). Such Purchaser is acquiring the Securities hereunder in the ordinary course of its business.

(c) Purchaser Status. At the time such Purchaser was offered the Securities, it was, and as of the date hereof it is, and on each date on which it exercises any Warrants, it will be an “accredited investor” as defined in Rule 501(a)(1), (a)(2), (a)(3), (a)(7), (a)(8), (a)(9), (a)(12), or (a)(13) under the Securities Act.

(d) Experience of Such Purchaser. Such Purchaser, either alone or together with its representatives, has such knowledge, sophistication and experience in business and financial matters so as to be capable of evaluating the merits and risks of the prospective investment in the Securities, and has so evaluated the merits and risks of such investment. Such Purchaser is able to bear the economic risk of an investment in the Securities and, at the present time, is able to afford a complete loss of such investment.

(e) General Solicitation. Such Purchaser is not, to such Purchaser’s knowledge, purchasing the Securities as a result of any advertisement, article, notice or other communication regarding the Securities published in any newspaper, magazine or similar media or broadcast over television or radio or presented at any seminar or, to the knowledge of such Purchaser, any other general solicitation or general advertisement.

(f) Access to Information. Such Purchaser acknowledges that it has had the opportunity to review the Transaction Documents (including all exhibits and schedules thereto) and the SEC Reports and has been afforded (i) the opportunity to ask such questions as it has deemed necessary of, and to receive answers from, representatives of the Company concerning the terms and conditions of the offering of the Securities and the merits and risks of investing in the Securities; (ii) access to information about the Company and its financial condition, results of operations, business, properties, management and prospects sufficient to enable it to evaluate its investment; and (iii) the opportunity to obtain such additional information that the Company possesses or can acquire without unreasonable effort or expense that is necessary to make an informed investment decision with respect to the investment. Such Purchaser acknowledges and agrees that neither the Placement Agent nor any Affiliate of the Placement Agent has provided such Purchaser with any information or advice with respect to the Securities nor is such information or advice necessary or desired. Neither the Placement Agent nor any Affiliate has made or makes any representation as to the Company or the quality of the Securities and the Placement Agent and any Affiliate may have acquired non-public information with respect to the Company which such Purchaser agrees need not be provided to it. In connection with the issuance of the Securities to such Purchaser, neither the Placement Agent nor any of its Affiliates has acted as a financial advisor or fiduciary to such Purchaser.

(g) Certain Transactions and Confidentiality. Other than consummating the transactions contemplated hereunder, such Purchaser has not, nor has any Person acting on behalf of or pursuant to any understanding with such Purchaser, directly or indirectly executed any purchases or sales, including Short Sales, of the securities of the Company during the period commencing as of the time that such Purchaser first received a term sheet (written or oral) from the Company or any other Person representing the Company setting forth the material terms of the transactions contemplated hereunder and ending immediately prior to the execution hereof. Notwithstanding the foregoing, in the case of a Purchaser that is a multi-managed investment vehicle whereby separate portfolio managers manage separate portions of such Purchaser’s assets and the portfolio managers have no direct knowledge of the investment decisions made by the portfolio managers managing other portions of such Purchaser’s assets, the representation set forth above shall only apply with respect to the portion of assets managed by the portfolio manager that made the investment decision to purchase the Securities covered by this Agreement. Other than to other Persons party to this Agreement or to such Purchaser’s representatives, including, without limitation, its officers, directors, partners, legal and other advisors, employees, agents and Affiliates, such Purchaser has maintained the confidentiality of all disclosures made to it in connection with this transaction (including the existence and terms of this transaction). Notwithstanding the foregoing, for the avoidance of doubt, nothing contained herein shall constitute a representation or warranty, or preclude any actions, with respect to locating or borrowing shares in order to effect Short Sales or similar transactions in the future.

The Company acknowledges and agrees that the representations contained in this Section 3.2 shall not modify, amend or affect such Purchaser’s right to rely on the Company’s representations and warranties contained in this Agreement or any representations and warranties contained in any other Transaction Document or any other document or instrument executed and/or delivered in connection with this Agreement or the consummation of the transactions contemplated hereby. Notwithstanding the foregoing, for the avoidance of doubt, nothing contained herein shall constitute a representation or warranty, or preclude any actions, with respect to locating or borrowing shares in order to effect Short Sales or similar transactions in the future.

**ARTICLE IV.
OTHER AGREEMENTS OF THE PARTIES**

4.1 Transfer Restrictions.

(a) The Securities may only be disposed of in compliance with state and federal securities laws. In connection with any transfer of Securities other than pursuant to an effective registration statement or Rule 144, to the Company or to an Affiliate of a Purchaser or in connection with a pledge as contemplated in Section 4.1(b), the Company may require the transferor thereof to provide to the Company an opinion of counsel selected by the transferor and reasonably acceptable to the Company, the form and substance of which opinion shall be reasonably satisfactory to the Company, to the effect that such transfer does not require registration of such transferred Securities under the Securities Act. As a condition of transfer, any such transferee shall agree in writing to be bound by the terms of this Agreement and the Registration Rights Agreement and shall have the rights and obligations of a Purchaser under this Agreement and the Registration Rights Agreement.

(b) The Purchasers agree to the imprinting, so long as is required by this Section 4.1, of a legend on any of the Securities in the following form:

THIS SECURITY HAS NOT BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO AN AVAILABLE EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS. THIS SECURITY MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT WITH A REGISTERED BROKER-DEALER OR OTHER LOAN WITH A FINANCIAL INSTITUTION THAT IS AN "ACCREDITED INVESTOR" AS DEFINED IN RULE 501(a) UNDER THE SECURITIES ACT OR OTHER LOAN SECURED BY SUCH SECURITIES.

The Company acknowledges and agrees that a Purchaser may, from time to time, pledge pursuant to a bona fide margin agreement with a registered broker-dealer or grant a security interest in some or all of the Securities to a financial institution that is an "accredited investor" as defined in Rule 501(a) under the Securities Act and, if required under the terms of such arrangement, such Purchaser may transfer pledged or secured Securities to the pledgees or secured parties. Such a pledge or transfer would not be subject to approval of the Company and no legal opinion of legal counsel of the pledgee, secured party or pledgor shall be required in connection therewith. Further, no notice shall be required of such pledge. At the appropriate Purchaser's expense, the Company will execute and deliver such reasonable documentation as a pledgee or secured party of Securities may reasonably request in connection with a pledge or transfer of the Securities, including, if the Securities are subject to registration pursuant to the Registration Rights Agreement, the preparation and filing of any required prospectus supplement under Rule 424(b)(3) under the Securities Act or other applicable provision of the Securities Act to appropriately amend the list of Selling Stockholders (as defined in the Registration Rights Agreement) thereunder.

(c) Certificates evidencing the Shares and Warrant Shares shall not contain any legend (including the legend set forth in Section 4.1(b) hereof), (i) while a registration statement (including the Registration Statement) covering the resale of such security is effective under the Securities Act, (ii) following any sale of such Shares or Warrant Shares pursuant to Rule 144 (assuming cashless exercise of the Warrants), (iii) if such Shares or Warrant Shares are eligible for sale under Rule 144 (assuming cashless exercise of the Warrants), or (iv) if such legend is not required under applicable requirements of the Securities Act (including judicial interpretations and pronouncements issued by the staff of the Commission). The Company shall cause its counsel to issue a legal opinion to the Transfer Agent or the Purchaser promptly after the Effective Date if required by the Transfer Agent to effect the removal of the legend hereunder, or if requested by a Purchaser, respectively. If all or any portion of a Warrant is exercised at a time when there is an effective registration statement to cover the resale of the Warrant Shares, or if such Shares or Warrant Shares may be sold under Rule 144 and the Company is then in compliance with the current public information required under Rule 144 (assuming cashless exercise of the Warrants), or if the Shares or Warrant Shares may be sold under Rule 144 without the requirement for the Company to be in compliance with the current public information required under Rule 144 as to such Shares or Warrant Shares or if such legend is not otherwise required under applicable requirements of the Securities Act (including judicial interpretations and pronouncements issued by the staff of the Commission) then such Warrant Shares shall be issued free of all legends. The Company agrees that following the Effective Date or at such time as such legend is no longer required under this Section 4.1(c), it will, no later than the earlier of (i) two (2) Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined below) following the delivery by a Purchaser to the Company or the Transfer Agent of a certificate representing Shares or Warrant Shares, as the case may be, issued with a restrictive legend (such date, the "Legend Removal Date"), deliver or cause to be delivered to such Purchaser a certificate representing such shares that is free from all restrictive and other legends. The Company may not make any notation on its records or give instructions to the Transfer Agent that enlarge the restrictions on transfer set forth in this Section 4. Certificates for Securities subject to legend removal hereunder shall be transmitted by the Transfer Agent to the Purchaser by crediting the account of the Purchaser's prime broker with the Depository Trust Company System as directed by such Purchaser. As used herein, "Standard Settlement Period" means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Stock as in effect on the date of delivery of a certificate representing Shares or Warrant Shares, as the case may be, issued with a restrictive legend.

(d) In addition to such Purchaser's other available remedies, the Company shall pay to a Purchaser, in cash, (i) as partial liquidated damages and not as a penalty, for each \$1,000 of Shares or Warrant Shares (based on the VWAP of the Common Stock on the date such Securities are submitted to the Transfer Agent) delivered for removal of the restrictive legend and subject to Section 4.1(c), \$10 per Trading Day (increasing to \$20 per Trading Day five (5) Trading Days after the Legend Removal Date) for each Trading Day after the Legend Removal Date until such certificate is delivered without a legend and (ii) if the Company fails to (a) issue and deliver (or cause to be delivered) to a Purchaser by the Legend Removal Date a certificate representing the Securities so delivered to the Company by such Purchaser that is free from all restrictive and other legends and (b) if after the Legend Removal Date such Purchaser purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by such Purchaser of all or any portion of the number of shares of Common Stock, or a sale of a number of shares of Common Stock equal to all or any portion of the number of shares of Common Stock that such Purchaser anticipated receiving from the Company without any restrictive legend, then, an amount equal to the excess of such Purchaser's total purchase price (including brokerage commissions and other out-of-pocket expenses, if any) for the shares of Common Stock so purchased (including brokerage commissions and other out-of-pocket expenses, if any) (the "Buy-In Price") over the product of (A) such number of Shares or Warrant Shares that the Company was required to deliver to such Purchaser by the Legend Removal Date multiplied by (B) the lowest closing sale price of the Common Stock on any Trading Day during the period commencing on the date of the delivery by such Purchaser to the Company of the applicable Shares or Warrant Shares (as the case may be) and ending on the date of such delivery and payment under this clause (ii).

(e) Each Purchaser, severally and not jointly with the other Purchasers, agrees with the Company that such Purchaser will sell any Securities pursuant to either the registration requirements of the Securities Act, including any applicable prospectus delivery requirements, or an exemption therefrom, and that if Securities are sold pursuant to a Registration Statement, they will be sold in compliance with the plan of distribution set forth therein, and acknowledges that the removal of the restrictive legend from certificates representing Securities as set forth in this Section 4.1 is predicated upon the Company's reliance upon this understanding.

4.2 Furnishing of Information; Public Information.

(a) Until the earlier of the time that (i) no Purchaser owns Securities or (ii) the Warrants have expired, the Company covenants to maintain the registration of the Common Stock under Section 12(b) or 12(g) of the Exchange Act and to timely file (or obtain extensions in respect thereof and file within the applicable grace period) all reports required to be filed by the Company after the date hereof pursuant to the Exchange Act even if the Company is not then subject to the reporting requirements of the Exchange Act.

(b) At any time during the period commencing from the six (6) month anniversary of the date hereof and ending at such time that all of the Securities may be sold without the requirement for the Company to be in compliance with Rule 144(c)(1) and otherwise without restriction or limitation pursuant to Rule 144, if the Company (i) shall fail for any reason to satisfy the current public information requirement under Rule 144(c) or (ii) has ever been an issuer described in Rule 144(i)(1)(i) or becomes an issuer in the future, and the Company shall fail to satisfy any condition set forth in Rule 144(i)(2) (a "Public Information Failure") then, in addition to such Purchaser's other available remedies, the Company shall pay to a Purchaser, in cash, as partial liquidated damages and not as a penalty, by reason of any such delay in or reduction of its ability to sell the Securities, an amount in cash equal to two percent (2.0%) of the aggregate Subscription Amount of such Purchaser's Securities on the day of a Public Information Failure and on every thirtieth (30th) day (pro rated for periods totaling less than thirty days) thereafter until the earlier of (a) the date such Public Information Failure is cured and (b) such time that such public information is no longer required for the Purchasers to transfer the Shares and Warrant Shares pursuant to Rule 144. The payments to which a Purchaser shall be entitled pursuant to this Section 4.2(b) are referred to herein as "Public Information Failure Payments." Public Information Failure Payments shall be paid on the earlier of (i) the last day of the calendar month during which such Public Information Failure Payments are incurred and (ii) the third (3rd) Business Day after the event or failure giving rise to the Public Information Failure Payments is cured. In the event the Company fails to make Public Information Failure Payments in a timely manner, such Public Information Failure Payments shall bear interest at the rate of 1.5% per month (prorated for partial months) until paid in full. Nothing herein shall limit such Purchaser's right to pursue actual damages for the Public Information Failure, and such Purchaser shall have the right to pursue all remedies available to it at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief.

4.3 Integration. The Company shall not sell, offer for sale or solicit offers to buy or otherwise negotiate in respect of any security (as defined in Section 2 of the Securities Act) that would be integrated with the offer or sale of the Securities in a manner that would require the registration under the Securities Act of the sale of the Securities or that would be integrated with the offer or sale of the Securities for purposes of the rules and regulations of any Trading Market such that it would require shareholder approval prior to the closing of such other transaction unless shareholder approval is obtained before the closing of such subsequent transaction.

4.4 Securities Laws Disclosure: Publicity. The Company shall (a) by the Disclosure Time, issue a press release disclosing the material terms of the transactions contemplated hereby, and (b) file a Current Report on Form 8-K, including the Transaction Documents as exhibits thereto, with the Commission within the time required by the Exchange Act. From and after the issuance of such press release, the Company represents to the Purchasers that it shall have publicly disclosed all material, non-public information delivered to any of the Purchasers by the Company or any of its Subsidiaries, or any of their respective officers, directors, employees, Affiliates or agents, including, without limitation, the Placement Agent, in connection with the transactions contemplated by the Transaction Documents. In addition, effective upon the issuance of such press release, the Company acknowledges and agrees that any and all confidentiality or similar obligations under any agreement, whether written or oral, between the Company, any of its Subsidiaries or any of their respective officers, directors, agents, employees, Affiliates or agents, including, without limitation, the Placement Agent, on the one hand, and any of the Purchasers or any of their Affiliates on the other hand, shall terminate and be of no further force or effect. The Company understands and confirms that each Purchaser shall be relying on the foregoing covenant in effecting transactions in securities of the Company. The Company and each Purchaser shall consult with each other in issuing any other press releases with respect to the transactions contemplated hereby, and neither the Company nor any Purchaser shall issue any such press release nor otherwise make any such public statement without the prior consent of the Company, with respect to any press release of any Purchaser, or without the prior consent of each Purchaser, with respect to any press release of the Company, which consent shall not unreasonably be withheld or delayed, except if such disclosure is required by law, in which case the disclosing party shall promptly provide the other party with prior notice of such public statement or communication. Notwithstanding the foregoing, the Company shall not publicly disclose the name of any Purchaser, or include the name of any Purchaser in any filing with the Commission or any regulatory agency or Trading Market, without the prior written consent of such Purchaser, except (a) as required by federal securities law in connection with (i) any registration statement contemplated by the Registration Rights Agreement and (ii) the filing of final Transaction Documents with the Commission and (b) to the extent such disclosure is required by law or Trading Market regulations, in which case the Company shall provide the Purchasers with prior notice of such disclosure permitted under this clause (b) and reasonably cooperate with such Purchaser regarding such disclosure.

