Filed Pursuant to Rule 424(b)(5)
Registration No. 333-273984

The information in this prospectus is not complete and may be changed. We may not sell these securities or accept an offer to buy these securities until the registration statement filed with the U.S. Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities, and we are not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED MARCH 2, 2026

PRELIMINARY PROSPECTUS SUPPLEMENT
(To Prospectus dated August 23, 2023)

MAIA Biotechnology, Inc.

Up to Shares of Common Stock
Up to Pre-Funded Warrants to Purchase Shares of Common Stock
Up to Shares of Common Stock Underlying the Pre-Funded Warrants

We are offering up to shares of our common stock, $0.0001 par value per share.

We are also offering to each purchaser whose purchase of shares of our common stock in this offering would otherwise result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or, at the election of the purchaser, 9.99%) of the outstanding shares of common stock immediately following the consummation of this offering, the opportunity to purchase, if the purchaser so chooses, pre-funded warrants to purchase shares of common stock, or the pre-funded warrants, in lieu of shares of common stock. Each pre-funded warrant will be exercisable for one share of our common stock and will be immediately exercisable and will expire when exercised in full. The purchase price of each pre-funded warrant and accompanying warrant will equal the price per share of common stock being sold to the public, minus $0.0001, and the exercise price of each pre-funded warrant will be $0.0001 per share. For each pre-funded warrant that we sell, the number of shares of our common stock that we are offering will be decreased on a one-for-one basis. This prospectus supplement also relates to the offering of the shares of our common stock issuable upon the exercise of such pre-funded warrants.

Our common stock is listed on the NYSE American ("NYSE") under the symbol "MAIA." There is no established public trading market for the pre-funded warrants, and we do not expect a market to develop. We have not applied, and do not intend to apply, to list the pre-funded warrants on the NYSE. On February 27, 2026, the last reported sale price of our common stock on the NYSE was $2.26 per share.

Investing in our securities involves a high degree of risk. You should read the "Risk Factors" section beginning on page S-14 of this prospectus supplement and page 9 of the accompanying prospectus and in the documents incorporated by reference in this prospectus supplement for a discussion of factors to consider before you make your investment decision.

	Per Share	Pre-Funded Warrant	Total
Public offering price	$	$	$
Underwriter discount and commissions (1)	$	$	$
Proceeds to us, before expenses	$	$	$

(1) 5% cash fee payable to the underwriters and to and to reimburse the underwriters for certain offering-related expenses. See "Underwriting" beginning on page S-20 of this prospectus supplement for additional information regarding underwriting discounts, commissions and estimated expenses.

We have granted the underwriters a 30-day option to purchase up to additional shares of common stock and/or pre-funded warrants from us at the same terms and conditions set forth above.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The underwriters expect to deliver the shares of common stock and pre-funded warrants on or about , 2026.

Book-Running Managers
Konik Capital Partners
a division of T.R. Winston & Co.

The date of this prospectus supplement is March , 2026.

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PROSPECTUS

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a registration statement on Form S-3 (File No. 333-273984) we filed with the Securities and Exchange Commission, or SEC, on August 23, 2023, and that was declared effective by the SEC on December 18, 2024, using a "shelf" registration process. This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this offering of common stock and pre-funded warrants and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference herein. The second part, the accompanying prospectus, including the documents incorporated by reference therein, provides more general information, some of which may not apply to this offering. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement and the information contained in the accompanying prospectus or any document incorporated by reference therein filed prior to the date of this prospectus supplement, you should rely on the information in this prospectus supplement. 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 the accompanying prospectus—the statement in the document having the later date modifies or supersedes the earlier statement.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

You should rely only on the information contained in this prospectus supplement or the accompanying prospectus or incorporated by reference herein. We have not authorized, and the underwriters have not authorized, anyone to provide you with information that is different. The information contained in this prospectus supplement or the accompanying prospectus or incorporated by reference herein or therein is accurate only as of the respective dates thereof, regardless of the time of delivery of this prospectus supplement and the accompanying prospectus or of any sale of our common stock and pre-funded warrants.

This prospectus supplement and the accompanying prospectus contain summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated herein by reference as exhibits to the registration statement, and you may obtain copies of those documents as described below in the section entitled "Where You Can Find More Information."

It is important for you to read and consider all information contained in this prospectus supplement and the accompanying prospectus, including the documents incorporated by reference herein and therein, in making your investment decision. You should also read and consider the information in the documents to which we have referred you in the sections entitled "Where You Can Find More Information" and "Information Incorporated By Reference" in this prospectus supplement and in the accompanying prospectus, respectively.

This prospectus supplement and the accompanying prospectus contain and incorporate by reference market data and industry statistics and forecasts that are based on independent industry publications and other publicly-available information. Although we believe these sources are reliable, we do not guarantee the accuracy or completeness of this information and we have not independently verified this information. Although we are not aware of any misstatements regarding the market and industry data presented in this prospectus supplement, accompanying prospectus or the documents incorporated herein by reference, these estimates involve risks and uncertainties and are subject to change based on various factors, including those discussed in the section entitled "Risk Factors" in this prospectus supplement and the accompanying prospectus, and under similar headings in the other documents that are incorporated herein by reference. Accordingly, investors should not place undue reliance on this information.

We are offering to sell, and seeking offers to buy, the securities offered by this prospectus supplement only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the accompanying prospectus and the offering of the securities offered by this prospectus supplement in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement and the accompanying prospectus must inform themselves about, and observe any restrictions relating to, the offering of the common stock and pre-funded warrants and the distribution of this prospectus supplement and the accompanying prospectus outside the United States. This prospectus supplement and the accompanying prospectus do not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement and the accompanying prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

As used in this prospectus, unless the context indicates or otherwise requires, "the Company," "we," "us" and "our" refer to MAIA Biotechnology, Inc., a Delaware corporation, and its consolidated subsidiaries.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information contained elsewhere in this prospectus supplement, the accompanying base prospectus and in the documents we incorporate by reference. This summary does not contain all of the information you should consider before investing in our common stock and/or pre-funded warrants. You should read this entire prospectus supplement and the accompanying base prospectus carefully, especially the risks of investing in our common stock and/or pre-funded warrants discussed under "Risk Factors" beginning on page S-14 of this prospectus supplement and under similar sections of the accompanying base prospectus and other periodic reports incorporated herein and therein by reference, along with our consolidated financial statements and notes to those consolidated financial statements, before making an investment decision.

The Company

We are a clinical-stage biopharmaceutical company developing targeted immunotherapies for cancer. Ateganosine (also known as THIO, 6-thio-dG or 6-thio-2 '-deoxyguanosine), our lead asset, is an investigational dual mechanism of action drug candidate incorporating telomere targeting and immunogenicity. Our initial disease target is lung cancer, a serious medical condition with an incidence of over 235,000 new cases in the US in 2024, representing 12% of all cancers, and over 125,000 deaths, or 20% of all cancers. Worldwide, lung cancer incidence is over 2,200,000 per year (ranking second only after breast cancer), and mortality over 1,800,000 (ranking first). Specifically, we are targeting Non-Small Cell Lung Cancer ("NSCLC"), which represents 85% of all lung cancers. In July 2022, the first patient was administered with ateganosine in our Phase 2 human trial (THIO-101) in Australia. In December 2022, regulatory authorities in three European countries, Hungary, Poland, and Bulgaria, approved the implementation of THIO-101, Phase 2 clinical trial evaluating ateganosine in patients with Non-Small Cell Lung Cancer (NSCLC). In the trial, patients with advanced NSCLC are treated first with ateganosine followed a few days later by the immune checkpoint inhibitor Libtayo® (cemiplimab), manufactured and commercialized by Regeneron. Cemiplimab is a fully human monoclonal antibody targeting the immune checkpoint receptor PD-1 on T-cells. Cemiplimab has been approved in the United States and the rest of the world for multiple cancer indications, including NSCLC. In February 2021, we signed a clinical supply agreement with Regeneron to receive cemiplimab at no cost, which represents a significant cost-savings for the study. In return, we have granted Regeneron exclusive development rights in combination with PD-1 inhibitors for NSCLC for the study period. In July 2025, we initiated an expansion of the THIO-101 trial focused on third-line NSCLC patients who are resistant to checkpoint inhibitors and chemotherapy. The expansion will enroll up to 48 patients with two arms: Arm 1, continuing the evaluation of ateganosine sequenced with Libtayo® (cemiplimab); and Arm 2, evaluating ateganosine as a monotherapy, to further gain experience of ateganosine in the contribution of components. Based on the clinical data generated by our THIO-101 trial, we plan to seek filing for an accelerated approval of ateganosine in the United States for the treatment of patients with advanced NSCLC in 2026, but even if granted, accelerated approval status does not guarantee an accelerated review or marketing approval by the Food and Drug Administration (FDA). We initiated a Phase 3 pivotal trial in 2025, named THIO-104, to evaluate the efficacy of ateganosine administered in sequence with a checkpoint inhibitor (CPI) in third-line NSCLC patients who are resistant to checkpoint inhibitors and chemotherapy which could lead filing for early full commercial approval in 2027 and final analysis could lead to filing for full commercial approval in 2028. The multicenter, open-label, pivotal Phase 3 trial is designed to provide a direct comparison to chemotherapy in a 1:1 randomization of up to 300 patients. In addition, the originally planned Phase 2 clinical trial in multiple tumor indications (THIO-102) is now divided into different trials for one tumor indication each: hepatocellular carcinoma (HCC), colorectal cancer (CRC) and small cell lung cancer (SCLC). In January 2025, we entered into a clinical supply agreement with global oncology company BeOne Medicines to assess the efficacy of ateganosine in combination with BeOne's immune checkpoint inhibitor (CPI) tislelizumab in three cancer indications across different trials to study the drug combination in HCC, SCLC and CRC. Phase 2 clinical trials in HCC, CRC and SCLC are planned to be initiated in 2026, evaluating treatment with ateganosine administered in sequence with BeOne Medicines's immune checkpoint inhibitor, tislelizumab. In June, 2025, MAIA announced its entry into a clinical master supply agreement with Roche for future studies investigating the combination of ateganosine sequenced with Roche's checkpoint inhibitor (CPI), atezolizumab (Tecentriq®), for the treatment of multiple cancers indications. Clinical trials with other solid tumors (ST), such as breast, prostate, gastric, pancreatic and ovarian, may still be considered for potential future trials.

Our Lead Product Candidate

Ateganosine (THIO) is a telomere-targeting agent currently in clinical development to evaluate its activity in NSCLC. Telomeres, along with the enzyme telomerase, play a fundamental role in the survival of cancer cells and their resistance to current therapies. Ateganosine is being developed as a second- or later line of treatment for NSCLC for patients that have progressed beyond the standard-of-care regimen of existing checkpoint inhibitors.

In 2019, our research team discovered that ateganosine produced telomere modifications and disruption, which ultimately induced cancer-specific innate and adaptive immune responses against immunologically "cold" or tumor types that were unresponsive to immune checkpoint inhibitors. This hypothesis was tested and demonstrated in syngeneic and humanized mouse models. Ateganosine administered to mice in low doses and followed by an immune-checkpoint inhibiting agent, such as an anti-PD-1 or anti-PD-L1 compound, induced complete tumor regression with no tumor recurrence during the 14 weeks of observation. Further, no toxicities were reported in the tumor-free mice. These new findings were published in the peer-reviewed research scientific journal, Cancer Cell in July 2020. Based on these recent discoveries, a new therapeutic approach has been designed to advance ateganosine into a Phase 2 clinical trial (THIO-101) in patients with advanced NSCLC.