4.5 Shareholder Rights Plan. No claim will be made or enforced by the Company or, with the consent of the Company, any other Person, that any Purchaser is an “Acquiring Person” under any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or similar anti-takeover plan or arrangement in effect or hereafter adopted by the Company, or that any Purchaser could be deemed to trigger the provisions of any such plan or arrangement, by virtue of receiving Securities under the Transaction Documents or under any other agreement between the Company and the Purchasers.

4.6 Non-Public Information. Except with respect to the material terms and conditions of the transactions contemplated by the Transaction Documents, which shall be disclosed pursuant to Section 4.4, the Company covenants and agrees that neither it, nor any other Person acting on its behalf will provide any Purchaser or its agents or counsel with any information that constitutes, or the Company reasonably believes constitutes, material non-public information, unless prior thereto such Purchaser shall have consented in writing to the receipt of such information and agreed in writing with the Company to keep such information confidential. The Company understands and confirms that each Purchaser shall be relying on the foregoing covenant in effecting transactions in securities of the Company. To the extent that the Company, any of its Subsidiaries, or any of their respective officers, directors, agents, employees or Affiliates delivers any material, non-public information to a Purchaser without such Purchaser’s consent, the Company hereby covenants and agrees that such Purchaser shall not have any duty of confidentiality to the Company, any of its Subsidiaries, or any of their respective officers, directors, employees, Affiliates or agents, including, without limitation, the Placement Agent, or a duty to the Company, any of its Subsidiaries or any of their respective officers, directors, employees, Affiliates or agents, including, without limitation, the Placement Agent, not to trade on the basis of, such material, non-public information, provided that the Purchaser shall remain subject to applicable law. To the extent that any notice provided pursuant to any Transaction Document constitutes, or contains, material, non-public information regarding the Company or any Subsidiaries, the Company shall simultaneously with the delivery of such notice file such notice with the Commission pursuant to a Current Report on Form 8-K. The Company understands and confirms that each Purchaser shall be relying on the foregoing covenant in effecting transactions in securities of the Company.

4.7 Use of Proceeds. The Company shall use the net proceeds from the sale of the Securities hereunder for working capital purposes and shall not use such proceeds: (a) for the satisfaction of any portion of the Company’s debt (other than payment of trade payables in the ordinary course of the Company’s business and prior practices), (b) for the redemption of any Common Stock or Common Stock Equivalents, (c) for the settlement of any outstanding litigation or (d) in violation of FCPA or OFAC regulations.

4.8 Indemnification of Purchasers. Subject to the provisions of this Section 4.8, the Company will indemnify and hold each Purchaser and its directors, officers, shareholders, members, partners, employees and agents (and any other Persons with a functionally equivalent role of a Person holding such titles notwithstanding a lack of such title or any other title), each Person who controls such Purchaser (within the meaning of Section 15 of the Securities Act and Section 20 of the Exchange Act), and the directors, officers, shareholders, agents, members, partners or employees (and any other Persons with a functionally equivalent role of a Person holding such titles notwithstanding a lack of such title or any other title) of such controlling persons (each, a “Purchaser Party”) harmless from any and all losses, liabilities, obligations, claims, contingencies, damages, costs and expenses, including all judgments, amounts paid in settlements, court costs and reasonable attorneys’ fees and costs of investigation that any such Purchaser Party may suffer or incur as a result of or relating to (a) any breach of any of the representations, warranties, covenants or agreements made by the Company in this Agreement or in the other Transaction Documents, (b) any action instituted against the Purchaser Parties in any capacity, or any of them or their respective Affiliates, by any stockholder of the Company who is not an Affiliate of such Purchaser Party, with respect to any of the transactions contemplated by the Transaction Documents (unless such action is solely based upon a material breach of such Purchaser Party’s representations, warranties or covenants under the Transaction Documents or any agreements or understandings such Purchaser Party may have with any such stockholder or any violations by such Purchaser Party of state or federal securities laws or any conduct by such Purchaser Party which is finally judicially determined to constitute fraud, gross negligence or willful misconduct), or (c) in connection with any registration statement of the Company providing for the resale by the Purchasers of the Warrant Shares issued and issuable upon exercise of the Warrants, the Company will indemnify each Purchaser Party, to the fullest extent permitted by applicable law, from and against any and all losses, claims, damages, liabilities, costs (including, without limitation, reasonable attorneys’ fees) and expenses, as incurred, arising out of or relating to (i) any untrue or alleged untrue statement of a material fact contained in such registration statement, any prospectus or any form of prospectus or in any amendment or supplement thereto or in any preliminary prospectus, or arising out of or relating to any omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any prospectus or supplement thereto, in the light of the circumstances under which they were made) not misleading, except to the extent, but only to the extent, that such untrue statements or omissions are based solely upon information regarding such Purchaser Party furnished in writing to the Company by such Purchaser Party expressly for use therein, or (ii) any violation or alleged violation by the Company of the Securities Act, the Exchange Act or any state securities law, or any rule or regulation thereunder in connection therewith. If any action shall be brought against any Purchaser Party in respect of which indemnity may be sought pursuant to this Agreement, such Purchaser Party shall promptly notify the Company in writing, and the Company shall have the right to assume the defense thereof with counsel of its own choosing reasonably acceptable to the Purchaser Party. Any Purchaser Party shall have the right to employ separate counsel in any such action and participate in the defense thereof, but the fees and expenses of such counsel shall be at the expense of such Purchaser Party except to the extent that (x) the employment thereof has been specifically authorized by the Company in writing, (y) the Company has failed after a reasonable period of time to assume such defense and to employ counsel or (z) in such action there is, in the reasonable opinion of counsel, a material conflict on any material issue between the position of the Company and the position of such Purchaser Party, in which case the Company shall be responsible for the reasonable fees and expenses of no more than one such separate counsel. The Company will not be liable to any Purchaser Party under this Agreement (1) for any settlement by a Purchaser Party effected without the Company’s prior written consent, which shall not be unreasonably withheld or delayed; or (2) to the extent, but only to the extent that a loss, claim, damage or liability is attributable to any Purchaser Party’s breach of any of the representations, warranties, covenants or agreements made by such Purchaser Party in this Agreement or in the other Transaction Documents. The indemnification required by this Section 4.8 shall be made by periodic payments of the amount thereof during the course of the investigation or defense, as and when bills are received or are incurred. The indemnity agreements contained herein shall be in addition to any cause of action or similar right of any Purchaser Party against the Company or others and any liabilities the Company may be subject to pursuant to law.

4.9 Reservation of Common Stock. As of the date hereof, the Company has reserved and the Company shall continue to reserve and keep available at all times, free of preemptive rights, a sufficient number of shares of Common Stock for the purpose of enabling the Company to issue Shares pursuant to this Agreement and Warrant Shares pursuant to any exercise of the Warrants.

4.10 Listing of Common Stock. The Company hereby agrees to use best efforts to maintain the listing or quotation of the Common Stock on the Trading Market on which it is currently listed, and concurrently with the Closing, the Company shall apply to list or quote all of the Shares and Warrant Shares on such Trading Market and promptly secure the listing of all of the Shares and Warrant Shares on such Trading Market. The Company further agrees, if the Company applies to have the Common Stock traded on any other Trading Market, it will then include in such application all of the Shares and Warrant Shares, and will take such other action as is necessary to cause all of the Shares and Warrant Shares to be listed or quoted on such other Trading Market as promptly as possible. The Company will then take all action reasonably necessary to continue the listing and trading of its Common Stock on a Trading Market and will comply in all respects with the Company’s reporting, filing and other obligations under the bylaws or rules of the Trading Market. The Company agrees to maintain the eligibility of the Common Stock for electronic transfer through the Depository Trust Company or another established clearing corporation, including, without limitation, by timely payment of fees to the Depository Trust Company or such other established clearing corporation in connection with such electronic transfer.

4.11 Subsequent Equity Sales.

(a) From the date hereof until ninety (90) days after the Effective Date, neither the Company nor any Subsidiary shall (i) issue, enter into any agreement to issue or announce the issuance or proposed issuance of any shares of Common Stock or Common Stock Equivalents or (ii) file any registration statement or any amendment or supplement thereto, in each case other than as contemplated pursuant to the Registration Rights Agreement.

(b) From the date hereof until the one (1) year anniversary of the Effective Date, the Company shall be prohibited from effecting or entering into an agreement to effect any issuance by the Company or any of its Subsidiaries of Common Stock or Common Stock Equivalents (or a combination of units thereof) involving a Variable Rate Transaction. “Variable Rate Transaction” means a transaction in which the Company (i) issues or sells any debt or equity securities that are convertible into, exchangeable or exercisable for, or include the right to receive, additional shares of Common Stock either (A) at a conversion price, exercise price or exchange rate or other price that is based upon, and/or varies with, the trading prices of or quotations for the shares of Common Stock at any time after the initial issuance of such debt or equity securities or (B) with a conversion, exercise or exchange price that is subject to being reset at some future date after the initial issuance of such debt or equity security or upon the occurrence of specified or contingent events directly or indirectly related to the business of the Company or the market for the Common Stock or (ii) enters into, or effects a transaction under, any agreement, including, but not limited to, an equity line of credit or an “at-the-market offering”, whereby the Company may issue securities at a future determined price; provided, however, that, after November 9, 2023, the issuance of shares of Common Stock in an “at the market” offering with the Placement Agent as sales agent shall not be deemed a Variable Rate Transaction. Any Purchaser shall be entitled to obtain injunctive relief against the Company to preclude any such issuance, which remedy shall be in addition to any right to collect damages.

(c) Notwithstanding the foregoing, this Section 4.11 shall not apply in respect of an Exempt Issuance, except that no Variable Rate Transaction shall be an Exempt Issuance.

4.12 Equal Treatment of Purchasers. No consideration (including any modification of any Transaction Document) shall be offered or paid to any Person to amend or consent to a waiver or modification of any provision of the Transaction Documents unless the same consideration is also offered to all of the parties to the Transaction Documents. For clarification purposes, this provision constitutes a separate right granted to each Purchaser by the Company and negotiated separately by each Purchaser, and is intended for the Company to treat the Purchasers as a class and shall not in any way be construed as the Purchasers acting in concert or as a group with respect to the purchase, disposition or voting of Securities or otherwise.

4.13 Certain Transactions and Confidentiality. Each Purchaser, severally and not jointly with the other Purchasers, covenants that neither it, nor any Affiliate acting on its behalf or pursuant to any understanding with it will execute any purchases or sales, including Short Sales, of any of the Company’s securities during the period commencing with the execution of this Agreement and ending at such time that the transactions contemplated by this Agreement are first publicly announced pursuant to the initial press release as described in Section 4.4. Each Purchaser, severally and not jointly with the other Purchasers, covenants that until such time as the transactions contemplated by this Agreement are publicly disclosed by the Company pursuant to the initial press release as described in Section 4.4, such Purchaser will maintain the confidentiality of the existence and terms of this transaction. Notwithstanding the foregoing and notwithstanding anything contained in this Agreement to the contrary, the Company expressly acknowledges and agrees that (i) no Purchaser makes any representation, warranty or covenant hereby that it will not engage in effecting transactions in any securities of the Company after the time that the transactions contemplated by this Agreement are first publicly announced pursuant to the initial press release as described in Section 4.4, (ii) no Purchaser shall be restricted or prohibited from effecting any transactions in any securities of the Company in accordance with applicable securities laws from and after the time that the transactions contemplated by this Agreement are first publicly announced pursuant to the initial press release as described in Section 4.4 and (iii) no Purchaser shall have any duty of confidentiality or duty not to trade in the securities of the Company to the Company, any of its Subsidiaries, or any of their respective officers, directors, employees, Affiliates or agent, including , without limitation, the Placement Agent after the issuance of the initial press release as described in Section 4.4. Notwithstanding the foregoing, in the case of a Purchaser that is a multi-managed investment vehicle whereby separate portfolio managers manage separate portions of such Purchaser’s assets and the portfolio managers have no direct knowledge of the investment decisions made by the portfolio managers managing other portions of such Purchaser’s assets, the covenant set forth above shall only apply with respect to the portion of assets managed by the portfolio manager that made the investment decision to purchase the Securities covered by this Agreement.

4.14 Form D; Blue Sky Filings. The Company agrees to timely file a Form D with respect to the Securities as required under Regulation D and to provide a copy thereof, promptly upon request of any Purchaser. The Company shall take such action as the Company shall reasonably determine is necessary in order to obtain an exemption for, or to qualify the Securities for, sale to the Purchasers at the Closing under applicable securities or “Blue Sky” laws of the states of the United States, and shall provide evidence of such actions promptly upon request of any Purchaser.

4.15 Acknowledgment of Dilution. The Company acknowledges that the issuance of the Securities may result in dilution of the outstanding shares of Common Stock, which dilution may be substantial under certain market conditions. The Company further acknowledges that its obligations under the Transaction Documents, including, without limitation, its obligation to issue the Shares and Warrant Shares pursuant to the Transaction Documents, are unconditional and absolute and not subject to any right of set off, counterclaim, delay or reduction, regardless of the effect of any such dilution or any claim the Company may have against any Purchaser and regardless of the dilutive effect that such issuance may have on the ownership of the other stockholders of the Company.

4.16 Exercise Procedures. The form of Notice of Exercise included in the Warrants set forth the totality of the procedures required of the Purchasers in order to exercise the Warrants. No additional legal opinion, other information or instructions shall be required of the Purchasers to exercise their Warrants. Without limiting the preceding sentences, no ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise form be required in order to exercise the Warrants. The Company shall honor exercises of the Warrants and shall deliver Warrant Shares in accordance with the terms, conditions and time periods set forth in the Transaction Documents.

4.17 Lock-Up Agreements. Each of the directors and officers of the Company’s outstanding securities are subject to the Lock-Up Agreement until ninety (90) days following the Effective Date. The Company shall not amend, modify, waive or terminate any provision of any of the Lock-Up Agreements except to extend the term of the lock-up period and shall enforce the provisions of each Lock-Up Agreement in accordance with its terms. If any party to a Lock-Up Agreement breaches any provision of a Lock-Up Agreement, the Company shall promptly use its best efforts to seek specific performance of the terms of such Lock-Up Agreement.

**ARTICLE V.
MISCELLANEOUS**

5.1 Termination. This Agreement may be terminated by any Purchaser, as to such Purchaser's obligations hereunder by written notice to the other parties, if the Closing has not been consummated on or before the fifth (5th) Trading Day following the date hereof; provided, however, that no such termination will affect the right of any party to sue for any breach by any other party (or parties).

5.2 Fees and Expenses. Except as expressly set forth in the Transaction Documents to the contrary, each party shall pay the fees and expenses of its advisers, counsel, accountants and other experts, if any, and all other expenses incurred by such party incident to the negotiation, preparation, execution, delivery and performance of this Agreement. The Company shall pay all Transfer Agent fees (including, without limitation, any fees required for same-day processing of any instruction letter delivered by the Company and any exercise notice delivered by a Purchaser), stamp taxes and other taxes and duties levied in connection with the delivery of any Securities to the Purchasers.

5.3 Entire Agreement. The Transaction Documents, together with the exhibits and schedules thereto, contain the entire understanding of the parties with respect to the subject matter hereof and thereof and supersede all prior agreements and understandings, oral or written, with respect to such matters, which the parties acknowledge have been merged into such documents, exhibits and schedules.

5.4 Notices. Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be in writing and shall be deemed given and effective on the earliest of: (a) the time of transmission, if such notice or communication is delivered via email attachment at the email address as set forth on the signature pages attached hereto at or prior to 5:30 p.m. (New York City time) on a Trading Day, (b) the next Trading Day after the time of transmission, if such notice or communication is delivered via email attachment at the email address as set forth on the signature pages attached hereto on a day that is not a Trading Day or later than 5:30 p.m. (New York City time) on any Trading Day, (c) the second (2nd) Trading Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service or (d) upon actual receipt by the party to whom such notice is required to be given. The address for such notices and communications shall be as set forth on the signature pages attached hereto.

5.5 Amendments; Waivers. No provision of this Agreement may be waived, modified, supplemented or amended except in a written instrument signed, in the case of an amendment, by the Company and Purchasers which purchased at least 50.1% in interest of the Shares and Pre-Funded Warrants based on the initial Subscription Amounts hereunder (or, prior to the Closing, the Company and each Purchaser) or, in the case of a waiver, by the party against whom enforcement of any such waived provision is sought, provided that if any amendment, modification or waiver disproportionately and adversely impacts a Purchaser (or group of Purchasers), the consent of such disproportionately impacted Purchaser (or group of Purchasers) shall also be required. No waiver of any default with respect to any provision, condition or requirement of this Agreement shall be deemed to be a continuing waiver in the future or a waiver of any subsequent default or a waiver of any other provision, condition or requirement hereof, nor shall any delay or omission of any party to exercise any right hereunder in any manner impair the exercise of any such right. Any proposed amendment or waiver that materially and adversely affects the rights and obligations of any Purchaser relative to the comparable rights and obligations of the other Purchasers shall require the prior written consent of such adversely affected Purchaser. Any amendment effected in accordance with this Section 5.5 shall be binding upon each Purchaser and holder of Securities and the Company.

5.6 Headings. The headings herein are for convenience only, do not constitute a part of this Agreement and shall not be deemed to limit or affect any of the provisions hereof.

5.7 Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties and their successors and permitted assigns. The Company may not assign this Agreement or any rights or obligations hereunder without the prior written consent of each Purchaser (other than by merger). Any Purchaser may assign any or all of its rights under this Agreement to any Person to whom such Purchaser assigns or transfers any Securities, provided that such transferee agrees in writing to be bound, with respect to the transferred Securities, by the provisions of the Transaction Documents that apply to the "Purchasers."

5.8 No Third-Party Beneficiaries. The Placement Agent shall be the third party beneficiary of the representations and warranties of the Company in Section 3.1 and the representations and warranties of the Purchasers in Section 3.2. This Agreement is intended for the benefit of the parties hereto and their respective successors and permitted assigns and is not for the benefit of, nor may any provision hereof be enforced by, any other Person, except as otherwise set forth in Section 4.8 and this Section 5.8.

5.9 Governing Law. All questions concerning the construction, validity, enforcement and interpretation of the Transaction Documents shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflicts of law thereof. Each party agrees that all legal proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by this Agreement and any other Transaction Documents (whether brought against a party hereto or its respective affiliates, directors, officers, shareholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein (including with respect to the enforcement of any of the Transaction Documents), and hereby irrevocably waives, and agrees not to assert in any Action or Proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such Action or Proceeding is improper or is an inconvenient venue for such Proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such Action or Proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. If any party shall commence an Action or Proceeding to enforce any provisions of the Transaction Documents, then, in addition to the obligations of the Company under Section 4.8, the prevailing party in such Action or Proceeding shall be reimbursed by the non-prevailing party for its reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such Action or Proceeding.

5.10 Survival. The representations and warranties contained herein shall survive the Closing and the delivery of the Securities.

5.11 Execution. This Agreement may be executed in two or more counterparts, all of which when taken together shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to each other party, it being understood that the parties need not sign the same counterpart. In the event that any signature is delivered by e-mail delivery of a “.pdf” format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such “.pdf” signature page were an original thereof.

5.12 Severability. If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction to be invalid, illegal, void or unenforceable, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their commercially reasonable efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

5.13 Rescission and Withdrawal Right. Notwithstanding anything to the contrary contained in (and without limiting any similar provisions of) any of the other Transaction Documents, whenever any Purchaser exercises a right, election, demand or option under a Transaction Document and the Company does not timely perform its related obligations within the periods therein provided, then such Purchaser may rescind or withdraw, in its sole discretion from time to time upon written notice to the Company, any relevant notice, demand or election in whole or in part without prejudice to its future actions and rights; provided, however, that, in the case of a rescission of an exercise of a Warrant, the applicable Purchaser shall be required to return any shares of Common Stock subject to any such rescinded exercise notice concurrently with the return to such Purchaser of the aggregate exercise price paid to the Company for such shares and the restoration of such Purchaser’s right to acquire such shares pursuant to such Purchaser’s Warrant (including, issuance of a replacement warrant certificate evidencing such restored right).

5.14 Replacement of Securities. If any certificate or instrument evidencing any Securities is mutilated, lost, stolen or destroyed, the Company shall issue or cause to be issued in exchange and substitution for and upon cancellation thereof (in the case of mutilation), or in lieu of and substitution therefor, a new certificate or instrument, but only upon receipt of evidence reasonably satisfactory to the Company of such loss, theft or destruction. The applicant for a new certificate or instrument under such circumstances shall also pay any reasonable third-party costs (including customary indemnity) associated with the issuance of such replacement Securities.

5.15 Remedies. In addition to being entitled to exercise all rights provided herein or granted by law, including recovery of damages, each of the Purchasers and the Company will be entitled to specific performance under the Transaction Documents. The parties agree that monetary damages may not be adequate compensation for any loss incurred by reason of any breach of obligations contained in the Transaction Documents and hereby agree to waive and not to assert in any Action for specific performance of any such obligation the defense that a remedy at law would be adequate.

5.16 Payment Set Aside. To the extent that the Company makes a payment or payments to any Purchaser pursuant to any Transaction Document or a Purchaser enforces or exercises its rights thereunder, and such payment or payments or the proceeds of such enforcement or exercise or any part thereof are subsequently invalidated, declared to be fraudulent or preferential, set aside, recovered from, disgorged by or are required to be refunded, repaid or otherwise restored to the Company, a trustee, receiver or any other Person under any law (including, without limitation, any bankruptcy law, state or federal law, common law or equitable cause of action), then to the extent of any such restoration the obligation or part thereof originally intended to be satisfied shall be revived and continued in full force and effect as if such payment had not been made or such enforcement or setoff had not occurred.

5.17 Independent Nature of Purchasers' Obligations and Rights. The obligations of each Purchaser under any Transaction Document are several and not joint with the obligations of any other Purchaser, and no Purchaser shall be responsible in any way for the performance or non-performance of the obligations of any other Purchaser under any Transaction Document. Nothing contained herein or in any other Transaction Document, and no action taken by any Purchaser pursuant hereto or thereto, shall be deemed to constitute the Purchasers as a partnership, an association, a joint venture or any other kind of entity, or create a presumption that the Purchasers are in any way acting in concert or as a group with respect to such obligations or the transactions contemplated by the Transaction Documents. Each Purchaser shall be entitled to independently protect and enforce its rights including, without limitation, the rights arising out of this Agreement or out of the other Transaction Documents, and it shall not be necessary for any other Purchaser to be joined as an additional party in any Proceeding for such purpose. Each Purchaser has been represented by its own separate legal counsel in its review and negotiation of the Transaction Documents. For reasons of administrative convenience only, each Purchaser and its respective counsel have chosen to communicate with the Company through the legal counsel of the Placement Agent. The legal counsel of the Placement Agent does not represent any of the Purchasers and only represents the Placement Agent. The Company has elected to provide all Purchasers with the same terms and Transaction Documents for the convenience of the Company and not because it was required or requested to do so by any of the Purchasers. It is expressly understood and agreed that each provision contained in this Agreement and in each other Transaction Document is between the Company and a Purchaser, solely, and not between the Company and the Purchasers collectively and not between and among the Purchasers.

5.18 Liquidated Damages. The Company's obligations to pay any partial liquidated damages or other amounts owing under the Transaction Documents is a continuing obligation of the Company and shall not terminate until all unpaid partial liquidated damages and other amounts have been paid notwithstanding the fact that the instrument or security pursuant to which such partial liquidated damages or other amounts are due and payable shall have been canceled.

5.19 Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then such action may be taken or such right may be exercised on the next succeeding Business Day.

5.20 Construction. The parties agree that each of them and/or their respective counsel have reviewed and had an opportunity to revise the Transaction Documents and, therefore, the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of the Transaction Documents or any amendments thereto. In addition, each and every reference to share prices and shares of Common Stock in any Transaction Document shall be subject to adjustment for reverse and forward stock splits, stock dividends, stock combinations and other similar transactions of the Common Stock that occur after the date of this Agreement.

5.21 WAIVER OF JURY TRIAL. IN ANY ACTION, SUIT, OR PROCEEDING IN ANY JURISDICTION BROUGHT BY ANY PARTY AGAINST ANY OTHER PARTY, THE PARTIES EACH KNOWINGLY AND INTENTIONALLY, TO THE GREATEST EXTENT PERMITTED BY APPLICABLE LAW, HEREBY ABSOLUTELY, UNCONDITIONALLY, IRREVOCABLY AND EXPRESSLY WAIVES FOREVER TRIAL BY JURY.

(Signature Pages Follow)

IN WITNESS WHEREOF, the parties hereto have caused this Securities Purchase Agreement to be duly executed by their respective authorized signatories as of the date first indicated above.

ASP ISOTOPES INC.

Address for Notice:

By: _____ Email:

Name:

Title:

With a copy to (which shall not constitute notice):

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK
SIGNATURE PAGE FOR PURCHASER FOLLOWS]

[PURCHASER SIGNATURE PAGES TO ASPI SECURITIES PURCHASE AGREEMENT]

IN WITNESS WHEREOF, the undersigned have caused this Securities Purchase Agreement to be duly executed by their respective authorized signatories as of the date first indicated above.

Name of Purchaser: _____

Signature of Authorized Signatory of Purchaser: _____

Name of Authorized Signatory: _____

Title of Authorized Signatory: _____

Email Address of Authorized Signatory: _____

Address for Notice to Purchaser:

Address for Delivery of Securities to Purchaser (if not same as address for notice):

Subscription Amount: \$ _____

Shares: _____

Pre-Funded Warrants: _____ Beneficial Ownership Blocker 4.99% or 9.99%

Common Warrant Shares: _____ Beneficial Ownership Blocker 4.99% or 9.99%

EIN Number: _____

[SIGNATURE PAGES CONTINUE]

REGISTRATION RIGHTS AGREEMENT

This Registration Rights Agreement (this “Agreement”) is made and entered into as of [], 2023, between ASP Isotopes Inc., a Delaware corporation (the “Company”), and each of the several purchasers signatory hereto (each such purchaser, a “Purchaser” and, collectively, the “Purchasers”).

This Agreement is made pursuant to the Securities Purchase Agreement, dated as of the date hereof, between the Company and each Purchaser (the “Purchase Agreement”).

The Company and each Purchaser hereby agrees as follows:

1. Definitions.

Capitalized terms used and not otherwise defined herein that are defined in the Purchase Agreement shall have the meanings given such terms in the Purchase Agreement. As used in this Agreement, the following terms shall have the following meanings:

“Advice” shall have the meaning set forth in Section 6(c).

“Effectiveness Date” means, with respect to the Initial Registration Statement required to be filed hereunder, the 45th calendar day following the date hereof (or, in the event of a “full review” by the Commission, the 75th calendar day following the date hereof) and with respect to any additional Registration Statements which may be required pursuant to Section 2(c) or Section 3(c), the 45th calendar day following the date on which an additional Registration Statement is required to be filed hereunder (or, in the event of a “full review” by the Commission, the 75th calendar day following the date such additional Registration Statement is required to be filed hereunder); provided, however, that in the event the Company is notified by the Commission that one or more of the above Registration Statements will not be reviewed or is no longer subject to further review and comments, the Effectiveness Date as to such Registration Statement shall be the fifth Trading Day following the date on which the Company is so notified if such date precedes the dates otherwise required above, provided, further, if such Effectiveness Date falls on a day that is not a Trading Day, then the Effectiveness Date shall be the next succeeding Trading Day.

“Effectiveness Period” shall have the meaning set forth in Section 2(a).

“Event” shall have the meaning set forth in Section 2(d).

“Event Date” shall have the meaning set forth in Section 2(d).

“Filing Date” means, with respect to the Initial Registration Statement required hereunder, the 15th calendar day following the date hereof and, with respect to any additional Registration Statements which may be required pursuant to Section 2(c) or Section 3(c), the earliest practical date on which the Company is permitted by SEC Guidance to file such additional Registration Statement related to the Registrable Securities.

“Holder” or “Holders” means the holder or holders, as the case may be, from time to time of Registrable Securities.

“Indemnified Party” shall have the meaning set forth in Section 5(c).

“Indemnifying Party” shall have the meaning set forth in Section 5(c).

“Initial Registration Statement” means the initial Registration Statement filed pursuant to this Agreement.

“Losses” shall have the meaning set forth in Section 5(a).

“Plan of Distribution” shall have the meaning set forth in Section 2(a).

“Prospectus” means the prospectus included in a Registration Statement (including, without limitation, a prospectus that includes any information previously omitted from a prospectus filed as part of an effective registration statement in reliance upon Rule 430A promulgated by the Commission pursuant to the Securities Act), as amended or supplemented by any prospectus supplement, with respect to the terms of the offering of any portion of the Registrable Securities covered by a Registration Statement, and all other amendments and supplements to the Prospectus, including post-effective amendments, and all material incorporated by reference or deemed to be incorporated by reference in such Prospectus.

“Registrable Securities” means, as of any date of determination, (a) all Shares, (b) all Warrant Shares then issued and issuable upon exercise of the Warrants (assuming on such date the Warrants are exercised in full without regard to any exercise limitations therein) and (c) any securities issued or then issuable upon any stock split, dividend or other distribution, recapitalization or similar event with respect to the foregoing; provided, however, that any such Registrable Securities shall cease to be Registrable Securities (and the Company shall not be required to maintain the effectiveness of any, or file another, Registration Statement hereunder with respect thereto) for so long as (a) a Registration Statement with respect to the sale of such Registrable Securities is declared effective by the Commission under the Securities Act and such Registrable Securities have been disposed of by the Holder in accordance with such effective Registration Statement, (b) such Registrable Securities have been previously sold in accordance with Rule 144, or (c) such securities become eligible for resale without volume or manner-of-sale restrictions and without current public information pursuant to Rule 144 as set forth in a written opinion letter to such effect, addressed, delivered and acceptable to the Transfer Agent and the affected Holders (assuming that such securities and any securities issuable upon exercise, conversion or exchange of which, or as a dividend upon which, such securities were issued or are issuable, were at no time held by any Affiliate of the Company, as reasonably determined by the Company, upon the advice of counsel to the Company).

“Registration Statement” means any registration statement required to be filed hereunder pursuant to Section 2(a) and any additional registration statements contemplated by Section 2(c) or Section 3(c), including (in each case) the Prospectus, amendments and supplements to any such registration statement or Prospectus, including pre- and post-effective amendments, all exhibits thereto, and all material incorporated by reference or deemed to be incorporated by reference in any such registration statement.

“Rule 415” means Rule 415 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“Rule 424” means Rule 424 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“Selling Stockholder Questionnaire” shall have the meaning set forth in Section 3(a).

“SEC Guidance” means (i) any publicly-available written or oral guidance of the Commission staff, or any comments, requirements or requests of the Commission staff and (ii) the Securities Act.

2. Shelf Registration.

(a) On or prior to each Filing Date, the Company shall prepare and file with the Commission a Registration Statement covering the resale of all of the Registrable Securities that are not then registered on an effective Registration Statement for an offering to be made on a continuous basis pursuant to Rule 415. Each Registration Statement filed hereunder shall be on Form S-3 (except if the Company is not then eligible to register for resale the Registrable Securities on Form S-3, in which case such registration shall be on another appropriate form in accordance herewith, subject to the provisions of Section 2(e)) and shall contain (unless otherwise directed by at least 85% in interest of the Holders) substantially the “Plan of Distribution” attached hereto as Annex A and substantially the “Selling Stockholder” section attached hereto as Annex B; provided, however, that no Holder shall be required to be named as an “underwriter” without such Holder’s express prior written consent. Subject to the terms of this Agreement, the Company shall use its best efforts to cause a Registration Statement filed under this Agreement (including, without limitation, under Section 3(c)) to be declared effective under the Securities Act as promptly as possible after the filing thereof, but in any event no later than the applicable Effectiveness Date, and shall use its best efforts to keep such Registration Statement continuously effective under the Securities Act until the date that all Registrable Securities covered by such Registration Statement (i) have been sold, thereunder or pursuant to Rule 144, or (ii) may be sold without volume or manner-of-sale restrictions pursuant to Rule 144 and without the requirement for the Company to be in compliance with the current public information requirement under Rule 144, as determined by the counsel to the Company pursuant to a written opinion letter to such effect, addressed and acceptable to the Transfer Agent and the affected Holders (the “Effectiveness Period”). The Company shall telephonically request effectiveness of a Registration Statement as of 5:00 p.m. (New York City time) on a Trading Day. The Company shall immediately notify the Holders via facsimile or by e-mail of the effectiveness of a Registration Statement on the same Trading Day that the Company telephonically confirms effectiveness with the Commission, which shall be the date requested for effectiveness of such Registration Statement. The Company shall, by 9:30 a.m. (New York City time) on the Trading Day after the effective date of such Registration Statement, file a final Prospectus with the Commission as required by Rule 424. Failure to so notify the Holder within one (1) Trading Day of such notification of effectiveness or failure to file a final Prospectus as foresaid shall be deemed an Event under Section 2(d).