Our regulatory strategy includes a filing of an Investigational New Drug application (IND) with the United States Food and Drug Administration (U.S. FDA or FDA). This was granted, and would allow U.S. sites to participate in the THIO-101 NSCLC trial. The human safety data generated in Australia and Europe would constitute the basis of the IND application. Although we plan to rely solely on the safety and efficacy data we generate in our own clinical trials in support of our planned New Drug Application (NDA) filing, and do not plan to rely on clinical data generated by unaffiliated third parties, we take added confidence in the potential tolerability of ateganosine in light of the fact that the ateganosine dose selected of 180 mg/cycle is 14 times lower than the maximum tolerated dose tested in the earlier clinical trials sponsored by the National Cancer Institute (NCI) in the 1970s. The THIO-101 phase 2 trial is a proof-of-concept study that may be modified depending on interim results to include both primary and secondary endpoints and be consistent with previously approved cancer treatments. In September 2022, we submitted a pre-IND meeting request to the FDA to discuss, among other elements, the existing non-clinical and clinical data to support the conduct of our planned THIO-101 phase 2 trial under an IND to include patients from the U.S. MAIA received feedback in-line with the proposed plans from the FDA regarding its manufacturing, preclinical and clinical development plan. MAIA also obtained guidance from the FDA on the assessment of its safety and efficacy in the THIO-101 Phase 2 trial that was incorporated in the U.S. IND application. The U.S. IND was granted in 2023.

The THIO-101 study protocol was amended in December 2024 to increase the number of patients enrolled in an expansion arm to further evaluate efficacy of the treatment in third-line NSCLC patients resistant to checkpoint inhibitor and chemotherapy. The study may undergo modification of the statistical analysis, a change in the trial design, and/or primary endpoints. Based on the clinical data we aim to generate in the THIO-101 study and assuming ateganosine achieves its intended clinical effect with a manageable safety profile at one of the doses tested in the study, we expect to seek early FDA guidance on the possibility of utilizing one or more of FDA's expedited programs for serious conditions, such as fast track designation (FTD), breakthrough therapy designation, priority review and/or accelerated approval designation. Even if granted, accelerated approval status does not guarantee an accelerated review or marketing approval by the FDA. In July 2025, the FDA granted Fast Track Designation (FTD) for ateganosine and we intend to utilize the incentives of the Fast Track Program to expedite the development and review of ateganosine.

Please note that at the time of their releases, the milestones listed below from April 11, 2023 to March 17, 2025, refer to the molecule "ateganosine" as "THIO" only. On March 18, 2025, the company announced "ateganosine" as the nonproprietary (generic) name for THIO, and its intent to use the generic name to support clear communication, while keeping the name THIO in the Company's clinical trial designations (THIO-101, THIO-102, THIO-103, THIO-104).

On April 11, 2023, we announced positive topline data related to the completion of Part A, safety lead-in portion of the THI0-101 trial which showed that administration of ateganosine, at the highest dose of 360 mg/cycle in sequential combination with Regeneron's anti-PD-1 therapy, Libtayo was well tolerated with no dose limiting toxicities or significant treatment-related adverse events reported.

On April 18, 2023, we published data in Hepatocellular Carcinoma (HCC) models: as monotherapy, ateganosine achieved complete and durable responses in Hepatocellular Carcinoma (HCC), the dominant histology in primary liver cancer (90%), in in vivo models. When combined with Libtayo®, duration of response was further potentiated. Even upon rechallenge with two times more cancer cells and no additional treatment, tumor growth was completely prevented. Administration of ateganosine alone and in combination with Libtayo® generated anticancer immune memory.

On April 20, 2023, we announced preliminary survival data from Part A of THIO-101. The first two patients enrolled in Part A of the study continued to be alive, approximately 10 and 9 months respectively, from treatment initiation. Both patients have advanced Stage IV metastatic disease and are heavily pretreated, receiving third and fourth line of therapy respectively after previously failing treatment with an immune checkpoint inhibitor. They continue to be progression free following their last dose of ateganosine, 7 and 6 months respectively, with no new treatment. The current treatment options in patients with advanced relapsed or refractory NSCLC who failed two or more therapy regimens are limited and show minimal benefit. Furthermore, discontinuation of treatment is rapidly followed by physical decline and death, therefore seeing patients with such survival and no disease progression in this clinical setting, is noteworthy. In real-world clinical practice, observed survival in such heavily pretreated patients is 3-4 months.

On June 20, 2023, we announced updates in enrollment in THIO-101 in Europe. To that date, 29 patients have been dosed in THIO-101.With the addition of sites in Hungary, Poland, and Bulgaria in March 2023, THIO-101 has rapidly increased the number of patients enrolled and dosed with ateganosine. Thirteen sites were activated with another two new additional sites ready to open shortly afterward.

On July 10, 2023, we announced updates on preliminary survival data in the Part A safety lead-in of THIO-101. The first 2 patients enrolled in the study continued to be alive, approximately 12.2 and 11.5 months respectively, from treatment initiation. Both patients have advanced Stage IV metastatic disease and failed 2 prior lines of therapy, including one line with an immune checkpoint inhibitor (CPI), and platinum-based chemotherapy. Following the conclusion of study treatment, they have remained free of disease progression for 10.2 and 8.5 months, respectively, without requiring any additional therapy.

On July 11, 2023, we announced updates on disease control data in the part A safety lead-in of THIO-101. Of the first 11 patients enrolled in THIO-101 to complete at least 1 post baseline response assessment, 9 (82%) met the primary endpoint of disease control (defined as a Complete Response, Partial Response, or Stable Disease per RECIST 1.1). All patients enrolled have previously failed 2 or more prior lines of treatment including an immune CPI and platinum-based chemotherapy for advanced NSCLC.

On October 24, 2023, we reported unprecedented interim disease control rate (DCR) of 100% in second-line of treatment that far surpasses standard of care (SoC) DCR of 53-64%, presented at ESMO 2023. DCR is far stronger than overall response rate (ORR) in predicting overall survival benefit, as shown in a recent meta- analysis of 74 clinical trials worldwide in NSCLC.

On December 19, 2023, we announced dose selection for THIO-101, a Phase 2 clinical trial evaluating its lead asset, ateganosine, in sequential combination with Regeneron's anti-PD-1 cemiplimab (Libtayo®) in patients with advanced non-small cell lung cancer (NSCLC). During the dose-finding stage of THIO-101, patients were administered either 60mg, 180mg, or 360mg of ateganosine per cycle, followed by 350mg of cemiplimab (Libtayo®). The selected dose, 180mg/cycle, presented better safety profile and outperformed the other doses in the key measures of efficacy for NSCLC trials. Subsequently, all future trial participants will be treated with ateganosine 180mg/cycle.

On January 17, 2024, we announced new interim data for our ongoing THIO-101 Phase 2 trial in non-small cell lung cancer (NSCLC). In the latest available data from THIO-101 (November 13, 2023), 60 patients had been dosed with ateganosine in sequential combination with Libtayo®. The patients received either 60mg, 180mg, or 360mg of ateganosine per dose, and 42 had at least one post baseline assessment completed. The observed disease control was well sustained compared to previous scans.

On February 22, 2024, we announced completion of enrollment in Phase 2 THIO-101 go-to-market clinical trial. The trial reached the enrollment target of 41 patients for the 180mg/dose on February 19, 2024. As of the latest data available for the trial, 79 patients had received either 60mg (24 patients), 180mg (41 patients) or 360mg (14 patients). The original trial design targeted up to 182 patients, including all patients in the safety lead- in and 41 patients in each of the 3 tested doses (60mg, 180mg, and 360mg). Following the selection of 180 mg/ cycle as the optimal dose in December 2023, all patients were subsequently enrolled at the 180mg/cycle dose and trial enrollment was completed ahead of schedule.

On March 6, 2024, we announced interim efficacy data for THIO-101 Phase 2 trial in NSCLC. In the latest data available (January 8, 2024), the overall response rate (ORR), characterized as partial or complete response to therapy, was 38% (3 out of 8 patients) in the efficacy evaluable population for combination ateganosine 180mg + cemiplimab in third-line treatment for NSCLC patients who failed treatment with immune checkpoint inhibitors in prior lines of therapy, with or without chemotherapy.

On March 27, 2024, we evaluated additional clinical data from its Phase 2 clinical trial, THIO-101. At such time, a total of 68 patients have been dosed and had a post-baseline scan in MAIA's Phase 2 clinical trial, THIO-101, evaluating ateganosine in sequential combination with an immune checkpoint inhibitor in patients with advanced NSCLC. Preliminary efficacy across all lines of therapy in this March 2024 data cut were consistent with previous reports including: (i) 75% of patients receiving ateganosine 180mg as third-line therapy for NSCLC have surpassed the overall survival (OS) threshold of 5.8 months: (ii) 88% of patients in the same setting (3L, 180mg) also crossed the 2.5 months progression free survival (PFS) threshold and have shown overall response rates (ORR) of 38%, greatly improving on current chemo treatment that have ORR of around 6-10% and (iii) across all third-line patients, disease control rate (DCR) of 85% remained superior to current chemotherapy options, which ranges from 25-35% DCR.

On April 30, 2024, we evaluated additional clinical data from its Phase 2 clinical trial, THIO-101. At such time, a total of 69 patients have been dosed and had a post-baseline scan in MAIA's Phase 2 clinical trial, THIO-101, evaluating ateganosine in sequential combination with an immune checkpoint inhibitor in patients with advanced NSCLC. Preliminary efficacy across all lines of therapy in this April 2024 data cut were consistent with previous reports including: (i) 75% of patients receiving ateganosine 180mg as third-line therapy for NSCLC have surpassed the overall survival (OS) threshold of 5.8 months: (ii) 88% of patients in the same setting (3L, 180mg) also crossed the 2.5 months progression free survival (PFS) threshold and have shown overall response rates (ORR) of 38%, greatly improving on current chemo treatment that have ORR of around 6-10% and (iii) across all third-line patients, disease control rate (DCR) of 85% remained superior to current chemotherapy options, which ranges from 25-35% DCR.

On June 4, 2024, we announced new preliminary efficacy data from the Phase 2 THIO-101 clinical trial. The update included that as of April 30, 2024: (i) all evaluable patients had completed ≥1 post-baseline assessment; (ii) third-line treatment across all doses had shown DCR of 85% for ateganosine, 65% of patients crossed the 5.8-month OS threshold identified in literature, 85% of patients crossed the 2.5-month PFS threshold, median survival follow-up time was 9.1 months; and (iii) third-line treatment with ateganosine 180mg had shown median PFS of 5.5 months, 78% OS rate at 6 months, 38% ORR, 75% of patients crossed the 5.8-month OS threshold, 88% of patients crossed the 2.5-month PFS threshold and median survival follow-up time observed was 9.1 months.

On July 23, 2024, we announced treatment updates from our Phase 2 clinical trial of ateganosine. As of June 12, 2024 the latest clinical cut-off date: (i) 6 patients remain on treatment following at least 12 months of therapy; (ii) treatment with ateganosine followed by cemiplimab has been well tolerated throughout the trial, with lower toxicity compared to standard-of-care treatments; and (iii) the longest-treated patients have completed 21 cycles of ateganosine sequenced with cemiplimab.

On September 10, 2024, we announced updates from our lead clinical candidate ateganosine, in our Phase 2 clinical trial, THIO-101. The updates included: (i) As of August 01, 2024, 16 patients had survival follow-up surpassing 12 months, including 9 in third line treatment (3L); (ii) Interim median survival follow-up in 3L was 10.6 months.; and (iii) ateganosine's substantial survival benefit in third line surpasses comparable standard-of-care overall survival of 5.8 months.