(b) Notwithstanding the registration obligations set forth in Section 2(a), if the Commission informs the Company that all of the Registrable Securities cannot, as a result of the application of Rule 415, be registered for resale as a secondary offering on a single registration statement, the Company agrees to promptly inform each of the Holders thereof and use its commercially reasonable efforts to file amendments to the Initial Registration Statement as required by the Commission, covering the maximum number of Registrable Securities permitted to be registered by the Commission, on Form S-3 or such other form available to register for resale the Registrable Securities as a secondary offering, subject to the provisions of Section 2(e); with respect to filing on Form S-3 or other appropriate form, and subject to the provisions of Section 2(d) with respect to the payment of liquidated damages; provided, however, that prior to filing such amendment, the Company shall be obligated to use diligent efforts to advocate with the Commission for the registration of all of the Registrable Securities in accordance with the SEC Guidance, including without limitation, Compliance and Disclosure Interpretation 612.09.

(c) Notwithstanding any other provision of this Agreement and subject to the payment of liquidated damages pursuant to Section 2(d), if the Commission or any SEC Guidance sets forth a limitation on the number of Registrable Securities permitted to be registered on a particular Registration Statement as a secondary offering (and notwithstanding that the Company used diligent efforts to advocate with the Commission for the registration of all or a greater portion of Registrable Securities), unless otherwise directed in writing by a Holder as to its Registrable Securities, the number of Registrable Securities to be registered on such Registration Statement will be reduced as follows:

- a. First, the Company shall reduce or eliminate any securities to be included other than Registrable Securities; and
- b. Second, the Company shall reduce Registrable Securities represented by Warrant Shares (applied, in the case that some Warrant Shares may be registered, to the Holders on a pro rata basis based on the total number of unregistered Warrant Shares held by such Holders).
- c. Third, the Company shall reduce Registrable Securities represented by Shares and the Warrant Shares (applied, in the case that some Shares and the Pre-Funded Warrants may be registered, to the Holders on a pro rata basis based on the total number of unregistered Shares and the Pre-Funded Warrants held by such Holders).

In the event of a cutback hereunder, the Company shall give the Holder at least five (5) Trading Days prior written notice along with the calculations as to such Holder's allotment. In the event the Company amends the Initial Registration Statement in accordance with the foregoing, the Company will use its best efforts to file with the Commission, as promptly as allowed by the Commission or SEC Guidance provided to the Company or to registrants of securities in general, one or more registration statements on Form S-3 or such other form available to register for resale those Registrable Securities that were not registered for resale on the Initial Registration Statement, as amended.

(d) If: (i) the Initial Registration Statement is not filed on or prior to its Filing Date (if the Company files the Initial Registration Statement without affording the Holders the opportunity to review and comment on the same as required by Section 3(a) herein, the Company shall be deemed to have not satisfied this clause (i)), or (ii) the Company fails to file with the Commission a request for acceleration of a Registration Statement in accordance with Rule 461 promulgated by the Commission pursuant to the Securities Act, within five Trading Days of the date that the Company is notified (orally or in writing, whichever is earlier) by the Commission that such Registration Statement will not be "reviewed" or will not be subject to further review, or (iii) prior to the effective date of a Registration Statement, the Company fails to file a pre-effective amendment and otherwise respond in writing to comments made by the Commission in respect of such Registration Statement within ten (10) calendar days after the receipt of comments by or notice from the Commission that such amendment is required in order for such Registration Statement to be declared effective, or (iv) a Registration Statement registering for resale all of the Registrable Securities is not declared effective by the Commission by the Effectiveness Date of the Initial Registration Statement, or (v) after the effective date of a Registration Statement, such Registration Statement ceases for any reason to remain continuously effective as to all Registrable Securities included in such Registration Statement, or the Holders are otherwise not permitted to utilize the Prospectus therein to resell such Registrable Securities, for more than ten (10) consecutive calendar days or more than an aggregate of fifteen (15) calendar days (which need not be consecutive calendar days) during any 12-month period (any such failure or breach being referred to as an "Event", and for purposes of clauses (i) and (iv), the date on which such Event occurs, and for purpose of clause (ii) the date on which such five (5) Trading Day period is exceeded, and for purpose of clause (iii) the date which such ten (10) calendar day period is exceeded, and for purpose of clause (v) the date on which such ten (10) or fifteen (15) calendar day period, as applicable, is exceeded being referred to as "Event Date"), then, in addition to any other rights the Holders may have hereunder or under applicable law, on each such Event Date and on each monthly anniversary of each such Event Date (if the applicable Event shall not have been cured by such date) until the applicable Event is cured, the Company shall pay to each Holder an amount in cash, as partial liquidated damages and not as a penalty, equal to the product of 2.0% multiplied by the aggregate Subscription Amount paid by such Holder pursuant to the Purchase Agreement. If the Company fails to pay any partial liquidated damages pursuant to this Section in full within seven days after the date payable, the Company will pay interest thereon at a rate of 18.0% per annum (or such lesser maximum amount that is permitted to be paid by applicable law) to the Holder, accruing daily from the date such partial liquidated damages are due until such amounts, plus all such interest thereon, are paid in full. The partial liquidated damages pursuant to the terms hereof shall apply on a daily pro rata basis for any portion of a month prior to the cure of an Event.

(e) If Form S-3 is not available for the registration of the resale of Registrable Securities hereunder, the Company shall (i) register the resale of the Registrable Securities on another appropriate form and (ii) undertake to register the Registrable Securities on Form S-3 as soon as such form is available, provided that the Company shall maintain the effectiveness of the Registration Statement then in effect until such time as a Registration Statement on Form S-3 covering the Registrable Securities has been declared effective by the Commission.

(f) Notwithstanding anything to the contrary contained herein, in no event shall the Company be permitted to name any Holder or affiliate of a Holder as any underwriter without the prior written consent of such Holder.

3. Registration Procedures.

In connection with the Company's registration obligations hereunder, the Company shall:

(a) Not less than five (5) Trading Days prior to the filing of each Registration Statement and not less than one (1) Trading Day prior to the filing of any related Prospectus or any amendment or supplement thereto (including any document that would be incorporated or deemed to be incorporated therein by reference), the Company shall (i) furnish to each Holder copies of all such documents proposed to be filed, which documents (other than those incorporated or deemed to be incorporated by reference) will be subject to the review of such Holders, and (ii) cause its officers and directors, counsel and independent registered public accountants to respond to such inquiries as shall be necessary, in the reasonable opinion of respective counsel to each Holder, to conduct a reasonable investigation within the meaning of the Securities Act. The Company shall not file a Registration Statement or any such Prospectus or any amendments or supplements thereto to which the Holders of a majority of the Registrable Securities shall reasonably object in good faith, provided that, the Company is notified of such objection in writing no later than five (5) Trading Days after the Holders have been so furnished copies of a Registration Statement or one (1) Trading Day after the Holders have been so furnished copies of any related Prospectus or amendments or supplements thereto. Each Holder agrees to furnish to the Company a completed questionnaire in the form attached to this Agreement as Annex C (a "Selling Stockholder Questionnaire") on a date that is not less than two (2) Trading Days prior to the Filing Date or by the end of the fourth (4th) Trading Day following the date on which such Holder receives draft materials in accordance with this Section.

(b)(i) Prepare and file with the Commission such amendments, including post-effective amendments, to a Registration Statement and the Prospectus used in connection therewith as may be necessary to keep a Registration Statement continuously effective as to the applicable Registrable Securities for the Effectiveness Period and prepare and file with the Commission such additional Registration Statements in order to register for resale under the Securities Act all of the Registrable Securities, (ii) cause the related Prospectus to be amended or supplemented by any required Prospectus supplement (subject to the terms of this Agreement), and, as so supplemented or amended, to be filed pursuant to Rule 424, (iii) respond as promptly as reasonably possible to any comments received from the Commission with respect to a Registration Statement or any amendment thereto and provide as promptly as reasonably possible to the Holders true and complete copies of all correspondence from and to the Commission relating to a Registration Statement (provided that, the Company shall excise any information contained therein which would constitute material non-public information regarding the Company or any of its Subsidiaries), and (iv) comply in all material respects with the applicable provisions of the Securities Act and the Exchange Act with respect to the disposition of all Registrable Securities covered by a Registration Statement during the applicable period in accordance (subject to the terms of this Agreement) with the intended methods of disposition by the Holders thereof set forth in such Registration Statement as so amended or in such Prospectus as so supplemented.

(c) If during the Effectiveness Period, the number of Registrable Securities at any time exceeds 100% of the number of shares of Common Stock then registered in a Registration Statement, then the Company shall file as soon as reasonably practicable, but in any case prior to the applicable Filing Date, an additional Registration Statement covering the resale by the Holders of not less than the number of such Registrable Securities.

(d) Notify the Holders of Registrable Securities to be sold (which notice shall, pursuant to clauses (iii) through (vi) hereof, be accompanied by an instruction to suspend the use of the Prospectus until the requisite changes have been made) as promptly as reasonably possible (and, in the case of (i)(A) below, not less than one (1) Trading Day prior to such filing) and (if requested by any such Person) confirm such notice in writing no later than one (1) Trading Day following the day (i)(A) when a Prospectus or any Prospectus supplement or post-effective amendment to a Registration Statement is proposed to be filed, (B) when the Commission notifies the Company whether there will be a "review" of such Registration Statement and whenever the Commission comments in writing on such Registration Statement, and (C) with respect to a Registration Statement or any post-effective amendment, when the same has become effective, (ii) of any request by the Commission or any other federal or state governmental authority for amendments or supplements to a Registration Statement or Prospectus or for additional information, (iii) of the issuance by the Commission or any other federal or state governmental authority of any stop order suspending the effectiveness of a Registration Statement covering any or all of the Registrable Securities or the initiation of any Proceedings for that purpose, (iv) of the receipt by the Company of any notification with respect to the suspension of the qualification or exemption from qualification of any of the Registrable Securities for sale in any jurisdiction, or the initiation or threatening of any Proceeding for such purpose, (v) of the occurrence of any event or passage of time that makes the financial statements included in a Registration Statement ineligible for inclusion therein or any statement made in a Registration Statement or Prospectus or any document incorporated or deemed to be incorporated therein by reference untrue in any material respect or that requires any revisions to a Registration Statement, Prospectus or other documents so that, in the case of a Registration Statement or the Prospectus, as the case may be, it will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, and (vi) of the occurrence or existence of any pending corporate development with respect to the Company that the Company believes may be material and that, in the determination of the Company, makes it not in the best interest of the Company to allow continued availability of a Registration Statement or Prospectus; provided, however, that in no event shall any such notice contain any information which would constitute material, non-public information regarding the Company or any of its Subsidiaries.

(e) Use its best efforts to avoid the issuance of, or, if issued, obtain the withdrawal of (i) any order stopping or suspending the effectiveness of a Registration Statement, or (ii) any suspension of the qualification (or exemption from qualification) of any of the Registrable Securities for sale in any jurisdiction, at the earliest practicable moment.

(f) Furnish to each Holder, without charge, at least one conformed copy of each such Registration Statement and each amendment thereto, including financial statements and schedules, all documents incorporated or deemed to be incorporated therein by reference to the extent requested by such Person, and all exhibits to the extent requested by such Person (including those previously furnished or incorporated by reference) promptly after the filing of such documents with the Commission, provided that any such item which is available on the EDGAR system (or successor thereto) need not be furnished in physical form.

(g) Subject to the terms of this Agreement, the Company hereby consents to the use of such Prospectus and each amendment or supplement thereto by each of the selling Holders in connection with the offering and sale of the Registrable Securities covered by such Prospectus and any amendment or supplement thereto, except after the giving of any notice pursuant to Section 3(d).

(h) Prior to any resale of Registrable Securities by a Holder, use its commercially reasonable efforts to register or qualify or cooperate with the selling Holders in connection with the registration or qualification (or exemption from the registration or qualification) of such Registrable Securities for the resale by the Holder under the securities or Blue Sky laws of such jurisdictions within the United States as any Holder reasonably requests in writing, to keep each registration or qualification (or exemption therefrom) effective during the Effectiveness Period and to do any and all other acts or things reasonably necessary to enable the disposition in such jurisdictions of the Registrable Securities covered by each Registration Statement, provided that the Company shall not be required to qualify generally to do business in any jurisdiction where it is not then so qualified, subject the Company to any material tax in any such jurisdiction where it is not then so subject or file a general consent to service of process in any such jurisdiction.

(i) If requested by a Holder, cooperate with such Holder to facilitate the timely preparation and delivery of certificates representing Registrable Securities to be delivered to a transferee pursuant to a Registration Statement, which certificates shall be free, to the extent permitted by the Purchase Agreement, of all restrictive legends, and to enable such Registrable Securities to be in such denominations and registered in such names as any such Holder may request.

(j) Upon the occurrence of any event contemplated by Section 3(d), as promptly as reasonably possible under the circumstances taking into account the Company's good faith assessment of any adverse consequences to the Company and its stockholders of the premature disclosure of such event, prepare a supplement or amendment, including a post-effective amendment, to a Registration Statement or a supplement to the related Prospectus or any document incorporated or deemed to be incorporated therein by reference, and file any other required document so that, as thereafter delivered, neither a Registration Statement nor such Prospectus will contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading. If the Company notifies the Holders in accordance with clauses (iii) through (vi) of Section 3(d) above to suspend the use of any Prospectus until the requisite changes to such Prospectus have been made, then the Holders shall suspend use of such Prospectus. The Company will use its best efforts to ensure that the use of the Prospectus may be resumed as promptly as is practicable. The Company shall be entitled to exercise its right under this Section 3(j) to suspend the availability of a Registration Statement and Prospectus, subject to the payment of partial liquidated damages otherwise required pursuant to Section 2(d), for a period not to exceed 60 calendar days (which need not be consecutive days) in any 12-month period.

(k) Otherwise use commercially reasonable efforts to comply with all applicable rules and regulations of the Commission under the Securities Act and the Exchange Act, including, without limitation, Rule 172 under the Securities Act, file any final Prospectus, including any supplement or amendment thereof, with the Commission pursuant to Rule 424 under the Securities Act, promptly inform the Holders in writing if, at any time during the Effectiveness Period, the Company does not satisfy the conditions specified in Rule 172 and, as a result thereof, the Holders are required to deliver a Prospectus in connection with any disposition of Registrable Securities and take such other actions as may be reasonably necessary to facilitate the registration of the Registrable Securities hereunder.

(l) The Company shall use its best efforts to maintain eligibility for use of Form S-3 (or any successor form thereto) for the registration of the resale of Registrable Securities.

(m) The Company may require each selling Holder to furnish to the Company a certified statement as to the number of shares of Common Stock beneficially owned by such Holder and, if required by the Commission, the natural persons thereof that have voting and dispositive control over the shares. During any periods that the Company is unable to meet its obligations hereunder with respect to the registration of the Registrable Securities solely because any Holder fails to furnish such information within three Trading Days of the Company's request, any liquidated damages that are accruing at such time as to such Holder only shall be tolled and any Event that may otherwise occur solely because of such delay shall be suspended as to such Holder only, until such information is delivered to the Company.

4. Registration Expenses. All fees and expenses incident to the performance of or compliance with, this Agreement by the Company shall be borne by the Company whether or not any Registrable Securities are sold pursuant to a Registration Statement. The fees and expenses referred to in the foregoing sentence shall include, without limitation, (i) all registration and filing fees (including, without limitation, fees and expenses of the Company's counsel and independent registered public accountants) (A) with respect to filings made with the Commission, (B) with respect to filings required to be made with any Trading Market on which the Common Stock is then listed for trading, and (C) in compliance with applicable state securities or Blue Sky laws reasonably agreed to by the Company in writing (including, without limitation, fees and disbursements of counsel for the Company in connection with Blue Sky qualifications or exemptions of the Registrable Securities), (ii) printing expenses (including, without limitation, expenses of printing certificates for Registrable Securities), (iii) messenger, telephone and delivery expenses, (iv) fees and disbursements of counsel for the Company, (v) Securities Act liability insurance, if the Company so desires such insurance, and (vi) fees and expenses of all other Persons retained by the Company in connection with the consummation of the transactions contemplated by this Agreement. In addition, the Company shall be responsible for all of its internal expenses incurred in connection with the consummation of the transactions contemplated by this Agreement (including, without limitation, all salaries and expenses of its officers and employees performing legal or accounting duties), the expense of any annual audit and the fees and expenses incurred in connection with the listing of the Registrable Securities on any securities exchange as required hereunder. In no event shall the Company be responsible for any broker or similar commissions of any Holder or, except to the extent provided for in the Transaction Documents, any legal fees or other costs of the Holders.

5. Indemnification.

(a) Indemnification by the Company. The Company shall, notwithstanding any termination of this Agreement, indemnify and hold harmless each Holder, the officers, directors, members, partners, agents, brokers (including brokers who offer and sell Registrable Securities as principal as a result of a pledge or any failure to perform under a margin call of Common Stock), investment advisors and employees (and any other Persons with a functionally equivalent role of a Person holding such titles, notwithstanding a lack of such title or any other title) of each of them, each Person who controls any such Holder (within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act) and the officers, directors, members, stockholders, partners, agents and employees (and any other Persons with a functionally equivalent role of a Person holding such titles, notwithstanding a lack of such title or any other title) of each such controlling Person, to the fullest extent permitted by applicable law, from and against any and all losses, claims, damages, liabilities, costs (including, without limitation, reasonable attorneys' fees) and expenses (collectively, "Losses"), as incurred, arising out of or relating to (1) any untrue or alleged untrue statement of a material fact contained in a Registration Statement, any Prospectus or any form of prospectus or in any amendment or supplement thereto or in any preliminary prospectus, or arising out of or relating to any omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any Prospectus or supplement thereto, in light of the circumstances under which they were made) not misleading or (2) any violation or alleged violation by the Company of the Securities Act, the Exchange Act or any state securities law, or any rule or regulation thereunder, in connection with the performance of its obligations under this Agreement, except to the extent, but only to the extent, that (i) such untrue statements or omissions are based solely upon information regarding such Holder furnished in writing to the Company by such Holder expressly for use therein, or to the extent that such information relates to such Holder or such Holder's proposed method of distribution of Registrable Securities and was reviewed and expressly approved in writing by such Holder expressly for use in a Registration Statement, such Prospectus or in any amendment or supplement thereto (it being understood that the Holder has approved Annex A hereto for this purpose) or (ii) in the case of an occurrence of an event of the type specified in Section 3(d)(iii)-(vi), the use by such Holder of an outdated, defective or otherwise unavailable Prospectus after the Company has notified such Holder in writing that the Prospectus is outdated, defective or otherwise unavailable for use by such Holder and prior to the receipt by such Holder of the Advice contemplated in Section 6(c). The Company shall notify the Holders promptly of the institution, threat or assertion of any Proceeding arising from or in connection with the transactions contemplated by this Agreement of which the Company is aware. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of such indemnified person and shall survive the transfer of any Registrable Securities by any of the Holders in accordance with Section 6(f).

(b) Indemnification by Holders. Each Holder shall, severally and not jointly, indemnify and hold harmless the Company, its directors, officers, agents and employees, each Person who controls the Company (within the meaning of Section 15 of the Securities Act and Section 20 of the Exchange Act), and the directors, officers, agents or employees of such controlling Persons, to the fullest extent permitted by applicable law, from and against all Losses, as incurred, to the extent arising out of or based solely upon: any untrue or alleged untrue statement of a material fact contained in any Registration Statement, any Prospectus, or in any amendment or supplement thereto or in any preliminary prospectus, or arising out of or relating to any omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any Prospectus or supplement thereto, in light of the circumstances under which they were made) not misleading (i) to the extent, but only to the extent, that such untrue statement or omission is contained in any information so furnished in writing by such Holder to the Company expressly for inclusion in such Registration Statement or such Prospectus or (ii) to the extent, but only to the extent, that such information relates to such Holder's information provided in the Selling Stockholder Questionnaire or the proposed method of distribution of Registrable Securities and was reviewed and expressly approved in writing by such Holder expressly for use in a Registration Statement (it being understood that the Holder has approved Annex A hereto for this purpose), such Prospectus or in any amendment or supplement thereto. In no event shall the liability of a selling Holder be greater in amount than the dollar amount of the proceeds (net of all expenses paid by such Holder in connection with any claim relating to this Section 5 and the amount of any damages such Holder has otherwise been required to pay by reason of such untrue statement or omission) received by such Holder upon the sale of the Registrable Securities included in the Registration Statement giving rise to such indemnification obligation.

(c) Conduct of Indemnification Proceedings. If any Proceeding shall be brought or asserted against any Person entitled to indemnity hereunder (an "Indemnified Party"), such Indemnified Party shall promptly notify the Person from whom indemnity is sought (the "Indemnifying Party") in writing, and the Indemnifying Party shall have the right to assume the defense thereof, including the employment of counsel reasonably satisfactory to the Indemnified Party and the payment of all fees and expenses incurred in connection with defense thereof, provided that the failure of any Indemnified Party to give such notice shall not relieve the Indemnifying Party of its obligations or liabilities pursuant to this Agreement, except (and only) to the extent that it shall be finally determined by a court of competent jurisdiction (which determination is not subject to appeal or further review) that such failure shall have materially and adversely prejudiced the Indemnifying Party.

An Indemnified Party shall have the right to employ separate counsel in any such Proceeding and to participate in the defense thereof, but the fees and expenses of such counsel shall be at the expense of such Indemnified Party or Parties unless: (1) the Indemnifying Party has agreed in writing to pay such fees and expenses, (2) the Indemnifying Party shall have failed promptly to assume the defense of such Proceeding and to employ counsel reasonably satisfactory to such Indemnified Party in any such Proceeding, or (3) the named parties to any such Proceeding (including any impleaded parties) include both such Indemnified Party and the Indemnifying Party, and counsel to the Indemnified Party shall reasonably believe that a material conflict of interest is likely to exist if the same counsel were to represent such Indemnified Party and the Indemnifying Party (in which case, if such Indemnified Party notifies the Indemnifying Party in writing that it elects to employ separate counsel at the expense of the Indemnifying Party, the Indemnifying Party shall not have the right to assume the defense thereof and the reasonable fees and expenses of no more than one separate counsel shall be at the expense of the Indemnifying Party). The Indemnifying Party shall not be liable for any settlement of any such Proceeding effected without its written consent, which consent shall not be unreasonably withheld or delayed. No Indemnifying Party shall, without the prior written consent of the Indemnified Party, effect any settlement of any pending Proceeding in respect of which any Indemnified Party is a party, unless such settlement includes an unconditional release of such Indemnified Party from all liability on claims that are the subject matter of such Proceeding.

Subject to the terms of this Agreement, all reasonable fees and expenses of the Indemnified Party (including reasonable fees and expenses to the extent incurred in connection with investigating or preparing to defend such Proceeding in a manner not inconsistent with this Section) shall be paid to the Indemnified Party, as incurred, within ten Trading Days of written notice thereof to the Indemnifying Party, provided that the Indemnified Party shall promptly reimburse the Indemnifying Party for that portion of such fees and expenses applicable to such actions for which such Indemnified Party is finally determined by a court of competent jurisdiction (which determination is not subject to appeal or further review) not to be entitled to indemnification hereunder.

(d) Contribution. If the indemnification under Section 5(a) or 5(b) is unavailable to an Indemnified Party or insufficient to hold an Indemnified Party harmless for any Losses, then each Indemnifying Party shall contribute to the amount paid or payable by such Indemnified Party, in such proportion as is appropriate to reflect the relative fault of the Indemnifying Party and Indemnified Party in connection with the actions, statements or omissions that resulted in such Losses as well as any other relevant equitable considerations. The relative fault of such Indemnifying Party and Indemnified Party shall be determined by reference to, among other things, whether any action in question, including any untrue or alleged untrue statement of a material fact or omission or alleged omission of a material fact, has been taken or made by, or relates to information supplied by, such Indemnifying Party or Indemnified Party, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such action, statement or omission. The amount paid or payable by a party as a result of any Losses shall be deemed to include, subject to the limitations set forth in this Agreement, any reasonable attorneys' or other fees or expenses incurred by such party in connection with any Proceeding to the extent such party would have been indemnified for such fees or expenses if the indemnification provided for in this Section was available to such party in accordance with its terms.

The parties hereto agree that it would not be just and equitable if contribution pursuant to this Section 5(d) were determined by pro rata allocation or by any other method of allocation that does not take into account the equitable considerations referred to in the immediately preceding paragraph. In no event shall the contribution obligation of a Holder of Registrable Securities be greater in amount than the dollar amount of the proceeds (net of all expenses paid by such Holder in connection with any claim relating to this Section 5 and the amount of any damages such Holder has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission) received by it upon the sale of the Registrable Securities giving rise to such contribution obligation.

The indemnity and contribution agreements contained in this Section are in addition to any liability that the Indemnifying Parties may have to the Indemnified Parties.

6. Miscellaneous.

(a) Remedies. In the event of a breach by the Company or by a Holder of any of their respective obligations under this Agreement, each Holder or the Company, as the case may be, in addition to being entitled to exercise all rights granted by law and under this Agreement, including recovery of damages, shall be entitled to specific performance of its rights under this Agreement. Each of the Company and each Holder agrees that monetary damages would not provide adequate compensation for any losses incurred by reason of a breach by it of any of the provisions of this Agreement and hereby further agrees that, in the event of any action for specific performance in respect of such breach, it shall not assert or shall waive the defense that a remedy at law would be adequate.

(b) No Piggyback on Registrations; Prohibition on Filing Other Registration Statements [Except as set forth on Schedule 6(b) attached hereto,]¹ neither the Company nor any of its security holders (other than the Holders in such capacity pursuant hereto) may include securities of the Company in any Registration Statements other than the Registrable Securities. The Company shall not file any other registration statements until all Registrable Securities are registered pursuant to a Registration Statement that is declared effective by the Commission, provided that this Section 6(b) shall not prohibit the Company from filing amendments to registration statements filed prior to the date of this Agreement so long as no new securities are registered on any such existing registration statements.

(c) Discontinued Disposition. By its acquisition of Registrable Securities, each Holder agrees that, upon receipt of a notice from the Company of the occurrence of any event of the kind described in Section 3(d)(iii) through (vi), such Holder will forthwith discontinue disposition of such Registrable Securities under a Registration Statement until it is advised in writing (the "Advice") by the Company that the use of the applicable Prospectus (as it may have been supplemented or amended) may be resumed. The Company will use its best efforts to ensure that the use of the Prospectus may be resumed as promptly as is practicable. The Company agrees and acknowledges that any periods during which the Holder is required to discontinue the disposition of the Registrable Securities hereunder shall be subject to the provisions of Section 2(d).

(d) Amendments and Waivers. The provisions of this Agreement, including the provisions of this sentence, may not be amended, modified or supplemented, and waivers or consents to departures from the provisions hereof may not be given, unless the same shall be in writing and signed by the Company and the Holders of 50.1% or more of the then outstanding Registrable Securities (for purposes of clarification, this includes any Registrable Securities issuable upon exercise or conversion of any Security), provided that, if any amendment, modification or waiver disproportionately and adversely impacts a Holder (or group of Holders), the consent of such disproportionately impacted Holder (or group of Holders) shall be required. If a Registration Statement does not register all of the Registrable Securities pursuant to a waiver or amendment done in compliance with the previous sentence, then the number of Registrable Securities to be registered for each Holder shall be reduced pro rata among all Holders and each Holder shall have the right to designate which of its Registrable Securities shall be omitted from such Registration Statement. Notwithstanding the foregoing, a waiver or consent to depart from the provisions hereof with respect to a matter that relates exclusively to the rights of a Holder or some Holders and that does not directly or indirectly affect the rights of other Holders may be given only by such Holder or Holders of all of the Registrable Securities to which such waiver or consent relates; provided, however, that the provisions of this sentence may not be amended, modified, or supplemented except in accordance with the provisions of the first sentence of this Section 6(d). No consideration shall be offered or paid to any Person to amend or consent to a waiver or modification of any provision of this Agreement unless the same consideration also is offered to all of the parties to this Agreement.

¹Company to confirm.

(e) Notices. Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be delivered as set forth in the Purchase Agreement.

(f) Successors and Assigns. This Agreement shall inure to the benefit of and be binding upon the successors and permitted assigns of each of the parties and shall inure to the benefit of each Holder. The Company may not assign (except by merger) its rights or obligations hereunder without the prior written consent of all of the Holders of the then outstanding Registrable Securities. Each Holder may assign their respective rights hereunder in the manner and to the Persons as permitted under Section 5.7 of the Purchase Agreement.

(g) No Inconsistent Agreements. Neither the Company nor any of its Subsidiaries has entered, as of the date hereof, nor shall the Company or any of its Subsidiaries, on or after the date of this Agreement, enter into any agreement with respect to its securities, that would have the effect of impairing the rights granted to the Holders in this Agreement or otherwise conflicts with the provisions hereof. [Except as set forth on Schedule 6(i)],² neither the Company nor any of its Subsidiaries has previously entered into any agreement granting any registration rights with respect to any of its securities to any Person that have not been satisfied in full.

(h) Execution and Counterparts. This Agreement may be executed in two or more counterparts, all of which when taken together shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to the other party, it being understood that both parties need not sign the same counterpart. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a “.pdf” format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or “.pdf” signature page were an original thereof.

(i) Governing Law. All questions concerning the construction, validity, enforcement and interpretation of this Agreement shall be determined in accordance with the provisions of the Purchase Agreement.

(j) Cumulative Remedies. The remedies provided herein are cumulative and not exclusive of any other remedies provided by law.

(k) Severability. If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction to be invalid, illegal, void or unenforceable, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their commercially reasonable efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

(l) Headings. The headings in this Agreement are for convenience only, do not constitute a part of the Agreement and shall not be deemed to limit or affect any of the provisions hereof.

²Company to confirm.

(m) Independent Nature of Holders' Obligations and Rights. The obligations of each Holder hereunder are several and not joint with the obligations of any other Holder hereunder, and no Holder shall be responsible in any way for the performance of the obligations of any other Holder hereunder. Nothing contained herein or in any other agreement or document delivered at any closing, and no action taken by any Holder pursuant hereto or thereto, shall be deemed to constitute the Holders as a partnership, an association, a joint venture or any other kind of group or entity, or create a presumption that the Holders are in any way acting in concert or as a group or entity with respect to such obligations or the transactions contemplated by this Agreement or any other matters, and the Company acknowledges that the Holders are not acting in concert or as a group, and the Company shall not assert any such claim, with respect to such obligations or transactions. Each Holder shall be entitled to protect and enforce its rights, including without limitation the rights arising out of this Agreement, and it shall not be necessary for any other Holder to be joined as an additional party in any proceeding for such purpose. The use of a single agreement with respect to the obligations of the Company contained was solely in the control of the Company, not the action or decision of any Holder, and was done solely for the convenience of the Company and not because it was required or requested to do so by any Holder. It is expressly understood and agreed that each provision contained in this Agreement is between the Company and a Holder, solely, and not between the Company and the Holders collectively and not between and among Holders.

(Signature Pages Follow)

IN WITNESS WHEREOF, the parties have executed this Registration Rights Agreement as of the date first written above.

ASP ISOTOPES INC.