On November 8, 2024, we announced new efficacy data from our Phase 2 THIO-101 clinical trial evaluating ateganosine sequenced with the immune checkpoint inhibitor (CPI) cemiplimab (Libtayo®) in patients with advanced non-small cell lung cancer (NSCLC) who failed 2 or more standard-of-care therapy regimens, which includes: (i) as of September 16, 2024, 19 patients had survival follow-up surpassing 12 months, including 10 in third line treatment (3L); (ii) Interim median survival follow-up in 3L across all dose levels of ateganosine was 11.5 months; and (iii) Interim median survival follow-up in 3L in the ateganosine 180mg dose was 11.4 months.

On December 3, 2024, we announced the amendment of the 2021 clinical supply agreement with Regeneron for the expansion portion of THIO-101, its Phase 2 clinical trial evaluating ateganosine in sequential administration with cemiplimab (Libtayo®). The new expansion is planned to further assess the efficacy of ateganosine sequenced
with immune checkpoint inhibitor (CPI) Libtayo® (cemiplimab) for advanced non-small cell lung cancer (NSCLC) patients receiving third-line therapy who were resistant to previous checkpoint inhibitor treatments and chemotherapy. The Company also announced that it expected to start enrolling new patients in the expansion of THIO-101 in the near future.

On December 16, 2024, we announced that the FDA has designated ateganosine for the treatment of pediatric- type diffuse high-grade gliomas (PDHGG) as a drug for a "rare pediatric disease." Upon FDA approval of a future new drug application in PDHGG, MAIA would be eligible to receive a rare pediatric disease priority review voucher (PRV), which can be redeemed by drug developers for FDA priority review of a different product or transferred or sold to another sponsor. Since 2015, FDA priority review vouchers have sold as assets at an average amount of $100 million.

On February 4, 2025, we announced positive updated data from THIO-101 Phase 2 clinical trial evaluating its lead clinical candidate, ateganosine, sequenced with Regeneron's immune checkpoint inhibitor (CPI) cemiplimab (Libtayo®) in patients with advanced non-small cell lung cancer (NSCLC) who failed two or more standard-of-care therapy regimens. As of January 15, 2025, third line (3L) data updates showed that: (i) median overall survival (OS) of 16.9 months for the 22 NSCLC patients who received at least one dose of ateganosine (the intent-to-treat population) in parts A and B of the trial. (ii) The analysis demonstrated a 95% confidence interval (CI) lower bound of 12.5 months and a 99% CI lower bound of 10.8 months. (iii) The treatment has been generally well-tolerated to date in this heavily pre-treated population.

On February 26, 2025, we announced the trial design for the expansion of its THIO-101 pivotal Phase 2 trial in non-small cell lung cancer (NSCLC). The expansion of the study will assess overall response rates (ORR) in advanced NSCLC patients receiving third line (3L) therapy who were resistant to previous checkpoint inhibitor treatments (CPI) and chemotherapy. The THIO-101 study in 3L will enroll up to 48 patients with two arms: Arm 1, continuing the evaluation of ateganosine sequenced with Libtayo® (cemiplimab); and Arm 2, evaluating ateganosine as a monotherapy, to further gain experience of ateganosine in the contribution of components. Treatment cycles for patients in both arms will administer ateganosine on 3 consecutive days, followed by immune activation on day 4. Arm 1 will administer Libtayo on day 5. The Company plans to enroll an additional 100 patients for the registration phase of the trial. MAIA expects to conduct the trials in the U.S. and select countries in Europe and Asia.

On February 27, 2025, we announced plans to initiate a Phase 3 pivotal trial in 2025, named THIO-104, to evaluate the efficacy of ateganosine administered in sequence with a checkpoint inhibitor (CPI) in third-line non-small cell lung cancer (NSCLC) patients who are resistant to checkpoint inhibitors and chemotherapy. The multicenter, open-label, pivotal Phase 3 trial is designed to provide a direct comparison to chemotherapy in a 1:1 randomization of up to 300 patients.

On March 18, 2025, MAIA announced that the United States Adopted Names (USAN) Council had approved "ateganosine" as the nonproprietary (generic) name for its lead molecule THIO, a telomere-targeting anticancer agent in clinical development as a first-in-class treatment for advanced non-small cell lung cancer (NSCLC). The company chose a name inspired by the mechanism of action of THIO: altering telomeric guanosine of the cancer cells. The generic name ateganosine is a unique and consistent identity that aims to support clear communication between healthcare providers, patients and researchers. MAIA will retain the name THIO in its clinical trial designations (THIO-101, THIO-102, THIO-103, THIO-104).

On June 5, 2025, MAIA announced updated data from its THIO-101 pivotal Phase 2 clinical trial. As of May 15, 2025, third line (3L) data showed median overall survival (OS) of 17.8 months for the 22 NSCLC patients who received at least one dose of ateganosine (the intent-to-treat population) in parts A and B of the trial. The updated analysis continues to demonstrate a 95% confidence interval (CI) lower bound of 12.5 months and a 99% CI lower bound of 10.8 months. The Company also mentioned that treatment had been generally well-tolerated to date in this heavily pre-treated population.

On June 5, 2025, we announced that a new partial response (PR) was identified in a patient after 20 months of treatment in our Phase 2 THIO-101 clinical trial. A partial response is defined as a decrease in tumor size of at least 30%.

On July 9, 2025, we announced the dosing of the first patient in Taiwan in the expansion phase of our THIO-101 Phase 2 trial for advanced non-small cell lung cancer (NSCLC). The trial's entry into another continent marks a key milestone for MAIA, opening a significantly larger patient pool for its evaluations of ateganosine (THIO). MAIA also announced that screening for the trial is ongoing in Europe and Asia.

On July 28, 2025, we announced that the U.S. Food and Drug Administration (FDA) has granted Fast Track designation for ateganosine (THIO, 6-thio-dG or 6-thio-2'-deoxyguanosine) for the treatment of non-small cell lung cancer (NSCLC). Ateganosine is currently being evaluated in a pivotal Phase 2 THIO-101 clinical trial evaluating its anti-tumor activity when followed by a checkpoint inhibitor.

On August 13, 2025, we announced that the European Patent Office granted a patent broadly covering a portfolio of ateganosine-based analogues for telomere-targeting anticancer therapy and methods of using ateganosine (THIO) alone or before administration of checkpoint inhibitors (CPIs). The patent, titled "Mercaptopurine Ribonucleoside Analogues for Altering Telomerase Mediated Telomere," was invented by MAIA's Chief Scientific Officer Sergei M. Gryaznov, PhD and Scientific Advisory Board member Jerry W. Shay, PhD. MAIA's global patent and patent-pending estate covers several areas including telomerase mediated telomere altering compounds and treatment of therapy-resistant cancers. Further, ateganosine's immunogenic treatment strategy, which focuses on sequential combination with checkpoint inhibitors, has been filed worldwide. MAIA's IP portfolio for ateganosine currently comprises 10 issued patents worldwide including Europe (validated in 19 countries) along with 24 pending patent applications.

On September 11, 2025, MAIA highlighted positive efficacy data from its Phase 2 clinical trial, THIO-101. As of June 30, 2025: (i) estimated median progression free survival (PFS) in third-line treatment (180 mg dose) was 5.6 months; (ii) Estimated median overall survival (OS) was 17.8 months, with a 95% confidence interval (CI) lower bound of 12.5 months and a 99% CI lower bound of 10.8 months, consistent with the prior data readout (May 15, 2025); (iii) Across patients of all treatment lines, 2 patients have completed 33 cycles of therapy, highlighting ateganosine' potential for extended dosing, which usually translates into longer patient survival.

On October 23, 2025, we announced that as of September 17, 2025, a patient that began therapy in March 2023 has shown survival of 30 months, or 912 days, an outstanding measure relative to many of the high-risk cancers. The patient with 30-month survival received therapy every three weeks, and concluded treatment upon reaching the maximum treatment duration of 2 years based on protocol requirements.

On November 20, 2025, MAIA announced Romania as an additional country to begin screening patients for the expansion phase of its THIO-101 Phase 2 clinical trial which evaluates ateganosine sequenced with an immune checkpoint inhibitor as a third-line treatment for non-small cell lung cancer (NSCLC).

On December 11, 2025, we announced that the first patient has been dosed in THIO-104 Phase 3 pivotal trial evaluating the efficacy of ateganosine administered in sequence with a checkpoint inhibitor (CPI) as a third-line treatment for advanced non-small cell lung cancer (NSCLC). The multicenter, open-label trial is designed to assess overall survival for ateganosine sequenced with a CPI compared to investigator's choice of chemotherapy in a 1:1 randomization of up to 300 patients. MAIA has received regulatory approval to screen patients in Taiwan, Turkey, select European Medicines Agency (EMA) countries, and Georgia. Screening and enrollment are now underway.

In addition to NSCLC, HCC, SCLC and CRC we plan to conduct clinical trials evaluating ateganosine (THIO) in sequential combination with an immune checkpoint inhibitor in several other cancer indications, including solid tumors, such as breast, prostate, gastric, pancreatic and ovarian cancers.

Our Science-Driven Telomere Targeting Approach

Telomeres are regions of repetitive deoxyribonucleic acid (DNA) nucleotide sequences that are associated with specialized proteins at the ends of linear chromosomes in cells. Ateganosine's (THIO) mechanism of action comprises telomere targeting and induction of anti-cancer immunogenicity. The enzyme telomerase recognizes ateganosine's metabolite formed in situ and incorporates it into the structure of the cancer cell's telomeres, creating a faulty structure, which breaks apart the telomere spatial structure. As a result, the ateganosine-modified telomeric structure unwinds, recognized as DNA damage, and the cancer cells die. We believe ateganosine transforms "cold" tumors into "hot" tumors rendering them responsive to immunotherapy (checkpoint inhibitors) and this process takes place promptly within 24 to 72 hours. We also believe we can improve the immunotherapy efficacy and we can restore the immunotherapy efficacy in patients who have progressed or developed resistance to prior immunotherapy.

Telomere maintenance is a fundamental biologic process for cell proliferation and resilience in cancer cells, and thus represents one of the key therapeutic targets for cancer treatment. Telomerase is an enzyme that is present in most human cancer cells (over 85% in the aggregate), across various tumor types. In contrast, its activity is detected in less than 1% of normal cells. Ateganosine has only been shown to be active in cancer cells that are telomerase positive (TERT+) and actively dividing. Cancer cells are constantly telomerase positive due to an uncontrolled division process, while a relatively small number of normal cells are telomerase positive only transiently. Therefore, ateganosine activity is expected to be highly specific to cancer cells versus normal cells.

Cancer-specific disturbance of telomeric structure, mediated by telomerase, is likely to lead to disruption in the cell cycle, followed by a very rapid and telomere-length independent cell death. Ateganosine was observed to induce cancer-specific telomere disruption, by using the enzyme telomerase, which differentiates ateganosine from all other available cancer therapies currently in clinical use. We are also currently developing potential next generation small molecule telomere modifying agents with the goal of identifying additional proprietary drug candidates, across multiple cancer types. We have generated eighty-two (82) new telomere-targeting compounds of which sixty (60) compounds have been evaluated in vitro. Currently, seven (7) molecules have been selected for further evaluation in additional in vitro and in vivo models. Two (2) of the molecules, MAIA-2021-020 and MAIA-2022-012, are part of IND-Enabling studies to support potential Investigational New Drug (IND) applications.

Human clinical trials prior to approval are typically conducted in three sequential Phases that may overlap or be combined. In Phase 1, the drug or biologic is initially introduced into healthy human subjects and tested for safety, dosage tolerance, absorption, metabolism, distribution and excretion. In Phase 2, the drug or biologic is evaluated in a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance, optimal dosage and dosing schedule for patients having the specific disease. In Phase 3, larger-scale clinical trials are undertaken to evaluate clinical efficacy and safety and the overall risk/benefit ratio of the product. Post-approval studies, or Phase 4 clinical trials, may be conducted voluntarily, or as a condition of FDA's approval of a drug. These studies may be used to confirm preliminary efficacy results, gain additional experience from the treatment of certain patient populations, or to support additional indications or labeling changes.

We completed our selection process for the clinical sites for our Phase 2 study in Australia and Europe and our application to start the Phase 2 study in Australia was approved on March 1, 2022, by the Australian Regulatory Agency—Bellberry Human Research Ethics Committee. In July 2022, the first patient was administered with ateganosine in our Phase 2 human trial (THIO-101) in Australia. In December 2022, regulatory authorities in three European countries, Hungary, Poland, and Bulgaria, approved the implementation of THIO-101, Phase 2 clinical trial evaluating ateganosine in patients with NSCLC. In July 2025, we initiated an expansion of the THIO-101 trial focused on third-line NSCLC patients who are resistant to checkpoint inhibitors and chemotherapy.

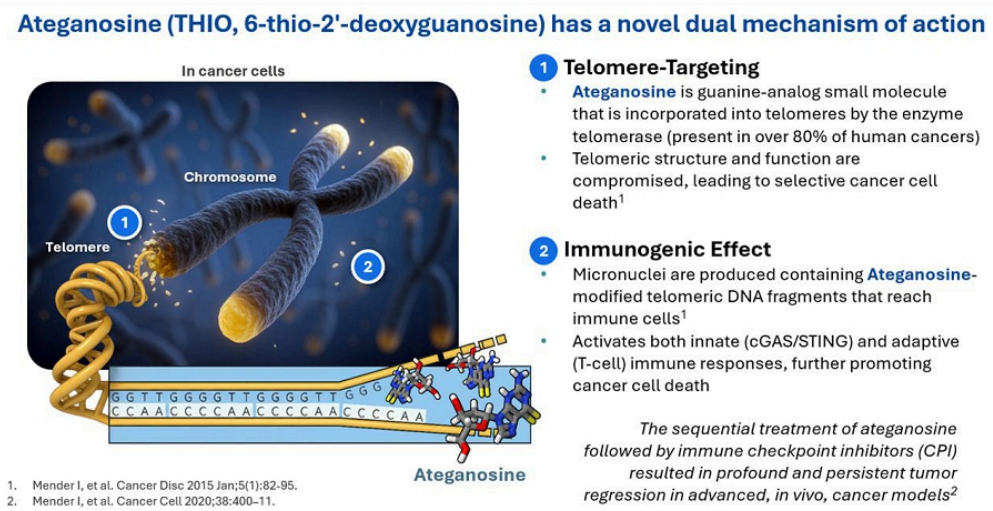
We initiated a Phase 3 pivotal trial in 2025, named THIO-104, to evaluate the efficacy of ateganosine administered in sequence with a checkpoint inhibitor (CPI) in third-line NSCLC patients who are resistant to checkpoint inhibitors and chemotherapy. The multicenter, open-label, pivotal Phase 3 trial is designed to provide a direct comparison to chemotherapy in a 1:1 randomization of up to 300 patients.

In March 2022, the FDA granted Orphan Drug Designation (ODD) to ateganosine for the treatment of HCC, in May 2022, the FDA granted the second ODD to ateganosine for the treatment of small cell lung cancer, and in late 2023, a third ODD for Malignant Gliomas (Brain Cancer). The FDA's Office of Orphan Products Development may grant orphan designation status to drugs and biologics that are intended for the treatment, diagnosis or prevention of rare diseases, or conditions that affect fewer than 200,000 people in the U.S. ODD provides certain benefits, including financial incentives, to support clinical development and the potential for up to seven years of market exclusivity for the drug for the designated orphan indication in the U.S. if the drug is ultimately approved for its designated indication.

In December 2024, the FDA granted Rare Pediatric Disease Designation (RPDD) for ateganosine as a treatment for pediatric-type high-grade gliomas (PDHGG). Upon FDA approval of a future new drug application in PDHGG, MAIA would be eligible to receive a rare pediatric disease priority review voucher (PRV) can be redeemed by drug developers for FDA priority review of a different product or transferred or sold to another sponsor.

In July 2025, the FDA granted Fast Track Designation (FTD) for ateganosine (THIO, 6-thio-dG or 6-thio-2'-deoxyguanosine) for the treatment of non-small cell lung cancer (NSCLC). The FDA Fast Track is a process designed to facilitate development and expedite the review of drugs for treating serious conditions and filling an unmet medical need, as in providing a therapy where none exists or which may be potentially better than available therapy. If relevant criteria are met during the Fast Track process, a drug will be eligible for FDA Accelerated Approval and Priority Review (FDA decision within six months).

In September 2025, the National Institutes of Health (NIH) has awarded a $2.3 million grant for the expansion of its THIO-101 Phase 2 clinical trial evaluating ateganosine as a third-line treatment for patients with advanced non-small cell lung cancer (NSCLC). The grant is intended to support expenses related to the enrollment of U.S. patients who are resistant to chemo and immunotherapy. The NIH grant allocations will be distributed over three years from 2025-2027.



Our Second-Generation Molecule Candidates

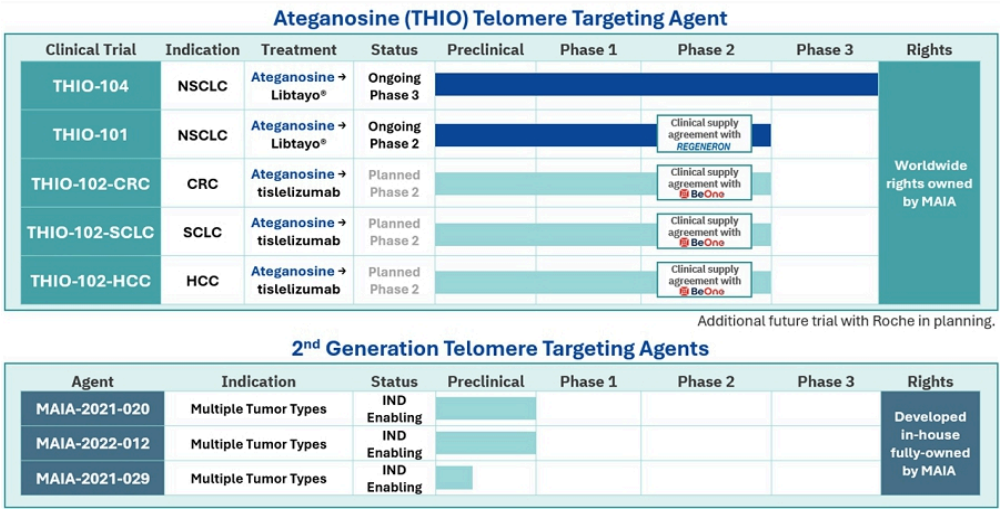
We have initiated an early-stage research and discovery program aimed at identifying new compounds capable of acting through similar mechanisms of activity as ateganosine, such as the targeting and modifying telomeric structures of cancer cells through cancer-cell intrinsic telomerase activity. The main objective for this program is to discover new compounds with potentially improved specificity towards cancer cells relative to normal cells and with potentially increased anticancer activity. This program may also allow us to strengthen our patent portfolio. Although the program is in early stages and we may not be able to identify suitable compounds, we believe we will be able to create a second generation of ateganosine-like compounds.

Our current 2nd-generation pipeline of potential telomere-targeting agents includes seven compounds that have successfully undergone in vitro inhibitory testing in five cancer models. The data from those studies showed a significantly lower 50% inhibitory concentration (IC50) for those compounds compared to ateganosine. Based on those data, we have progressed those seven compounds to in vivo testing. In January 2023, we nominated one lead new molecular entity candidate (designated as MAIA-2021-20) and one back-up new molecular entity candidate (MAIA-2022-12) for further advancement into preclinical GLP-toxicity and other studies and may advance one of these candidates into human clinical trials upon completion of the required preclinical evaluations. A third candidate (MAIA-2021-029) was selected in 2023.

MAIA also filed a broad provisional patent application covering the composition of matter for the new telomere-targeting molecules in the fourth quarter of 2022.

Our Pipeline

Our robust pipeline includes several targeted immuno-oncology candidates for relapsed and refractory cancers.



Our Strategy

Our goal is to be the leader in the discovery, development and commercialization of cancer telomere targeting agents and other similar small molecules. Our initial focus is to efficiently advance our clinical programs using ateganosine in sequential combination with a checkpoint inhibitor. Ultimately, we envision positioning ateganosine as a patient anticancer immunity priming treatment for all immune-activating agents used in the treatment of cancer. To date THIO-101 and THIO-104 are the only clinical trials testing ateganosine in combination with a checkpoint inhibitor. The key elements of our strategy are to:

- Advance our existing clinical programs, including seeking accelerated approval for ateganosine in NSCLC as a tumor mass-reducing and simultaneously immune system priming agent administered in advance of the immune-activating agent, cemiplimab for treatment of advanced NSCLC, and ultimately, as a cancer treatment foundation in multiple indications and geographies. Even if granted, accelerated approval status does not guarantee an accelerated review or marketing approval by the FDA;

- Broaden the clinical development of ateganosine by exploring synergistic administration prior to other standard-of care immune-therapies including cell therapy;
- Develop a franchise of telomere-targeting cancer treatments;
- Leverage our regulatory strategy to acquire additional human data faster outside U.S. for other cancer indications;
- Selectively enter into strategic collaborations with pharmaceutical and biotechnology companies that have immune activating therapies; and
- Expand our existing intellectual property portfolio.

We will face certain challenges in implementing our business strategy including, among others, the fact that earlier development of ateganosine was not commercially pursued. Even if ateganosine successfully advances through clinical studies and towards approval for use, we may face early competition from generic alternatives after expiration of any applicable regulatory exclusivities. The FDA's accelerated approval pathway, even if initially granted, does not guarantee an accelerated review or marketing approval by the FDA.

Our Intellectual Property

Our global patent and patent-pending estate covers several areas. Telomerase mediated telomere altering compounds and treatment of therapy-resistant cancers are part of our portfolio. Further, ateganosine's immunogenic treatment strategy, which focuses on sequential combination with checkpoint inhibitors has been filed. We maintain five (5) patent families, which include: three (3) issued US patents, nine (9) issued foreign patents, four (4) pending US patent applications and eleven (11) pending foreign patent applications.

Recent Developments

December 2025 Private Placement

In December 2025, we sold an aggregate of 1,233,488 shares of common stock at a purchase price of $1.224 per share, in a private placement to accredited investors and a Company director. Each share of common stock is being offered together with a warrant to purchase one share of common stock at an exercise price of $1.36 per share, which price represents the "Minimum Price" as defined under NYSE American Rule 713 (subject to customary adjustments as set forth in the warrants). The warrants are exercisable commencing six-months following issuance and have a term of three years from the issuance date. The securities being sold to the Company director participating in the offering are being issued pursuant to the Company's 2021 Equity Incentive Plan.