By: _____
Name:
Title:

[SIGNATURE PAGE OF HOLDERS FOLLOWS]

[SIGNATURE PAGE OF HOLDERS TO ASPI RRA]

Name of Holder: _____

Signature of Authorized Signatory of Holder: _____

Name of Authorized Signatory: _____

Title of Authorized Signatory: _____

[SIGNATURE PAGES CONTINUE]

Plan of Distribution

Each Selling Stockholder (the "Selling Stockholders") of the securities and any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their securities covered hereby on the principal Trading Market or any other stock exchange, market or trading facility on which the securities are traded or in private transactions. These sales may be at fixed or negotiated prices. A Selling Stockholder may use any one or more of the following methods when selling securities:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- settlement of short sales;
- in transactions through broker-dealers that agree with the Selling Stockholders to sell a specified number of such securities at a stipulated price per security;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

The Selling Stockholders may also sell securities under Rule 144 or any other exemption from registration under the Securities Act of 1933, as amended (the "Securities Act"), if available, rather than under this prospectus.

Broker-dealers engaged by the Selling Stockholders may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the Selling Stockholders (or, if any broker-dealer acts as agent for the purchaser of securities, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this Prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2121; and in the case of a principal transaction a markup or markdown in compliance with FINRA Rule 2121.

In connection with the sale of the securities or interests therein, the Selling Stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the securities in the course of hedging the positions they assume. The Selling Stockholders may also sell securities short and deliver these securities to close out their short positions, or loan or pledge the securities to broker-dealers that in turn may sell these securities. The Selling Stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or create one or more derivative securities which require the delivery to such broker-dealer or other financial institution of securities offered by this prospectus, which securities such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The Selling Stockholders and any broker-dealers or agents that are involved in selling the securities may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the securities purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Each Selling Stockholder has informed the Company that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the securities.

The Company is required to pay certain fees and expenses incurred by the Company incident to the registration of the securities. The Company has agreed to indemnify the Selling Stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

We agreed to keep this prospectus effective until the earlier of (i) the date on which the securities may be resold by the Selling Stockholders without registration and without regard to any volume or manner-of-sale limitations by reason of Rule 144, without the requirement for the Company to be in compliance with the current public information under Rule 144 under the Securities Act or any other rule of similar effect or (ii) all of the securities have been sold pursuant to this prospectus or Rule 144 under the Securities Act or any other rule of similar effect. The resale securities will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, the resale securities covered hereby may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the resale securities may not simultaneously engage in market making activities with respect to the common stock for the applicable restricted period, as defined in Regulation M, prior to the commencement of the distribution. In addition, the Selling Stockholders will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of the common stock by the Selling Stockholders or any other person. We will make copies of this prospectus available to the Selling Stockholders and have informed them of the need to deliver a copy of this prospectus to each purchaser at or prior to the time of the sale (including by compliance with Rule 172 under the Securities Act).

Annex B

SELLING SHAREHOLDERS

The common stock being offered by the selling shareholders are those previously issued to the selling shareholders, and those issuable to the selling shareholders, upon exercise of the warrants. For additional information regarding the issuances of those shares of common stock and warrants, see “Private Placement of Shares of Common Stock and Warrants” above. We are registering the shares of common stock in order to permit the selling shareholders to offer the shares for resale from time to time. Except for the ownership of the shares of common stock and the warrants, the selling shareholders have not had any material relationship with us within the past three years.

The table below lists the selling shareholders and other information regarding the beneficial ownership of the shares of common stock by each of the selling shareholders. The second column lists the number of shares of common stock beneficially owned by each selling shareholder, based on its ownership of the shares of common stock and warrants, as of _____, 2023, assuming exercise of the warrants held by the selling shareholders on that date, without regard to any limitations on exercises.

The third column lists the shares of common stock being offered by this prospectus by the selling shareholders.

In accordance with the terms of a registration rights agreement with the selling shareholders, this prospectus generally covers the resale of the sum of (i) the number of shares of common stock issued to the selling shareholders in the “Private Placement of Shares of Common Stock and Warrants” described above and (ii) the maximum number of shares of common stock issuable upon exercise of the related warrants, determined as if the outstanding warrants were exercised in full as of the trading day immediately preceding the date this registration statement was initially filed with the SEC, each as of the trading day immediately preceding the applicable date of determination and all subject to adjustment as provided in the registration right agreement, without regard to any limitations on the exercise of the warrants. The fourth column assumes the sale of all of the shares offered by the selling shareholders pursuant to this prospectus.

Under the terms of the warrants, a selling shareholder may not exercise the warrants to the extent such exercise would cause such selling shareholder, together with its affiliates and attribution parties, to beneficially own a number of shares of common stock which would exceed 4.99% or 9.99%, as applicable, of our then outstanding common stock following such exercise, excluding for purposes of such determination shares of common stock issuable upon exercise of such warrants which have not been exercised. The number of shares in the second and fourth columns do not reflect this limitation. The selling shareholders may sell all, some or none of their shares in this offering. See “Plan of Distribution.”

Name of Selling Shareholder	Number of shares of Common Stock Owned Prior to Offering	Maximum Number of shares of Common Stock to be Sold Pursuant to this Prospectus	Number of shares of Common Stock Owned After Offering

ASP ISOTOPES INC.

Selling Stockholder Notice and Questionnaire

The undersigned beneficial owner of common stock (the "Registrable Securities") of ASP Isotopes Inc., a Delaware corporation (the "Company"), understands that the Company has filed or intends to file with the Securities and Exchange Commission (the "Commission") a registration statement (the "Registration Statement") for the registration and resale under Rule 415 of the Securities Act of 1933, as amended (the "Securities Act"), of the Registrable Securities, in accordance with the terms of the Registration Rights Agreement (the "Registration Rights Agreement") to which this document is annexed. A copy of the Registration Rights Agreement is available from the Company upon request at the address set forth below. All capitalized terms not otherwise defined herein shall have the meanings ascribed thereto in the Registration Rights Agreement.

Certain legal consequences arise from being named as a selling stockholder in the Registration Statement and the related prospectus. Accordingly, holders and beneficial owners of Registrable Securities are advised to consult their own securities law counsel regarding the consequences of being named or not being named as a selling stockholder in the Registration Statement and the related prospectus.

NOTICE

The undersigned beneficial owner (the "Selling Stockholder") of Registrable Securities hereby elects to include the Registrable Securities owned by it in the Registration Statement.

The undersigned hereby provides the following information to the Company and warrants that such information is accurate:

QUESTIONNAIRE

1. Name.

- (a) Full Legal Name of Selling Stockholder
- (b) Full Legal Name of Registered Holder (if not the same as (a) above) through which Registrable Securities are held:
- (c) Full Legal Name of Natural Control Person (which means a natural person who directly or indirectly alone or with others has power to vote or dispose of the securities covered by this Questionnaire):

2. Address for Notices to Selling Stockholder:

Telephone: _____

Fax: _____

Contact Person: _____

3. Broker-Dealer Status:

(a) Are you a broker-dealer?

Yes No

(b) If “yes” to Section 3(a), did you receive your Registrable Securities as compensation for investment banking services to the Company?

Yes No

Note: If “no” to Section 3(b), the Commission’s staff has indicated that you should be identified as an underwriter in the Registration Statement.

(c) Are you an affiliate of a broker-dealer?

Yes No

(d) If you are an affiliate of a broker-dealer, do you certify that you purchased the Registrable Securities in the ordinary course of business, and at the time of the purchase of the Registrable Securities to be resold, you had no agreements or understandings, directly or indirectly, with any person to distribute the Registrable Securities?

Yes No

Note: If “no” to Section 3(d), the Commission’s staff has indicated that you should be identified as an underwriter in the Registration Statement.

4. Beneficial Ownership of Securities of the Company Owned by the Selling Stockholder.

Except as set forth below in this Item 4, the undersigned is not the beneficial or registered owner of any securities of the Company other than the securities issuable pursuant to the Purchase Agreement.

(a) Type and Amount of other securities beneficially owned by the Selling Stockholder:

5. Relationships with the Company:

Except as set forth below, neither the undersigned nor any of its affiliates, officers, directors or principal equity holders (owners of 5% or more of the equity securities of the undersigned) has held any position or office or has had any other material relationship with the Company (or its predecessors or affiliates) during the past three years.

State any exceptions here:

The undersigned agrees to promptly notify the Company of any material inaccuracies or changes in the information provided herein that may occur subsequent to the date hereof at any time while the Registration Statement remains effective; provided, that the undersigned shall not be required to notify the Company of any changes to the number of securities held or owned by the undersigned or its affiliates.

By signing below, the undersigned consents to the disclosure of the information contained herein in its answers to Items 1 through 5 and the inclusion of such information in the Registration Statement and the related prospectus and any amendments or supplements thereto. The undersigned understands that such information will be relied upon by the Company in connection with the preparation or amendment of the Registration Statement and the related prospectus and any amendments or supplements thereto.

IN WITNESS WHEREOF the undersigned, by authority duly given, has caused this Notice and Questionnaire to be executed and delivered either in person or by its duly authorized agent.

Date:

Beneficial Owner:

By: _____

Name:

Title:

PLEASE FAX A COPY (OR EMAIL A .PDF COPY) OF THE COMPLETED AND EXECUTED NOTICE AND QUESTIONNAIRE TO:

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (hereinafter referred to as "MOU") is entered into as of September 19, 2022, between: ASP Isotopes Inc., with office at 433 Plaza Real, Suite 275, Boca Raton, FL 33432 ("ASP Isotopes" or "ASPI") and [REDACTED] with office at [REDACTED], each of whom may be referred to from time to time herein as a "Party", and collectively as the "Parties," agree as follows:

1. Purpose

The purpose of this MOU is to set forth the Parties' general understandings regarding the principal terms for the Parties' cooperation in the development, implementation and operation of a technical solution for the isotopic enrichment of carbon-14 isotope, including but not limited to the isotopic enrichment of molecules containing carbon-14 isotope to [REDACTED] concentration of carbon-14 isotope, as it may be further amended hereunder, using ASPI's existing proprietary enrichment technologies (the "Purpose"). In consideration of the time and expense devoted and to be devoted by the Parties with respect to the MOU and the Purpose, the Binding Provisions (as defined in Section 13 below) shall be binding obligations of the Parties. No other legally binding obligations will be created until definitive agreements are executed and delivered by all parties thereto.

The Parties will enter into at least a Supply Agreement ("SA"). The Parties may also enter into an exclusivity agreement which they will discuss in due course. It is anticipated that any exclusivity agreement would only last for the duration of the SA. It is also anticipated that any exclusivity agreement would be terminated if either party commits a major breach of the SA.

2. Supply Agreement

[REDACTED] and ASPI will enter into a supply agreement whereby ASPI agrees to supply [REDACTED] with enrichment services for C-14. Initially C-14 will be enriched in the Supplier's enrichment facility currently located in Pretoria, South Africa. In the future, as growing C-14 demand dictates, additional enrichment facilities will be constructed at the Customer's discretion, per the terms detailed below. For clarity, all prices and costs quoted in this MOU are in US dollars.

3. Initial Supply Agreement

Initially, C-14 enrichment will be conducted in an existing plant (to be re-purposed for C-14 isotope enrichment) in Pretoria, South Africa which is owned and operated by ASP Isotopes (South Africa) Ltd. [REDACTED] will supply from [REDACTED] low concentration (~0.5%) carbon-14 isotope methane and will ship that methane to ASPI operation site in South Africa. ASPI will use its enrichment facility to enrich methane containing low concentration carbon-14 isotope into methane containing high concentration carbon-14 isotope to 85% concentration of carbon-14 isotope. ASPI will ship the methane high concentration carbon-14 isotope to [REDACTED] in [REDACTED]. Technical details on purity of raw materials and enriched product will be properly defined in the definitive SA.

In the event that [REDACTED] provides ASPI with low concentration carbon-14 isotope methane that falls outside of the agreed upon specifications, an off-spec surcharge may be applied, which will be agreed upon by the Parties prior to any enrichment taking place. For continuous uninterrupted enrichment operations, ASPI would like to maintain 3-6 months of raw materials as inventory at the Pretoria site.

The SA will state the timing and quantity of enriched Carbon-14 that will be supplied by the Supplier to the Customer. It is envisaged that product will be supplied to the Customer quarterly and the Customer will have a minimum volume and \$ value purchase obligation for each quarter (which amount will be discussed and agreed by the parties).

It is envisaged that the SA will last [REDACTED] (the "Term") and can be extended for an additional three terms, five year each. An extension must be mutually agreed upon by the parties at least 24 months prior to the conclusion of a given five year Term.

Isotope Processing Fee (IPF) for C-14 will be initially [REDACTED] per gram (excluding taxes and duties) of enriched Carbon-14 supplied to [REDACTED]. The IPF price will increase annually in line with [REDACTED] of inflation (S. African consumer price index), to account for increase of production costs.

ASPI expects to receive a security deposit or guarantee from [REDACTED] to secure its purchase obligations. The amount of the security deposit or guarantee will depend upon the size of the minimum volume and \$ value of the purchase obligation for each quarter and the payment terms which will be defined in the SA.

[REDACTED] or one of its majority owned subsidiaries will pay for the round-trip shipping of carbon-14 material from [REDACTED] to South Africa and from South Africa to [REDACTED]. The mode of shipment will be mutually agreed to, considering the cost, health, safety, security, timeliness and value of the shipments.

The parties will define and agree on "force-majeure" terms for all three main steps (raw materials supply, enrichment and off-take) and transportation steps in between, and ensure that sufficient inventory of raw materials and products allow for uninterrupted supply to the Customer and its final end-users.

Payment for enriched products will be discussed and agreed upon by the Parties.

4. Additional Supply Agreements

When the Parties agree that the Supplier's enrichment facility in Pretoria is close to operating at full capacity the Supplier, Supplier will provide an advance notice of [REDACTED] months to [REDACTED] in order for the parties to discuss options and conduct commercial discussions to secure additional supply of carbon-14 enrichment.

5. Confidentiality

The Confidentiality Agreement entered into by the Parties dated June 22nd, 2022, shall apply to any exchange of Confidential Information (as defined in such confidentiality agreement) under this MOU and/or in relation to the Purpose.

6. IP Rights

No intellectual property of either Party is or shall be licensed under this MOU, and each Party shall retain full rights in any intellectual property developed prior to or outside of this MOU. As between the Parties, inventions shall be the property of the Party making such inventions

7. Limitation of Liability

Notwithstanding any other provision to the contrary in this MOU, each Party agrees that no Party shall be liable hereunder for any failure to enter into a Definitive Contract, achieve the Purpose, or win a contract for a Project.

This paragraph 7 shall survive the termination of this MOU.

8. Notices

All notices and other communications required or permitted hereunder shall be in writing. Such notices shall be sent to the following addresses, or at such addresses as either Party shall hereafter specify in writing:

ASP Isotopes Inc.
Attn: CEO
433 Plaza Real, Suite 275, Boca Raton, FL 33432
Email: [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

9. Term

This MOU is effective for 3 years from effective date, unless prior thereto either:

- (A) The Parties enter into a Definitive Agreement superseding this MOU;
- (B) The Parties mutually consent to terminate this MOU;
- (C) Either Party gives written notice to the other that there is a major or extraordinary issue outstanding between the Parties, which is not resolved within thirty (30) days of such notice.

10. Governing Law; Dispute Resolution

This MOU, the definitive transactions agreements and any dispute or claim arising out of or in connection with any of them or their subject matter or formation shall be governed by and construed in accordance with the law of New York. All disputes arising out of or in connection with this MOU and the definitive transactions agreements shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce by a sole arbitrator appointed in accordance with the said Rules. The location for the arbitration will be specified in the definitive transactions agreements.

11. Compliance with Laws

Each Party shall comply with all laws and regulations applicable to its performance under this MOU, particularly including but not limited to all applicable laws dealing with improper or illegal payments, gifts or gratuities; and each Party agrees not to pay, promise to pay or authorize the payment of any money or anything of value, directly or indirectly, to any Customers or person (whether a governmental official or private individual) for the purpose of illegally or improperly inducing any such Customers or person to make a buying decision.