Corporate Information

We were incorporated in Delaware in August 2018, and we have operations in Chicago, Illinois, with some of our team members setup virtually and working remotely in California, Oregon, Massachusetts, Iowa, Ohio, Texas, North Carolinia, and New Jersey. Our principal executive office is located at 444 West Lake Street, Suite 1700, Chicago, IL 60606, and our phone number is (312) 416-8592. In July 2021, we established a wholly owned Australian subsidiary, MAIA Biotechnology Australia Pty Ltd, to conduct various preclinical and clinical activities for the development of our product candidates. In April 2022, we established a wholly owned Romanian subsidiary, MAIA Biotechnology Romania S.R.L. to conduct various preclinical and clinical activities for the development of our product candidates. Our website address is *www.MAIABiotech.com*. The information contained on our website is not incorporated by reference into this Annual Report on Form 10-K, and you should not consider any information contained on, or that can be accessed through, our website as part of this Annual Report on Form 10-K or in deciding whether to purchase our common stock.

THE OFFERING

Common stock offered by us	Up to shares of our common stock.
Pre-funded warrants offered by us:	We are also offering to those purchasers, if any, whose purchase of the common stock in this offering would result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or at the election of the purchaser, 9.99%) of our outstanding common stock immediately following the consummation of this offering, the opportunity to purchase, if they so choose, up to pre-funded warrants, in lieu of the common stock that would otherwise result in ownership in excess of 4.99% (or 9.99%, as applicable) of our outstanding common stock. The purchase price of each pre-funded warrant will equal the price per share of common stock being sold to the public in this offering, minus $0.0001, and the exercise price of each pre-funded warrant will be $0.0001 per share. For each pre-funded warrant we sell, the number of shares of common stock we are offering will be decreased on a one-for-one basis. The pre-funded warrants do not expire and each pre-funded warrant will be immediately exercisable and may be exercised at any time until exercised in full. See "Description of Securities." You should also read the form of pre-funded warrant, which is filed as an exhibit to the registration statement of this prospectus forms a part. This prospectus supplement also relates to the offering of the shares of common stock issuable upon exercise of the pre-funded warrants.
Common stock to be outstanding immediately after the offering (1)	shares (or shares if the underwriters exercise their option to purchase additional shares of common stock in full and assuming no exercise of any pre-funded warrants issued in this offering)
Over-allotment option	The underwriters have an option, exercisable for 30-days after the date of this prospectus supplement, to purchase up to an additional shares of common stock and/or pre-funded warrants from us at the public offering price, less underwriting discounts.
Public offering price	$ per share and $ per pre-funded warrant to purchase one share of common stock.
Use of proceeds	We estimate that our net proceeds from this offering will be approximately $ million, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. We intend to use the net proceeds from this offering to conduct clinical trials and for working capital and general corporate purposes. See "Use of Proceeds."
Dividend policy	We have never paid cash dividends on our common stock and do not anticipate paying any cash dividends in the foreseeable future but intend to retain our capital resources for reinvestment in our business.

Risk factors	Investing in our common stock involves a high degree of risk. You should read the "Risk Factors" section beginning on page S-14 of this prospectus supplement and page 9 of the accompanying prospectus and in the documents incorporated by reference in this prospectus supplement for a discussion of factors to consider before deciding to invest in our common stock and/or pre-funded warrants.
NYSE American symbol	"MAIA." We do not intend to apply for the listing of the pre-funded warrants on any national securities exchange or other trading market. Without an active trading market, the liquidity of the pre-funded warrants will be limited.

The number of shares of common stock to be outstanding immediately after this offering is based on 38,659,579 shares of our common stock outstanding as of March 2, 2026, and excludes:

- 1,752,945 shares of common stock issuable upon exercise of options outstanding under the MAIA Biotechnology, Inc. 2018 Stock Option Plan (the "MAIA 2018 Plan") with a weighted-average exercise price of $1.80 per share;
- 3,503,589 shares of common stock issuable upon exercise of options outstanding under the MAIA Biotechnology, Inc. Amended and Restated 2020 Equity Incentive Plan (the "MAIA 2020 Plan") with a weighted-average exercise price of $2.49 per share;
- 7,240,278 shares of common stock issuable upon exercise of options outstanding under our 2021 Equity Incentive Plan (the "MAIA 2021 Plan") with a weighted-average exercise price of $2.18 per share;
- 791,243 shares of common stock reserved for future issuance under the MAIA 2021 Plan,
- 13,086,220 shares of common stock issuable upon exercise of warrants to purchase shares of common stock outstanding at a weighted-average exercise price of $1.92 per share;

Except as otherwise indicated, all information in this prospectus supplement assumes) no exercise, conversion, or settlement of the outstanding options, or warrants described above.

RISK FACTORS

An investment in our common stock involves a high degree of risk. Before deciding whether to invest in our common stock, you should consider carefully the risks described below, together with other information in this prospectus supplement, the accompanying prospectus, the information and documents incorporated by reference. You should also consider the risks, uncertainties and assumptions discussed under the heading "Risk Factors" included in our most recent annual report on Form 10-K and the subsequent quarterly reports on Form 10-Q and other reports that we file with the SEC, which are on file with the SEC and are incorporated herein by reference, and which may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future. If any of these risks actually occurs, our business, financial condition, results of operations or cash flow could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment. The risks and uncertainties described below are not the only ones facing us. Additional risks and uncertainties not presently known to us, or that we currently see as immaterial, may also harm our business. Please also read carefully the section below entitled "Special Note Regarding Forward-Looking Statements."

Risks Related to This Offering

If you purchase securities in this offering, you will experience immediate and substantial dilution in the book value of your shares.

Because the price per share of common stock being offered in this offering is expected to be substantially higher than the net tangible book value per share of our common stock, you may experience substantial dilution to the extent of the difference between the effective offering price per share of common stock you pay in this offering and the net tangible book value per share of our common stock immediately after this offering. Our net tangible book value as of September 30, 2025, was approximately $17,110,901, or $0.14 per share of common stock. Net tangible book value per share is equal to our total tangible assets minus total liabilities, all divided by the number of shares of common stock outstanding. See the section entitled "Dilution" on page S-17 below for a more detailed illustration of the dilution you may incur if you participate in this offering.

Our management team may invest or spend the proceeds raised in this offering in ways with which you may not agree or which may not yield a significant return.

Our management will have broad discretion over the use of proceeds from this offering. We currently intend to use the net proceeds of this offering as described in the section entitled "Use of Proceeds." However, our management will have broad discretion in the application of the net proceeds from this offering and could use them for purposes other than those contemplated at the time of this offering. Accordingly, you are relying on the judgment of our management with regard to the use of these net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds will be used appropriately. The failure by management to apply these funds effectively could result in financial losses that could have a material adverse effect on our business, cause the price of our common stock to decline, and delay the development of our product candidates. Pending their use, we may invest the net proceeds from this offering in short-term, interest-bearing instruments. These investments may not yield a favorable return, or any return, to us or our stockholders.

The Company's previous investment banker could assert that it has a right of first refusal with respect to this financing as well as rights to a fee if certain investors participate in this offering.

Our previous investment banker has a right of first refusal ("ROFR") pursuant to our engagement letter, as well as a right to receive certain fees if certain investors participate in this offering ("Tail"). There can be no assurance that the previous investment banker will release us from the ROFR or that they will not make a claim against us for fees under the tail, or otherwise. Any damages that we may be held liable for could adversely affect our financial condition.

Our stock price has been and may continue to be volatile and you may not be able to resell our common stock at or above the price you paid.

The market price for our common stock has been volatile and may fluctuate significantly in response to a number of factors, many of which we cannot control, such as quarterly fluctuations in financial results, the timing and our ability to advance the development of our product candidates or changes in securities analysts' recommendations could cause the price of our stock to fluctuate substantially. Each of these factors, among others, could harm your investment in our common stock and could result in your being unable to resell the shares of our common stock that you purchase at a price equal to or above the price you paid.

In addition, the stock markets in general have experienced extreme volatility that has at times been unrelated to the operating performance of the issuer. Between February 27, 2025 and February 27, 2026, the closing sales price of our common stock reported on the NYSE American has ranged between $0.87 and $3.19 per share. These broad market fluctuations may adversely affect the trading price or liquidity of our common stock. In the past, when the market price of a stock has been volatile, holders of that stock have sometimes instituted securities class action litigation against the issuer. If any of our stockholders were to bring such a lawsuit against us, we could incur substantial costs defending the lawsuit and the attention of our management would be diverted from the operation of our business.

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

We currently anticipate that we will retain any future earnings to finance the continued development, operation and expansion of our business. As a result, we do not anticipate declaring or paying any cash dividends or other distributions in the foreseeable future. If we do not pay dividends, our common stock may be less valuable because stockholders must rely on sales of their common stock after price appreciation, which may never occur, to realize any gains on their investment.

The sale of our common stock and/or pre-funded warrants in this offering and any future sales of our common stock, or the perception that such sales could occur, may depress our stock price and our ability to raise funds in new stock offerings.

We may from time to time issue additional shares of common stock at a discount from the current trading price of our common stock. As a result, our stockholders would experience immediate dilution upon the purchase of any shares of our common stock sold at such discount. In addition, as opportunities present themselves, we may enter into financing or similar arrangements in the future, including the issuance of debt securities, preferred stock or common stock. Sales of shares of our common stock in this offering and the public market following this offering, or the perception that such sales could occur, may lower the market price of our common stock and may make it more difficult for us to sell equity securities or equity-related securities in the future at a time and price that our management deems acceptable, or at all.

There is no public market for the pre-funded warrants being offered by us in this offering.

There is no established public trading market for the pre-funded warrants offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply to list the pre-funded warrants on any national securities exchange or other nationally recognized trading system, including the NYSE American. Without an active market, the liquidity of the pre-funded warrants will be limited.

Holders of the pre-funded warrants will have no rights as common stockholders until such holders exercise their pre-funded warrants and acquire our common stock.

Until holders of the pre-funded warrants exercise their pre-funded warrants and acquire shares of our common stock, such holders will have no rights with respect to the shares of our common stock underlying such pre-funded warrants. Upon exercise of the pre-funded warrants, the holders will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

We will not receive any meaningful amount of additional funds upon the exercise of the pre-funded warrants.

Each pre-funded warrant will be exercisable until it is fully exercised and by means of payment of the nominal cash purchase price upon exercise or by means of a "cashless exercise" according to a formula set forth in the pre-funded warrant. Accordingly, we will not receive any meaningful additional funds upon the exercise of the pre-funded warrants.

Significant holders or beneficial owners of our common stock may not be permitted to exercise the pre-funded warrants that they hold.

A holder of the pre-funded warrants will not be entitled to exercise any portion of any pre-funded warrant that, upon giving effect to such exercise, would cause (i) the aggregate number of shares of our common stock beneficially owned by such holder (together with its affiliates) to exceed 4.99% (or, at the election of the purchaser, 9.99%) of the number of shares of our common stock outstanding immediately after giving effect to the exercise; or (ii) the combined voting power of our securities beneficially owned by such holder (together with its affiliates) to exceed 4.99% of the combined voting power of all of our securities outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the pre-funded warrants and subject to such holder's rights under the pre-funded warrants to increase or decrease such percentage to any other percentage not in excess of 9.99% upon at least 61 days' prior notice from the holder to us. As a result, you may not be able to exercise your pre-funded warrants for shares of our common stock at a time when it would be financially beneficial for you to do so. In such a circumstance, you could seek to sell your pre-funded warrants to realize value, but you may be unable to do so in the absence of an established trading market.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus, and the information incorporated by reference in this prospectus supplement contain "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and such forward-looking statements involve risks and uncertainties. All statements, other than statements of historical facts, contained in this prospectus supplement, the accompanying prospectus, and the other documents we have filed with the SEC that are incorporated by reference herein, including statements regarding our strategy, future operations and strategies, future financial position, projected costs, prospects, plans and objectives of management, are forward-looking statements. Words such as "may," "should," "could," "would," "predicts," "potential," "continue," "expects," "anticipates," "future," "intends," "plans," "believes," "estimates," "aim," "contemplate," "design," "might," "possible," "project," "seek," "suggest," "strategy," "target," "will," and similar expressions or phrases or the negative of those expressions or phrases, as well as statements in future tense, are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Forward-looking statements should not be read as a guarantee of future performance or results and may not be accurate indications of when such performance or results will actually be achieved. Forward-looking statements are based on information we have when those statements are made or our management's good faith belief as of that time with respect to future events, and are subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in or suggested by the forward-looking statements. Important factors that could cause such differences include, but are not limited to:

- our financial performance;

- there is substantial doubt regarding our ability to continue as a going concern. We will need substantial additional funding, 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 our product development efforts or other operations;
- our ability to obtain funding for our operations, including funding necessary to develop and commercialize our drug candidates;
- the ability to receive FDA clearance for clinical trials;
- the ability to secure clinical sites, enroll patients, and initiate clinical trials;
- the ability of our clinical trials to demonstrate safety and efficacy of our drug candidates, and other positive results;
- the success, cost and timing of our development activities, preclinical studies and clinical trials;
- the timing and focus of our future clinical trials, and the reporting of data from those trials;
- our plans relating to commercializing our drug candidates, if approved;
- our plans and ability to establish sales, marketing and distribution infrastructure to commercialize any drug candidates for which we obtain approval;
- our ability to attract and retain key scientific and clinical personnel;
- our ability to contract with third-party suppliers and manufacturers and their ability to perform adequately;
- our reliance on third parties to conduct clinical trials of our drug candidates, and for the manufacture of our drug candidates for preclinical studies and clinical trials;
- our ability to establish our own manufacturing facilities domestically;
- our ability to expand our drug candidates into additional indications and patient populations;
- the success of competing therapies that are or may become available;
- the beneficial characteristics, safety and efficacy of our drug candidates;
- regulatory developments in the United States and other jurisdictions;
- our ability to obtain and maintain regulatory approval of our drug candidates, and any related restrictions, limitations and/or warnings in the label of any approved drug candidate;
- our plans relating to the further development and manufacturing of our drug candidates, including additional indications for which we may pursue;
- our plans and ability to obtain or protect intellectual property rights;
- the scope of protection we are able to establish and maintain for intellectual property rights covering our drug candidates and technology; and
- potential claims relating to our intellectual property.

Although we believe that we have a reasonable basis for each forward-looking statement contained in this prospectus supplement, the accompanying prospectus, and the other document documents we have filed with the SEC that are incorporated by reference herein, we caution you that these statements are based on our projections of the future that are subject to known and unknown risks and uncertainties and other factors that may cause our actual results, level of activity, performance or achievements expressed or implied by these forward-looking statements, to differ. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. All forward-looking statements are qualified in their entirety by this cautionary statement. Forward-looking statements should be regarded solely as our current plans, estimates and beliefs. We have included important factors in the cautionary statements included in this prospectus supplement, the accompanying prospectus, and the other document documents we have filed with the SEC that are incorporated by reference herein, particularly in the section entitled “Risk Factors,” beginning on page S-14 of this prospectus supplement, which we believe could cause our actual results to be materially different from the plans, intentions and expectations disclosed in the forward-looking statements we make. Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make.

Any forward-looking statement speaks only as to the date on which that statement is made. We assume no obligation to update any forward-looking statements to reflect events or circumstances after the date of this prospectus supplement, except as may otherwise be required by the federal securities laws.

USE OF PROCEEDS

We expect to receive net proceeds from this offering of approximately $, after deducting the estimated underwriting discounts and commissions and the estimated offering expenses payable by us. However, this is a best efforts offering with no minimum, and we may not sell all or any of these shares of common stock; as a result, there can be no assurance that the offering contemplated hereby will ultimately be consummated for the full amount.

We intend to use the net proceeds from this offering to conduct clinical trials and for working capital and general corporate purposes. We do not currently have more specific plans or commitments with respect to the net proceeds from this offering and, accordingly, are unable to quantify the allocation of such proceeds among the various potential issues.

The expected use of net proceeds of this offering represents our current intentions based upon our present plan and business conditions. Investors are cautioned, however, that expenditures may vary substantially from these uses. Investors will be relying on the judgment of our management, who will have broad discretion regarding the application of the proceeds of this offering. The amounts and timing of our actual expenditures will depend upon numerous factors, including the amount of cash generated by our operations, the amount of competition we face and other operational factors. We may find it necessary or advisable to use portions of the proceeds from this offering for other purposes.

Pending application of the net proceeds as described above, we intend to invest the proceeds to us in investment-grade, interest-bearing securities such as money market funds, certificates of deposit, or direct or guaranteed obligations of the U.S. government, or hold as cash. We cannot predict whether the proceeds invested will yield a favorable, or any, return.

DIVIDEND POLICY

We have never paid or declared any cash dividends on our common stock, and we do not anticipate paying any cash dividends on our common stock in the foreseeable future. We intend to retain all available funds and any future earnings to fund the development and expansion of our business. Any future determination to pay dividends will be at the discretion of our board of directors and will depend upon a number of factors, including our results of operations, financial condition, future prospects, contractual restrictions, restrictions imposed by applicable law and other factors our board of directors deems relevant.

DILUTION

If you invest in our securities in this offering, your interest will be diluted immediately to the extent of the difference between the offering price per share you will pay in this offering and the as-adjusted net tangible book value per share of our common stock immediately after giving effect to this offering. We calculate net tangible book value per share by dividing the net tangible book value (our tangible assets less our total liabilities) by the number of outstanding shares of our common stock.

Our net tangible book value as of September 30, 2025 was approximately $41,650, or $0.001 per share of common stock. Net tangible book value per share is determined by dividing our total tangible assets, less total liabilities, by the number of shares of our common stock outstanding as of September 30, 2025.

Our pro forma net tangible book value as of September 30, 2025 was approximately $5,265,492 million, or $0.14 per share of Common Stock. Pro forma net tangible book value represents the amount of our total assets less our total liabilities as of September 30, 2025, after giving effect to the issuance of (i) an aggregate of 236,271 shares of Common Stock through H.C. Wainwright pursuant to the terms of the at-the-market offering sales agreement, for which the Company received aggregate net proceeds of approximately $401,652, which issuances occurred subsequent to September 30, 2025 and through March __, 2026; (ii) an aggregate of 1,733,766 shares of common stock on October 1, 2025 to accredited investors, including certain Company directors for which the Company received aggregate net proceeds of approximately $2,248,757; (iii) an aggregate of 603,769 shares of common stock on October 16, 2025 to accredited investors, for which the Company received aggregate net proceeds of approximately $682,543; (iv) an aggregate of 1,233,488 shares of common stock on December 22, 2025 to accredited investors, including certain Company directors for which the Company received aggregate net proceeds of approximately $1,469417; (v) an aggregate of 21,479 shares of common stock upon exercise of presently exercisable options and (vi) 379,653 shares of common stock issued to various vendors for services rendered in October 2025 through January 2026.

Pro-forma as-adjusted net tangible book value per share represents our net tangible book value after giving effect to the sale of shares of common stock at the public offering price of $ per share and pre-funded warrants exercisable for shares of common stock at an offering price of $ per share, and, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us in connection with this offering and assuming the exercise of all pre-funded warrants, would have been approximately $ million, or $ per share. This represents an immediate increase in pro forma net tangible book value of $ per share to our existing stockholders and an immediate dilution of approximately $ per share to purchasers of our common stock in this offering.

The following table illustrates this per share dilution.

Public offering price per share		$
Pro-forma net tangible book value per share as of September 30, 2025	$	0.14
Increase in pro-forma net tangible book value per share attributable to this offering	$	
Pro-forma as-adjusted net tangible book value per share as of September 30, 2025, after giving effect to this offering		$
Dilution per share to new investors in this offering		$

The above discussion and table are based on 34,451,153 shares of our common stock outstanding as of September 30, 2025 and excludes:

- 1,773,912 shares of common stock issuable upon exercise of options outstanding under the MAIA Biotechnology, Inc. 2018 Stock Option Plan (the "MAIA 2018 Plan") with a weighted-average exercise price of $1.80 per share;
- 3,503,589 shares of common stock issuable upon exercise of options outstanding under the MAIA Biotechnology, Inc. Amended and Restated 2020 Equity Incentive Plan (the "MAIA 2020 Plan") with a weighted-average exercise price of $2.49 per share;
- 6,852,123 shares of common stock issuable upon exercise of options outstanding under our 2021 Equity Incentive Plan (the "MAIA 2021 Plan") with a weighted-average exercise price of $2.23 per share;
- 1,378,877 shares of common stock reserved for future issuance under the MAIA 2021 Plan,
- 9,702,689 shares of common stock issuable upon exercise of warrants to purchase shares of common stock outstanding at a weighted-average exercise price of $2.15 per share;

Except as otherwise indicated, all information in this prospectus supplement assumes (i) no exercise, conversion, or settlement of the outstanding options, or warrants described above; and (ii) no exercise of the underwriter's warrants to be issued to the underwriter in connection with this offering.

To the extent that any of these outstanding warrants or options are exercised at prices per share below the public offering price per share in this offering or we issue additional shares under our equity incentive plans at prices below the public offering price per share in this offering, you may experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that we raise additional capital by issuing equity or convertible debt securities, your ownership will be further diluted.

DESCRIPTION OF SECURITIES OFFERED

We are offering shares of our common stock and/or pre-funded warrants to purchase shares of our common stock. We are also registering the shares of common stock issuable from time to time upon exercise of the pre-funded warrants offered hereby.

Common Stock

As of the date of this prospectus supplement, we had 150,000,000 shares of common stock, par value $0.0001 per share authorized, of which 38,659,067 shares were issued and outstanding.

The material terms and provisions of our common stock and each other class of our securities which qualifies or limits our common stock are described in the section entitled "Description of Capital Stock" beginning on page 10 of the accompanying prospectus.

Pre-Funded Warrants

The following summary of certain terms and provisions of the pre-funded warrants that are being offered hereby is not complete and is subject to, and qualified in its entirety by, the provisions of the pre-funded warrant, the form of which will be filed as an exhibit to a Current Report on Form 8-K in connection with this offering and incorporated by reference into the registration statement of which this prospectus supplement forms a part. Prospective investors should carefully review the terms and provisions of the form of pre-funded warrant for a complete description of the terms and conditions of the pre-funded warrants.

Pre-funded warrants will be issued in certificated form only.

Duration and exercise price

Each pre-funded warrant offered hereby has an initial exercise price per share equal to $0.0001. The pre-funded warrants are immediately exercisable and have an indefinite term. The exercise price and number of shares of common stock issuable upon exercise is subject to appropriate adjustment in the event of stock dividends, stock splits, reorganizations or similar events affecting our common stock and the exercise price.

Exercisability

The pre-funded warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). A holder (together with its affiliates) may not exercise any portion of such holder's pre-funded warrant to the extent that the holder would own more than 4.99% of the outstanding shares of common stock immediately after exercise, except that upon prior notice from the holder to us, the holder may increase the amount of ownership of outstanding shares of common stock after exercising the holder's pre-funded warrants up to 9.99% of the number of shares of common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the pre-funded warrants. No fractional shares of common stock will be issued in connection with the exercise of a pre-funded warrant. In lieu of fractional shares, we will either pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price or round up to the next whole share.