12. Documentation and Expenses

ASPI counsel will prepare drafts of the EA and SA and other related documents. This MOU does not reflect any form of legally binding commitment or obligation on the part of either Party or its affiliates, except with regard to Section 5 (Confidentiality), Section 9 (Term), Section 10 (Governing Law; Dispute Resolution), Section 12 (Documentation and Expenses) and Section 13 (Complete Understanding; Amendments; Severability; Other Business) hereof (collectively, the "**Binding Provisions**"). No contract or agreement providing for any transaction involving any assets or otherwise with respect to the Purpose, joint venture, partnership, or fiduciary relationship shall be deemed to exist between the Parties or any of their affiliates unless and until final definitive agreements with respect to the Purpose have been

executed and delivered and only thereafter as and to the extent specified therein. The Parties hereby acknowledge and agree that (a) the terms in this MOU do not contain all material terms to be negotiated as part of the definitive agreements or otherwise with respect to the proposed transactions between the Parties; (b) no oral agreement, public or private statements, course of conduct, or dealings between the Parties and/or their affiliates may be introduced as evidence that there exists a joint venture or partnership or any binding contract or commitment between the Parties with respect to any of the transactions contemplated hereby (other than the Binding Provisions); and (c) neither Party shall be justified in relying on any provision of this MOU (other than the Binding Provisions, subject to Section 9 (Term)), in connection with the transactions hereby.

13. Complete Understanding; Amendments; Severability; Other Business

This MOU expresses the complete and entire understanding between the Parties. No amendments, changes or modifications to this MOU shall be valid unless same are in writing and signed by a duly authorized representative of each of the Parties hereto. Neither Party shall assign any right, interest, benefit or obligation of this MOU without the express written consent of the other Party.

In the event that any one or more of the provisions of this MOU shall be found to be illegal or unenforceable, the remaining provisions of this MOU shall remain in full force and effect, and such term or provision shall be deemed stricken to the extent and in the jurisdictions necessary for compliance with applicable law.

The scope of this MOU is confined solely to the Purpose and the activities contemplated in this MOU. Nothing in this MOU precludes or limits either Party in the conduct of their respective businesses or activities, in soliciting or entering into contracts with third parties for any project or, for any work scope.

IN WITNESS THEREOF, the Parties have executed this MOU. The effective date of this MOU is the date of the last signature.

ASP Isotopes Inc.

[Redacted Signature]

By: PAUL MANN

Title: CEO

Date: September 25, 2022

[Redacted Signature]

[Redacted Signature]

By: _____

Title: _____

Date: _____



Ref No: BRICEM/KLYDON/08/2021

Contract for the Purchase [REDACTED] of Enriched Mo-100**Introduction**

Whereas;

Beijing BRICEM Science and Technology Co. Ltd of the People's Republic of China ("BRICEM") with address - *Jiu Ke Shu No 145, Tong Zhou District, Beijing 101149, China*

And

Klydon (Pty) Ltd of South Africa ("KLYDON") with address -- Building 46, CSIR, Meiring Naude Street, Pretoria, South Africa

Have already agreed to cooperate in the Marketing of Medical Isotopes.

Under this Contractual Agreement, BRICEM to agree to [REDACTED] of Mo-100 enriched [REDACTED] Mo-100 from KLYDON.

The Mo-100 will be used in the production of Technetium-99m (Tc-99m), a medical isotope used in SPECT Scans and of which there is a global shortage due to the Canadian Nuclear Reactor being shut down by the Canadian government in 2017.

A Cyclotron can produce either:

- (i) Tc-99m directly from Mo-100 and this method is used where the clinic or hospital is within 4 hours delivery time of the Cyclotron Site (Tc-99m has a half-life of 6.6 hours). It requires only a small Cyclotron of 16-18 MeV.
- or
- (ii) Mo-99 from a 70 MeV Cyclotron which is supplied with Mo-100. This method can be used where the clinic or hospital is within about 50 hours delivery time of the Cyclotron because Mo-99 has a half-life of 66 hours, and decays to Tc-99m.

KLYDON owns the advanced technology (Aerodynamic Separation Process "ASP") and the intellectual property, for the production of stable, enriched isotopes and [REDACTED] production plant in South Africa, whilst operating within IAEA guidelines.

Intent

BRICEM and KLYDON ("the Parties") intend to act together on a mutually exclusive basis, and agree as follows:

KLYDON will Supply enriched Mo-100 to BRICEM for distribution in China, Asia and North America.

BRICEM will purchase [REDACTED] of enriched Molybdenum-100 (Mo-100) per annum from KLYDON.

Responsibilities of each Party

BRICEM and Klydon ("the Parties") intend to act together on a mutually exclusive basis, and agree as follows:

- (a) BRICEM
To purchase [REDACTED] of enriched Molybdenum-100 (Mo-100) per annum from KLYDON.
- (b) KLYDON



[REDACTED]

KLYDON will Supply enriched [REDACTED] to BRICEM of the specification detailed below (see Paragraph 6).

Quality and Price

- (a) The Isotope Production Plant in South Africa will have [REDACTED]. The product will be enriched in the Mo-100 [REDACTED].
- (b) The quality of the Mo-100 supplied by KLYDON to BRICEM will meet international quality standards including those of the Federal Drug Agency of the USA for medical isotopes.
- (c) The price of the Mo-100 [REDACTED] sold to Bricem will be [REDACTED].
A CIF Beijing price [REDACTED].
- (d) Delivery of isotopes to BRICEM's offices will be made by international courier (DHL or FEDEX) and at the rate of [REDACTED].
- (e) Production [REDACTED].

Confidentiality

The Parties undertake to keep all information and/or documentation exchanged in respect of their business or activities or any possible projects confidential.

Duration of this Agreement

The agreement will have a duration [REDACTED].

Legal Document

This Contract will form a legal agreement between BRICEM and KLYDON in accordance with the Laws of China.

Coming into Force

This Agreement comes into force on the date of the last signature of this Agreement.

Arbitration

[REDACTED]

科技有限责任公司
ICEM SCIE
JGY COMPANY

Force Majeure

- (a) Should either party be prevented from execution the present contract due to the case of Force Majeure such as war, serious fire, flood, typhoon, earthquake, strikes and other cases which will be recognised according to international practice as being assessed as Force Majeure. The time for implementing the resent contract shall be extended by a period equivalent to the effect of the occurrences.

[REDACTED]

- (b) The prevented party shall inform the other party as soon as possible by e-mail and air-mail by registered letter, with a certificate issued by competent authorities concerned within 14 (fourteen) days of the occurrence of Force Majeure for examination and confirmation of the other party.
- (c) The prevented party shall inform the other party as soon as possible by e-mail of the termination or elimination of the case of Force Majeure and confirm with a registered air-mail letter.

Amendments, Communication & Assignment

- (a) All amendments, supplements and alterations to the terms and conditions of this Contract, shall be made in written form, signed by the authorised representatives of each party upon the agreement reached between the Parties through consultation. They shall form integral parts of the present contract and have the same force as the Contract itself.
- (b) All communications between the Parties in the course of implementation of the present Contract shall be made in English. Important matters shall be made in writing form in two copies and sent by registered mail and e-mail to the Administration Addresses of the Parties details in the Introduction to this agreement.
- (c) No party shall make and assignments, accession or transfer of any right or obligation arising under the present contract to a third party without the previous consent of the other party.

Compliance

Each Party will comply with all laws and treaties that apply to its activities in connection with the developments of projects.

Recordal & Signature

This Contract is signed in the spirit of cooperation and cordial friendship between BRICEM and KLYDON.

On behalf of BRICEM Ltd



Date: 2021. 8. 12

On behalf of KLYDON (Pty) Ltd



Date: 2021/08/12

(Hendrik Strydom) Chief Executive Director

Was

17th November 2022**Beijing BRICEM Science and Technology Co. Ltd**

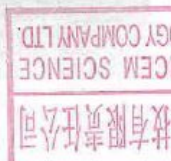
Attn: Dr Mr Miao,
Jiu Ke Shu No 145,
Tong Zhou District,
Beijing 101145, China

Klydon (Pty) Ltd

Attn: Dr Hendrik Strydom,
46 Meiring Naude Street,
Pretoria, South Africa

Amendment Agreement

1. This Amendment Agreement ('Agreement') relates to the 'Contract for the Purchase of [REDACTED] of Enriched Mo-100' entered into by and between Beijing BRICEM Science and Technology Co. Ltd ('BRICEM') and Klydon (Pty) Ltd ('KLYDON') (together the 'Parties') on 12th August 2021 (the 'Purchase Agreement').
2. KLYDON has entered into a contract with ASP Isotopes South Africa (Proprietary) Limited ('ASPI South Africa') under which KLYDON has agreed to supply to ASPI South Africa a Molybdenum-100 enrichment facility with [REDACTED] and above enriched Molybdenum isotope. The Parties desire to: assign to ASP Isotopes Guernsey Limited, registration number 69114 in the Guernsey Registry ('ASPI Guernsey'), the sole shareholder of ASPI South Africa, all of KLYDON's rights under the Purchase Agreement; and amend the Purchase Agreement on the terms set forth herein.
3. KLYDON hereby assigns to ASPI Guernsey, and ASPI Guernsey hereby accepts, all of KLYDON's rights under the Purchase Agreement (including the right to supply to BRICEM [REDACTED] Mo-100 of the specification detailed in the Purchase Agreement).
4. The Parties and ASPI Guernsey agree that paragraph (e) of the 'Quality and Price' section of the Purchase Agreement is hereby amended to read as follows: [REDACTED]
5. The Parties and ASPI Guernsey agree that the clause relating to geographical exclusivity in the 'Intent' section of the Purchase Agreement is hereby amended to read as follows: 'KLYDON (or its assignee) will supply enriched Mo-100 to BRICEM in China. Exclusivity of supply in any jurisdiction other than China may be agreed by mutual written consent.'
6. The Parties agree to the assignment of rights and the amendments, supplements and alterations herein in accordance with article (c) of the 'Amendments, Communication & Assignment' section of the Purchase Agreement.
7. All other terms and definitions in the Purchase Agreement remain unchanged.



Signature Page Follows.

Victoria Cottage, Brock Road, St Peter Port, Guernsey, GY1 1RB

Signed by Beijing BRICEM Science and Technology Co. Ltd:



Signature

[Redacted Signature]

Name (block capitals)

柳木

Date

2022. 11. 22

Signed by Klydon (Pty) Ltd:

Signature

[Redacted Signature]

Name (block capitals)

HENDRIK STRYDOM

Date

NOV, 18, 2022

Signed by ASP Isotopes Guernsey Limited:

Signature

[Redacted Signature]

Name (block capitals)

PAUL MANN

Date

Nov 18, 2022



SETTLEMENT AND RELEASE AGREEMENT

This Settlement and Mutual Release Agreement (this "**Agreement**") dated and effective March 20, 2023 (except as otherwise expressly provided below) (the "**Effective Date**"), is by and between ASP Isotopes Inc., a Delaware corporation ("**ASPI**"), and Revere Securities LLC, a Delaware limited liability company ("**Revere**"), each a "**Party**" and collectively the "**Parties**."

WITNESSETH:

WHEREAS, Revere entered into an Underwriting Agreement dated November 9, 2022 with the Company, attached hereto as Exhibit A (the "**Underwriting Agreement**");

WHEREAS, pursuant to the Underwriting Agreement, Revere agreed to act as the underwriter for ASPI, in accordance with ASPI's prospectus, and ASPI agreed to pay Revere certain fees and other considerations ("**Compensation**").

WHEREAS, ASPI desires to satisfy amounts owed and settle all claims which have been made or could have been made with respect to the foregoing Underwriting Agreement to Revere through a share payment of 100,000 shares of ASPI's common stock, \$0.01 par value to Revere, and Revere desires to accept payment in shares of ASPI common stock, to settle all amounts due and all claims which have been made or could have been made under the terms of the Underwriting Agreement, to agree to the termination of the Underwriting Agreement, and to provide for the Release set forth below.

NOW THEREFORE, on the stated premises and for and in consideration of the mutual covenants and agreements hereinafter set forth and the mutual benefits to the Parties to be derived here from, the receipt, adequacy and sufficiency of which is hereby acknowledged and confessed, it is hereby agreed as set forth below.

CERTAIN CAPITALIZED TERMS USED BELOW ARE DEFINED IN SECTION 6 BELOW.

1. Termination of Underwriting Agreement and Payment of Settlement Shares.

1.1 In full and complete consideration for all amounts owed by ASPI to Revere under the Underwriting Agreement, in connection with the Compensation, or otherwise, ASPI agrees, within three (3) business days from the Effective Date, to issue to Revere 100,000 shares of ASPI common stock (the "**Settlement Shares**," and the date by which such Settlement Shares are issued by ASPI, the "**Payment Date**") together with a direct payment of Fifty Thousand U.S. Dollars (\$50,000.00) to the law firm of Carmel, Milazzo & Feil LLP payable within one (1) business day from the Effective Date (the "**Attorney Fee**" and the date by which such Attorney Fee is paid, the "**Fee Date**"). Except as set forth herein, the issuance of the Settlement Shares and payment of the Attorney Fee shall terminate any and all obligations of ASPI under the Underwriting Agreement to Revere and shall further satisfy in full any and all amounts owed by ASPI to Revere and all liabilities and obligations owed by ASPI to Revere under the Underwriting Agreement, which Underwriting Agreement shall be considered terminated as of such Payment Date (without any termination or other payments due in connection therewith).

2. Release.

2.1 Effective as of the Payment Date, and except for Claims (defined herein) relating to the failure of any non-Releasing Party (defined herein) to comply with the terms of this Agreement or as otherwise set forth herein, in consideration of the Parties agreeing to enter into and to be bound by the terms and conditions of this Agreement, for delivery of the Settlement Shares and Attorney Fee, together with other good and valuable consideration, the receipt, adequacy and sufficiency of which are hereby acknowledged by the Parties, (i) ASPI and (ii) Revere (each for the purposes of this Section 2.1, a "**Releasing Party**" and collectively the "**Releasing Parties**"), on behalf of each of such Releasing Party's and their Affiliates, officers, directors, employees, investors, shareholders, members, managers, administrators, predecessor and successor corporations, attorneys, affiliates, agents, and assigns, hereby release, acquit and forever discharge each other, and their current, past and future Affiliates, officers, directors,

employees, investors, shareholders, members, managers, administrators, predecessor and successor entities, attorneys, affiliates, agents, and assigns (each as applicable, the "Released Parties") from all actions, causes of action, suits, debts, dues, sums of money, Losses, obligations, duties, accounts, reckonings, covenants, controversies, agreements, promises, variances, trespasses, damages, judgments, claims and demands, whether asserted or unasserted, whether known or unknown, suspected or unsuspected, which they ever had or now have, upon or by reason of any manner, cause, causes or thing whatsoever, arising from the beginning of time to the date of this Agreement, in law or equity and all rights, obligations, claims, demands, whether in contract, tort, or state and/or federal law (each a "Claim") arising from or relating to, or associated with Section 5(a)(xviii) of the Underwriting Agreement only (the "Tail Financing Provision").

2.2 The Releasing Parties acknowledge that there is a risk that, after execution of this Agreement, they may discover, incur or suffer claims that were unknown or unanticipated at the time of this Agreement, including, but not limited to, unknown or unanticipated claims that arise from, are based upon, or are related to, any facts underlying the Release set forth above in Section 2.1 relating solely to the Tail Financing Provision (collectively the "Released Claims"), which had they been known or more fully understood, may have affected the Releasing Parties' decisions to execute the Agreement as it currently is written. Each Releasing Party knowingly and expressly assumes the risk of these unknown and unanticipated claims relating solely to the Tail Financing Provision and agrees that this Agreement and the specific releases set forth within it apply to all such unknown, unanticipated or potential claims, except as set forth above in the definition of Release. Furthermore, it is the intention of the Releasing Parties, by entering into this Agreement, to settle and release fully, finally and forever all Released Claims and any and all claims that now exist, or may have at any time existed or shall come to exist in connection with the Released Claims, except as set forth above in the definition of Release.

2.3 The Releasing Parties are not aware of any claims not being released herein against them, except as set forth above in the definition of Release.

3. Covenant Not to Sue.

3.1 Subject to the excepted matters set forth herein (including, but not limited to, the Confidentiality Requirements and Indemnity Claims), the Releasing Parties agree that they will forever refrain and forbear from commencing, instituting or prosecuting any lawsuit, action or other proceeding, in law, equity or otherwise, against the Released Parties, in any way arising out of or relating to the Released Claims.

3.2 The Releasing Parties each acknowledge and agree that monetary damages alone are inadequate to compensate the other Party (or their assigns) for injury caused or threatened by a breach of this "Covenant Not to Sue" and that preliminary and permanent injunctive relief restraining and prohibiting the prosecution of any action or proceeding brought or instituted in violation of this Covenant Not to Sue is a necessary and appropriate remedy in the event of such a breach. Nothing contained in this Section, however, shall be interpreted or construed to prohibit or in any way to limit the right of a non-breaching Released Party or of any of its assigns to obtain, in addition to injunctive relief, an award of monetary damages against any person or entity breaching this Covenant Not to Sue and Agreement.

3.3 Notwithstanding the foregoing, any Indemnity Claims and any action or proceeding brought for breach of or to interpret or enforce the terms of this Agreement are excepted from each of the Covenants Not to Sue set forth above.

3.4 The Releasing Parties understand, acknowledge and agree that the releases set forth above may be pleaded as a full and complete defense and may be used as a basis for an injunction against any action, claim, suit or other proceeding which may be instituted, prosecuted or attempted in breach of the provisions of such releases. Similarly, the Releasing Parties agree that no fact, event, circumstance, evidence or transaction which could now be asserted or which may hereafter be discovered relating to the subject matter discussed above, shall affect in any manner the final, absolute and unconditional nature of the release set forth above.

4. Mutual Representations, Covenants and Warranties.

4.1 Each of the Parties, for themselves and for the benefit of each of the other Parties hereto, represents, covenants and warranties that:

4.1.1 Such Party has all requisite power and authority, corporate or otherwise, to execute and deliver this Agreement and to consummate the transactions contemplated hereby and thereby. This Agreement constitutes the legal, valid and binding obligation of such Party enforceable against such Party in accordance with its terms, except as such enforcement may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting creditors' rights generally and general equitable principles;

4.1.2 The execution and delivery by such Party and the consummation of the transactions contemplated hereby and thereby do not and shall not, by the lapse of time, the giving of notice or otherwise: (i) constitute a violation of any law; or (ii) constitute a breach of any provision contained in, or a default under, any of such Party's Governing Documents, or any governmental approval, any writ, injunction, order, judgment or decree of any governmental authority or any contract to which such Party is bound or affected; and

4.1.3 Any individual executing this Agreement on behalf of an entity has authority to act on behalf of such entity and has been duly and properly authorized to sign this Agreement on behalf of such entity.

5. **Representations of Revere**. Revere acknowledges, represents and warranties to ASPI that:

5.1 it is acquiring the Settlement Shares, for its own account, for investment purposes only and not with a view to, or for sale in connection with, a distribution, as that term is used in Section 2(11) of the Securities Act of 1933, as amended (the "**Securities Act**"), in a manner which would require registration under the Securities Act or any state securities laws. Revere can bear the economic risk of investment in the Settlement Shares, has knowledge and experience in financial business matters, is capable of bearing and managing the risk of investment in the Settlement Shares and is an "**accredited investor**" as defined in Regulation D under the Securities Act. Revere recognizes that the Settlement Shares have not been registered under the Securities Act, nor under the securities laws of any state and, therefore, cannot be resold unless the resale of the Settlement Shares is registered under the Securities Act or unless an exemption from registration is available—provided further that, other than as provided below, ASPI is under no obligation to register the resale of such Settlement Shares. Revere has carefully considered and has, to the extent it believes such discussion necessary, discussed with its respective professional, legal, tax and financial advisors, the suitability of an investment in the Settlement Shares for its particular tax and financial situation. Revere has not been offered the Settlement Shares by any form of general solicitation or advertising, including, but not limited to, advertisements, articles, notices or other communications published in any newspaper, magazine, or other similar media or television or radio broadcast. Revere has had an opportunity to ask questions of and receive satisfactory answers from ASPI, or persons acting on behalf of ASPI, concerning the Settlement Shares and ASPI, and all such questions have been answered to the full satisfaction of Revere. Revere is relying on its own investigation and evaluation of ASPI and the Settlement Shares and not on any other information; and

5.2 Revere understands and agrees that a legend has been or will be placed on any certificate(s) or other document(s) evidencing the Settlement Shares in substantially the following form:

“THE SECURITIES REPRESENTED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED OR ANY STATE SECURITIES ACT. THE SECURITIES HAVE BEEN ACQUIRED FOR INVESTMENT AND MAY NOT BE SOLD, TRANSFERRED, PLEDGED OR HYPOTHECATED UNLESS (I) THEY SHALL HAVE BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED AND ANY APPLICABLE STATE SECURITIES ACT, OR (II) THE CORPORATION SHALL HAVE BEEN FURNISHED WITH AN OPINION OF COUNSEL, SATISFACTORY TO COUNSEL FOR THE CORPORATION, THAT REGISTRATION IS NOT REQUIRED UNDER ANY SUCH ACTS.”

6. **Definitions.** In addition to other terms defined throughout this Agreement, the following terms have the following meanings when used herein:

6.1 **"Affiliate"** means (x) any Person directly or indirectly controlling, controlled by or under common control with another Person, (y) any manager, director, officer, partner or employee of a Person, or (z) any spouse, spousal equivalent or other cohabitant occupying a relationship generally equivalent to that of a spouse, father, mother, brother, sister or descendant of a Person; a Person shall be deemed to control another Person if such Person possesses, directly or indirectly, the power to direct or cause the direction of the management and policies of such other Person, whether through ownership of voting securities, by contract, or otherwise.

6.2 Intentionally Omitted

6.3 **"Governing Documents"** of an entity shall mean the (i) articles or certificate of incorporation or association, certificate of formation, articles of organization or certificate of limited partnership or similar instrument under which an entity is formed; and (ii) the other documents or agreements, including bylaws, partnership agreements of partnerships, operating agreements of limited liability companies, or similar documents, adopted by the entity to govern the formation and internal affairs of the entity.

6.4 **"Loss"** means all losses, damages, liabilities (including, without limitation, tax liabilities), claims, demands, causes of action, judgments, settlements, fines, penalties, costs and expenses (including, without limitation, court costs and reasonable attorney's and experts' fees) of any and every kind or character, known or unknown, fixed or contingent, lost work hours (at regular billing rates) and other out-of-pocket costs and expenses and lost time.

6.5 **"Person"** means any natural person, corporation, general partnership, limited partnership, limited liability company, limited liability partnership, proprietorship, business or statutory trust, trust, union, association, instrumentality, governmental authority or other entity, enterprise, authority, or unincorporated entity.

7. **No Prior Assignments.** The Parties hereto represent that each has not assigned, in whole or in part, any claim, demand and/or causes of action against any other Party, or their Affiliates, agents, officers, directors, servants, representatives, successors, employees, attorneys, or assigns, to any person or entity prior to such Party's execution of this Agreement.

8. **No Presumption from Drafting.** This Agreement has been negotiated at arm's length between persons knowledgeable in the matters set forth within this Agreement. Accordingly, given that all Parties have had the opportunity to draft, review and/or edit the language of this Agreement, no presumption for or against any Party arising out of drafting all or any part of this Agreement will be applied in any action relating to, connected with or involving this Agreement. In particular, any rule of law, legal decisions, or common law principles of similar effect that would require interpretation of any ambiguities in this Agreement against the Party that has drafted it, is of no application and is hereby expressly waived.

9. **No Admission of Liability.** Each Party acknowledges and agrees that this Agreement is a compromise and neither this Agreement, nor any consideration provided pursuant to this Agreement, shall be taken or construed to be an admission or concession by either Party of any kind with respect to any fact, liability, or fault except as may be expressly set forth herein.

10. **Fees and Expenses.** Each of the Parties shall pay the fees and expenses of its advisers, counsel, accountants and other experts, if any, and all other expenses incurred by such Party incident to the negotiation, preparation, execution, delivery and performance of this Agreement.

11. **Binding Effect.** This Agreement shall not be binding on any Party unless and until it is executed by, and delivered to, all Parties, and upon such execution and delivery, shall be binding on and inure to the benefit of each of the Parties and their respective heirs, successors, assigns, directors, officers, agents, employees and personal representatives.

12. **Choice of Law.** This Agreement shall be governed by and construed according to the laws of the State of Delaware, without giving effect to its choice of law principles. Any actions and proceedings arising out of or relating directly or indirectly to this Agreement or any ancillary agreement or any other related obligations shall be litigated solely and exclusively in the state or federal courts located in Delaware, and those such courts are convenient forums. Each Party hereby submits to the personal jurisdiction of such courts for purposes of any such actions or proceedings.

13. **Further Assurances.** The Parties agree that, from time to time, each of them will take such other action and to execute, acknowledge and deliver such contracts, deeds, or other documents as may be reasonably requested and necessary or appropriate to carry out the purposes and intent of this Agreement and the transactions contemplated herein.

14. **Intentionally Omitted**

15. **Modification.** This Agreement may be modified only by a writing signed by the Party against whom enforcement of the modification is sought.

16. **Entire Agreement.** This Agreement constitutes the entire agreement between the Parties pertaining to the subject matter hereof and supersedes all prior and contemporaneous agreements, understandings, negotiations and discussions, whether oral or written, of the Parties in connection with the subject matter hereof.

17. **Severability.** Every provision of this Agreement is intended to be severable. If, in any jurisdiction, any term or provision hereof is determined to be invalid or unenforceable, (a) the remaining terms and provisions hereof shall be unimpaired, (b) any such invalidity or unenforceability in any jurisdiction shall not invalidate or render unenforceable such term or provision in any other jurisdiction, and (c) the invalid or unenforceable term or provision shall, for purposes of such jurisdiction, be deemed replaced by a term or provision that is valid and enforceable and that comes closest to expressing the intention of the invalid or unenforceable term or provision.

18. **Construction.** When used in this Agreement, unless a contrary intention appears: (i) a term has the meaning assigned to it; (ii) "or" is not exclusive; (iii) "including" means including without limitation; (iv) words in the singular include the plural and words in the plural include the singular, and words importing the masculine gender include the feminine and neuter genders; (v) any agreement, instrument or statute defined or referred to herein or in any instrument or certificate delivered in connection herewith means such agreement, instrument or statute as from time to time amended, modified or supplemented and includes (in the case of agreements or instruments) references to all attachments thereto and instruments incorporated therein; (vi) the words "hereof", "herein" and "hereunder" and words of similar import when used in this Agreement shall refer to this Agreement as a whole and not to any particular provision hereof; (vii) references contained herein to Article, Section, Schedule, Appendix and Exhibit, as applicable, are references to Articles, Sections, Schedules, Appendixes and Exhibits in this Agreement unless otherwise specified and any such Schedules, Appendixes and Exhibits referred to herein shall be construed with, and as an integral part of, this Agreement to the same extent as if they were set forth verbatim herein; (viii) references to "writing" include printing, typing, lithography and other means of reproducing words in a visible form, including, but not limited to email; (ix) reference to a particular statute, regulation or law means such statute, regulation or law as amended or otherwise modified from time to time; (x) any definition of or reference to any agreement, instrument or other document herein shall be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein); (xi) unless otherwise stated in this Agreement, in the computation of a period of time from a specified date to a later specified date, the word "from" means "from and including" and the words "to" and "until" each mean "to but excluding"; (xii) references to "days" shall mean calendar days; and (xiii) the paragraph headings contained in this Agreement are for convenience only, and shall in no manner be construed as part of this Agreement.

19. **Review of Agreement; Voluntarily Entering Into Agreement.** Each Party herein expressly represents and warrants to all other Parties hereto that (a) before executing this Agreement, said Party has fully informed itself of the terms, contents, conditions and effects of this Agreement; (b) said Party has relied solely and completely upon its own judgment in executing this Agreement; (c) said Party has had the opportunity to seek and has obtained the advice of its own legal, tax and business advisors before executing this Agreement; (d) said Party has

acted voluntarily and of its own free will in executing this Agreement; and (e) this Agreement is the result of arm's length negotiations conducted by and among the Parties and their respective counsel.

20. **Execution.** This Agreement and any signed agreement or instrument entered into in connection with this Agreement, and any amendments hereto or thereto, may be executed in one or more counterparts, all of which shall constitute one and the same instrument. Any such counterpart, to the extent delivered by means of a facsimile machine or by .pdf, .tif, .gif, .jpeg or similar attachment to electronic mail (any such delivery, an "**Electronic Delivery**") shall be treated in all manner and respects as an original executed counterpart and shall be considered to have the same binding legal effect as if it were the original signed version thereof delivered in person. At the request of any Party, each other Party shall re-execute the original form of this Agreement and deliver such form to all other Parties. No Party shall raise the use of Electronic Delivery to deliver a signature or the fact that any signature or agreement or instrument was transmitted or communicated through the use of Electronic Delivery as a defense to the formation of a contract, and each such Party forever waives any such defense, except to the extent such defense relates to lack of authenticity.

IN WITNESS WHEREOF, intending to be legally bound, the Parties hereto have executed this Agreement on the date set forth above, to be effective as of the Effective Date, except as otherwise provided above.

ASP ISOTOPES INC.

By: _____
Name: Paul Mann
Title: Chief Executive Officer

REVERE SECURITIES LLC

By: Thomas Irwin
Name: Thomas Irwin
Title: Chief Operating Officer

EXHIBIT A

ASP Isotopes Inc.
Subsidiaries of the Registrant

Subsidiaries*	Place of Incorporation
ASP Isotopes Guernsey Limited (formerly, PDS-Photonica Holdings (Guernsey) Limited)	Guernsey
ASP Isotopes South Africa (Proprietary) Limited (formerly, PDS Photonica Holdings South Africa (PTY) Limited)	South Africa
Enriched Energy LLC	Delaware, U.S.
ASP Isotopes UK Ltd	England & Wales
Enlightened Isotopes (Pty) Ltd	South Africa

* Please note that this list includes all subsidiaries of ASP Isotopes Inc. without regard to whether they would constitute a "significant subsidiary" pursuant to Item 601(b)(21)(ii) of Regulation S-K.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the inclusion in this Registration Statement of ASP Isotopes Inc. on Form S-1 to be filed on or about April 4, 2023 of our report dated March 31, 2023, on our audits of the consolidated financial statements as of December 31, 2022 and 2021 and for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021. Our report includes an explanatory paragraph about the existence of substantial doubt concerning the Company's ability to continue as a going concern. We also consent to the reference to our firm under the caption "Experts" in this Registration Statement.

/s/ EisnerAmper LLP

EISNERAMPER LLP
Iselin, New Jersey
April 4, 2023

CALCULATION OF FILING FEE TABLE
Form S-1
(Form Type)

ASP Isotopes Inc.
(Exact name of registrant as specified in its charter)

Table 1: Newly Registered Securities

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Share	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Fees to Be Paid	Equity	Common Stock, \$0.01 par value per share	457(c)	3,164,557 shares (1)	\$1.58	\$5,000,000	0.00011020	\$551.00
Fees to Be Paid	Equity	Common Stock, \$0.01 par value per share	457(g)	3,164,557 shares (2)	\$1.75	\$5,537,975	0.00011020	\$610.28
Fees to Be Paid	Equity	Common Stock, \$0.01 par value per share	457(g)	221,519 shares (3)	\$1.975	\$437,500	0.00011020	\$48.21
Total Offerings Amount						\$10,975,475		\$1,209.49
Total Fees Previously Paid								\$0.00
Total Fees Offsets								\$0.00
Net Fee Due								\$1,209.49

- (1) Consists of 3,164,557 shares of common stock of the Registrant (the "Common Stock") purchased at the price of \$1.58 per share in a private placement registered for sale by certain of the selling shareholders named in this registration statement.
- (2) Consists of 3,164,557 shares of Common Stock issuable upon exercise of Warrants at the price of \$1.75 per share registered for sale by certain of the selling stockholders named in this registration statement.
- (3) Consists of 221,519 shares of Common Stock issuable upon exercise of Placement Agent Warrants at a price of \$1.975 per share registered for sale by certain of the selling shareholders named in this registration statement.