Cashless exercise

The pre-funded warrants may be exercised, in whole or in part, by means of cashless exercise. In lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the pre-funded warrants.

Fundamental transactions

In the event of any fundamental transaction, as described in the pre-funded warrants and generally including any merger with or into another entity, sale of all or substantially all of our assets, tender offer or exchange offer, or reclassification of our shares of common stock, upon any subsequent exercise of a pre-funded warrant, the holder will have the right to receive as alternative consideration, for each share of common stock that would have been issuable upon such exercise immediately prior to the occurrence of such fundamental transaction, the number of shares of common stock of the successor or acquiring corporation of our company, if it is the surviving corporation, and any additional consideration receivable upon or as a result of such transaction by a holder of the number of shares of common stock for which the pre-funded warrant is exercisable immediately prior to such event.

Transferability

Subject to applicable laws, a pre-funded warrant or the rights thereunder may be transferred or assigned, in whole or in part. The ownership of the pre-funded warrants and any transfers of the pre-funded warrants will be registered in a warrant register maintained by the warrant agent. We will initially act as warrant agent.

Exchange listing

There is no trading market available for the pre-funded warrants on any securities exchange or nationally recognized trading system. We do not intend to list the pre-funded warrants on any securities exchange or nationally recognized trading system.

Right as a stockholder

Except as otherwise provided in the pre-funded warrants or by virtue of such holder's ownership of shares of our common stock, the holders of the pre-funded warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise their pre-funded warrants.

UNDERWRITING

Konik Capital Partners LLC, a division of T.R. Winston & Company, is acting as representative of each of the underwriters named below (the "Representative"). Subject to the terms and conditions set forth in an underwriting agreement between us and the Representative, dated as of the date of this prospectus supplement, we have agreed to sell to each underwriter named below, and such underwriter has agreed to purchase, such securities set forth opposite its name in the below table at the public offering price, less the underwriting discounts and commissions set forth on the cover page of this prospectus supplement.

Underwriter	Number of Shares of Common Stock	Number of Pre-Funded Warrants
Konik Capital Partners LLC		
Total		

The underwriting agreement provides that, subject to the terms and conditions contained therein, the underwriters are obligated to take and pay for all of the shares of common stock in the offering if any of the shares of common stock are purchased, other than the shares of common stock, including the number of shares underlying the pre-funded warrants, covered by the over-allotment option described below. The underwriter reserves the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Over-Allotment Option

We have granted to the underwriters an option, exercisable no later than 30-days after the date of the underwriting agreement, to purchase up to an additional shares of common stock and/or pre-funded warrants (15% of shares and shares subject to pre-funded warrants sold in this Offering) at the public offering prices, less the underwriting discounts. If the underwriters exercise this option, each underwriter will be obligated, subject to conditions contained in the underwriting agreement, to purchase a number of additional shares and/or pre-funded warrants proportionate to such underwriter's initial amount reflected in the above table.

Discounts and Commissions

The underwriters propose to offer the shares of common stock and/or pre-funded warrants initially at the public offering prices on the cover page of this prospectus. After the initial offering, the public offering prices, concession or any other term of the offering may be changed.

The following table summarizes the per share and pre-funded warrant, underwriting discounts and commissions and proceeds, before expenses, to us, assuming both no exercise and full exercise by the underwriters of the over-allotment option:

	Per Share	Per Pre-Funded Warrant	Total Without Over-Allotment Option	Total With Over-Allotment Option
Public offering price	$	$	$	$
Underwriting discounts and commissions (5.0%)	$	$	$	$
Proceeds to us, before fees and expenses	$	$	$	$

We estimate expenses payable by us in connection with this offering, other than the underwriting discounts and commissions referred to above, will be approximately $, which includes certain expenses incurred by the underwriters in connection with this offering that will be reimbursed by us. We have agreed to reimburse the Representative for all reasonable out-of-pocket costs and expenses incident to the performance of its obligations under the underwriting agreement (including, without limitation, the fees and expenses of its outside attorneys), provided that, excluding certain expenses related to indemnification and Blue-Sky and FINRA filings, if any, such costs and expenses shall not exceed $100,000.

We have also agreed to indemnify the underwriters against certain liabilities, including civil liabilities under the Securities Act or to contribute to payments that the underwriters may be required to make in respect of those liabilities.

Company Standstill

In connection with this offering, we have agreed that, without the prior written consent of the Representative, for a period commencing on the date of the underwriting agreement and ending on the date that is sixty (60) days after the closing of the offering, we will not (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of capital stock of the Company or any securities convertible into or exercisable or exchangeable for shares of capital stock of the Company, (ii) file or caused to be filed any registration statement with the Commission relating to the offering of any shares of capital stock of the Company or any securities convertible into or exercisable or exchangeable for shares of capital stock of the Company (other than the filing a registration statement on Form S-8 in connection with any employee compensation plan), (iii) complete any offering of debt securities of the Company, other than entering into a line of credit with a traditional bank, or (iv) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of capital stock of the Company, whether any such transaction described in clause (i), (ii), (iii) or (iv) above is to be settled by delivery of shares of capital stock of the Company or such other securities, in cash or otherwise.

These restrictions above do not apply in certain situations, including, among others:

- the issuance and sale of shares of common stock and/or pre-funded warrants (including any shares of common stock issuable upon exercise of the pre-Funded warrants) to be sold on connection with the offering;
- the issuance by the Company of shares of common stock upon the exercise of a stock option or warrant or the conversion of a security outstanding on the date hereof;
- the issuance by the Company of stock options, shares of capital stock of the Company or other awards under any equity compensation plan of the Company and
- the issuance by the Company of securities issued pursuant to acquisitions or strategic transactions approved by a majority of the disinterested directors of the Company.

Lock-up Agreements

Each of our officers and directors have agreed to be subject to a lock-up period of 60 days following the date of closing of the offering pursuant to this prospectus supplement. This means that, during the applicable lock-up period, we and such persons may not offer for sale, contract to sell, sell, distribute, grant any option, right or warrant to purchase, pledge, hypothecate or otherwise dispose of, directly or indirectly, any of our shares of common stock or any securities convertible into, or exercisable or exchangeable for, shares of common stock, subject to customary exceptions. The Representative may waive the terms of these lock-up agreements in its sole discretion and without notice.

NYSE American Listing

Our common stock is listed on the NYSE American under the symbol “MAIA”.

Price Stabilization, Short Positions and Penalty Bids

In connection with this offering, the underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of our common stock. Specifically, the underwriters may over-allot in connection with this offering by selling more shares of common stock than are set forth on the cover page of this prospectus. This creates a short position in our common stock for its own account. The short position may be either a covered short position or a naked short position. In a covered short position, the number of shares of common stock over-allotted by the underwriters is not greater than the number of shares of our common stock that they may purchase in the over-allotment option. In a naked short position, the number of shares of our common stock involved is greater than the number of shares of common stock in the over-allotment option. To close out a short position, the underwriters may elect to exercise all or part of the over-allotment option. The underwriters may also elect to stabilize the price of our common stock or reduce any short position by bidding for, and purchasing, our common stock in the open market.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter or dealer repays selling concessions allowed to it for distributing a security in this offering because the underwriter repurchases that security in stabilizing or short covering transactions.

Finally, the underwriters may bid for, and purchase, shares of our common stock in market making transactions, including "passive" market making transactions as described below.

These activities may stabilize or maintain the market price of our common stock at a price that is higher than the price that might otherwise exist in the absence of these activities. The underwriters are not required to engage in these activities and may discontinue any of these activities at any time without notice.

In connection with this offering, the underwriters and selling group members, if any, or their affiliates may engage in passive market making transactions in our common stock immediately prior to the commencement of sales in this offering, in accordance with Rule 103 of Regulation M under the Exchange Act. Rule 103 generally provides that:

- a passive market maker may not effect transactions or display bids for our common stock in excess of the highest independent bid price by persons who are not passive market makers;
- net purchases by a passive market maker on each day are generally limited to 30% of the passive market maker's average daily trading volume in our common stock during a specified two-month prior period or 200 shares, whichever is greater, and must be discontinued when that limit is reached; and
- passive market making bids must be identified as such.

Electronic Distribution

A prospectus in electronic format may be made available on the websites maintained by the underwriters. The Representative may agree to allocate a number of shares to underwriters for sale to their online brokerage account holders. Internet distributions will be allocated by the Representative to underwriters that may make internet distributions on the same basis as other allocations. In connection with the offering, the underwriters or syndicate members may distribute prospectuses electronically. No forms of electronic prospectus other than prospectuses that are printable as Adobe® PDF will be used in connection with this offering.

Other than the prospectus in electronic format, the information on any underwriter's website and any information contained in any other website maintained by an underwriter is not part of the prospectus or the registration statement of which this prospectus forms a part, has not been approved and/or endorsed by us or any underwriter in its capacity as underwriter and should not be relied upon by investors.

Affiliations

Each underwriter and its affiliates may provide, from time to time, investment banking and financial advisory services to us in the ordinary course of business, for which they may receive customary fees and commissions.

Foreign Regulatory Restrictions on Purchase of our Shares

We have not taken any action to permit a public offering of our shares outside the United States or to permit the possession or distribution of this prospectus outside the United States. People outside the United States who come into possession of this prospectus must inform themselves about and observe any restrictions relating to this offering of our shares and the distribution of this prospectus outside the United States

LEGAL MATTERS

The validity of the shares of common stock offered by this prospectus supplement and the accompanying prospectus will be passed upon for us by Sheppard, Mullin, Richter & Hampton LLP, New York, New York. The representative of the underwriters is being represented by Lucosky Brookman LLP, New York, New York.

EXPERTS

The audited financial statements of the Company Inc. incorporated by reference in this Prospectus Supplement and elsewhere in this registration statement have been incorporated in reliance upon the report of Grant Thornton LLP, independent registered public accountants, upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the Securities and Exchange Commission (the "SEC") a registration statement on Form S-3 under the Securities Act, with respect to the securities covered by this prospectus. This prospectus supplement, which is a part of the registration statement, does not contain all of the information set forth in the registration statement or the exhibits and schedules filed therewith. For further information with respect to us and the securities covered by this prospectus supplement, please see the registration statement and the exhibits filed with the registration statement. The SEC maintains an internet website that contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC. The address of the website is http://www.sec.gov.

We are subject to the information and periodic reporting requirements of the Exchange Act and, in accordance therewith, we file periodic reports, proxy statements and other information with the SEC. Such periodic reports, proxy statements and other information are available for inspection and copying at the website of the SEC referred to above. We maintain a website at http://www.MAIABiotech.com. You may access our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed pursuant to Sections 13(a) or 15(d) of the Exchange Act with the SEC free of charge at our website as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. Our website and the information contained on that site, or connected to that site, are not incorporated into and are not a part of this prospectus supplement or the accompanying prospectus.

INFORMATION INCORPORATED BY REFERENCE

The SEC's rules allow us to "incorporate by reference" information into this prospectus supplement, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus supplement and the accompanying prospectus, and subsequent information that we file with the SEC will automatically update and supersede that information. Any statement contained in a previously filed document incorporated by reference will be deemed to be modified or superseded for purposes of this prospectus supplement and accompanying prospectus to the extent that a statement contained in this prospectus supplement or the accompanying prospectus modifies or replaces that statement.

We incorporate by reference our documents listed below and any future filings made by us with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act in this prospectus supplement, between the date of this prospectus supplement and the termination of the offering of the securities described in this prospectus supplement. We are not, however, incorporating by reference any documents or portions thereof, whether specifically listed below or filed in the future, that are not deemed "filed" with the SEC, including our Compensation Committee report and performance graph or any information furnished pursuant to Items 2.02 or 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K, unless such Form 8-K expressly provides to the contrary.

This prospectus supplement and the accompanying prospectus incorporate by reference the documents set forth below that have previously been filed with the SEC:

(a) Our Annual Report on Form 10-K for the fiscal year ended December 31, 2024 filed with the SEC on March 31, 2025;

(b) Our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2025 filed with the SEC on May 9, 2025; our Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2025 filed on August 11, 2025; and our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2025 filed on November 7, 2025

(c) Our Current Reports on Form 8-K filed with the SEC on February 5, 2025; February 6, 2025; February 19, 2025; February 25, 2025; February 27, 2025; March 19, 2025; March 21, 2025; March 26, 2025; April 1, 2025; April 22, 2025; May 6, 2025; May 22, 2025; May 23, 2025; May 28, 2025; June 5, 2025; June 17, 2025; June 18, 2025; June 24, 2025; June 26, 2025; July 17, 2025; July 28, 2025; August 13, 2025; September 8, 2025; September 11, 202 September 12, 2025; September 18, 2025; September 24, 2024; September 30, 2025; October 7, 2025; October 14, 2025; October 23, 2025; October 24, 2025 October 27, 2025; November 7, 2025; November 20, 2025; November 21, 2025; December 10, 2025; December 11, 2025; December 17, 2025; January 13, 2026; January 20, 2026; and February 24, 2026; and

(d) The description of our common stock and preferred stock filed as Exhibit 4.1 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2024 filed with the SEC on March 21, 2025.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of this offering, including, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus supplement and the accompanying prospectus and deemed to be part of this prospectus supplement and the accompanying prospectus from the date of the filing of such reports and documents.

You should rely only on the information incorporated by reference or provided in this prospectus. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus supplement is accurate as of any date other than the date of this prospectus supplement or the date of the documents incorporated by reference in this prospectus supplement.

You may request a free copy of any of the documents incorporated by reference in this prospectus supplement and the accompanying prospectus (other than exhibits, unless they are specifically incorporated by reference in the documents) by writing or telephoning us at the following address:

MAIA Biotechnology, Inc.
444 West Lake Street, Suite 1700
Chicago, IL 60606
Attention: Vlad Vitoc
Telephone number: (312) 416-8592

You may also access the documents incorporated by reference in this prospectus through our website at www.amesite.com. Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus or the registration statement of which it forms a part.

PROSPECTUS

MAIA Biotechnology, Inc.

$150,000,000

Common Stock
Preferred Stock
Warrants
Debt Securities
Subscription Rights
Units

We may offer, issue and sell from time to time together or separately, in one or more offerings, any combination of (i) our common stock, (ii) our preferred stock, which we may issue in one or more series, (iii) warrants, (iv) senior or subordinated debt securities, (v) subscription rights and (vi) units. The preferred stock, warrants, debt securities and subscription rights may be convertible into, or exercisable or exchangeable for, common or preferred stock or other securities of ours. The debt securities may consist of debentures, notes, or other types of debt. The units may consist of any combination of the securities listed above.

The aggregate public offering price of the securities that we may offer will not exceed $150,000,000. We will offer the securities in an amount and on terms that market conditions will determine at the time of the offering. Our common stock is listed on NYSE American under the symbol "MAIA." On August 11, 2023, the last reported sale price of our common stock was $2.08. We have no preferred stock, warrants, debt securities, subscription rights or units listed on any market. Each prospectus supplement will indicate if the securities offered thereby will be listed on any securities exchange.

As of August 11, 2023, the aggregate market value of our outstanding common stock held by non-affiliates, or public float, was $15,170,591.80, based on 13,648,425 shares of outstanding common stock, of which approximately 7,506,485 shares were held by affiliates, and a price of $2.47 per share, which was the price at which our common stock was last sold on NYSE American on June 12, 2023. We have not offered any securities pursuant to General Instruction I.B.6 of Form S-3 during the prior 12-calendar-month period that ends on and includes the date of this prospectus. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities registered on this registration statement in a public primary offering with a value exceeding more than one-third of our public float in any 12-month period so long as our public float remains below $75 million.

Investing in our securities involves risk. You should carefully consider the risks that we refer you to under the section captioned "Risk Factors" in this prospectus on page 8 before buying our securities.

Should we offer any of the securities described in this prospectus, we will provide you with the specific terms of the particular securities being offered in supplements to this prospectus. You should read this prospectus and any supplement, together with additional information described under the headings "Additional Information" and "Incorporation of Certain Information by Reference" carefully before you invest. This prospectus may not be used to sell securities unless accompanied by a prospectus supplement.

We may sell these securities directly to our stockholders or to other purchasers or through agents on our behalf or through underwriters or dealers as designated from time to time. If any agents or underwriters are involved in the sale of any of these securities, the applicable prospectus supplement will provide the names of the agents or underwriters and any applicable fees, commissions or discounts.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is August 23, 2023.

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As used in this prospectus, unless the context indicates or otherwise requires, “the Company,” “we,” “us” and “our” refer to MAIA Biotechnology, Inc., a Delaware corporation, and its consolidated subsidiaries.

MAIA Biotechnology, Inc. is referred to herein as “MAIA,” “the Company,” “we,” “us,” and “our,” unless the context indicates otherwise.

You may only rely on the information contained in this prospectus and the accompanying prospectus supplement or that we have referred you to. We have not authorized anyone to provide you with different information. This prospectus and any prospectus supplement do not constitute an offer to sell or a solicitation of an offer to buy any securities other than the securities offered by this prospectus and the prospectus supplement. This prospectus and any prospectus supplement do not constitute an offer to sell or a solicitation of an offer to buy any securities in any circumstances in which such offer or solicitation is unlawful. Neither the delivery of this prospectus or any prospectus supplement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in our affairs since the date of this prospectus or such prospectus supplement or that the information contained by reference to this prospectus or any prospectus supplement is correct as of any time after its date.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or SEC, using a "shelf" registration process. Under this shelf registration process, we may from time to time offer and sell, in one or more offerings, any or all of the securities described in this prospectus, separately or together, up to an aggregate offering price of $150,000,000. This prospectus provides you with a general description of our securities being offered. When we issue the securities being offered by this prospectus, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add, update or change information contained in this prospectus. You should read both this prospectus and any prospectus supplement together with additional information described under the heading "Additional Information" and "Incorporation of Certain Information by Reference."

PROSPECTUS SUMMARY

The following summary highlights some information from this prospectus. It is not complete and does not contain all of the information that you should consider before making an investment decision. You should read this entire prospectus, including the "Risk Factors" section on page 8 and the disclosures to which that section refers you, the financial statements and related notes and the other more detailed information appearing elsewhere or incorporated by reference into this prospectus before investing in any of the securities described in this prospectus.

This prospectus includes trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included in this prospectus are the property of their respective owners.

About Us

We are a clinical-stage biopharmaceutical company developing targeted immunotherapies for cancer. THIO (6-thio-dG or 6-thio-2'-deoxyguanosine), our lead asset, is an investigational dual mechanism of action drug candidate incorporating telomere targeting and immunogenicity. In July 2022, the first patient was administered with THIO in our Phase 2 human trial (THIO-101) in Australia. In December 2022, regulatory authorities in three European countries, Hungary, Poland, and Bulgaria, approved the implementation of THIO-101, Phase 2 clinical trial evaluating THIO in patients with Non-Small Cell Lung Cancer (NSCLC). Patients with advanced NSCLC will be treated first with THIO followed a few days later by the immune checkpoint inhibitor Libtayo® (cemiplimab) manufactured and commercialized by Regeneron. Cemiplimab is a fully human monoclonal antibody targeting the immune checkpoint receptor PD-1 on T-cells. Cemiplimab has been approved in the United States and the rest of the world for multiple cancer indications, including NSCLC. In February 2021, we signed a clinical supply agreement with Regeneron to receive cemiplimab at no cost, which represents a significant cost-savings for the study. In return, we have granted Regeneron exclusive development rights in combination with PD-1 inhibitors for NSCLC for the study period. Based on the clinical data generated by our THIO-101 trial, in late 2024 we plan to seek an accelerated approval of THIO in the United States for the treatment of patients with advanced NSCLC, but even if granted, accelerated approval status does not guarantee an accelerated review or marketing approval by the FDA. In addition, in the Fourth Quarter of 2023, we plan to initiate a Phase 2 clinical trial in multiple solid tumor indications of THIO administered in sequence with Anti-PD-1 or Anti-PD-L1.

Our Lead Product Candidate

THIO is a telomere-targeting agent currently in clinical development to evaluate its activity in NSCLC. Telomeres, along with the enzyme telomerase, play a fundamental role in the survival of cancer cells and their resistance to current therapies. THIO is being developed as a second- or later line of treatment for NSCLC for patients that have progressed beyond the standard-of-care regimen of existing checkpoint inhibitors.

In 2019, our research team discovered that THIO produced telomere modifications and disruption, which ultimately induced cancer-specific innate and adaptive immune responses against immunologically "cold" or tumor types that were unresponsive to immune checkpoint inhibitors. This hypothesis was tested and demonstrated in syngeneic and humanized mouse models. THIO administered to mice in low doses and followed by an immune-checkpoint inhibiting agent, such as an anti-PD-1 or anti-PD-L1 compound, induced complete tumor regression with no tumor recurrence during the 14 weeks of observation. Further, no toxicities were reported in the tumor-free mice. These new findings were published in the peer-reviewed research scientific journal, Cancer Cell in July 2020. Based on these recent discoveries, a new therapeutic approach has been designed to advance THIO into a Phase 2 clinical trial (THIO-101) in patients with advanced NSCLC.

Our regulatory strategy includes a planned filing of an Investigational New Drug application (IND) with the United States Food and Drug Administration (U.S. FDA or FDA). This would allow U.S. sites to participate in the THIO-101 NSCLC trial. The human safety data generated in Australia and Europe would constitute the basis of the IND application. Although we plan to rely solely on the safety and efficacy data we generate in our own clinical trials in support of our planned New Drug Application (NDA) filing, and do not plan to rely on clinical data generated by unaffiliated third parties, we take added confidence in the potential tolerability of THIO in light of the fact that the THIO doses we plan to test represent a range 4 to 40 times lower than the maximum tolerated dose tested in the earlier clinical trials sponsored by the National Cancer Institute (NCI) in the 1970s. As part of the existing data base of clinical experience with the drug, we expect to reference the older NCI studies in the public domain as well as reference NCI's original IND filing in support of an IND filing, pursuant to FDA regulations, and we are currently working with experts to evaluate the extent and quality of the existing data supporting THIO. The planned THIO-101 phase 2 trial is intended to be a proof-of-concept study that may be modified depending on interim results to include both primary and secondary endpoints and be consistent with previously approved cancer treatments. In September 2022, we submitted a pre-IND meeting request to the FDA to discuss, among other elements, the existing non-clinical and clinical data to support the conduct of our planned THIO-101 phase 2 trial under an IND to include patients from the U.S. MAIA received feedback in-line with the proposed plans from the FDA regarding its manufacturing, preclinical and clinical development plan. MAIA also obtained guidance from the FDA on the assessment of its safety and efficacy in the THIO-101 Phase 2 trial that will be incorporated in the U.S. IND application. MAIA filed its U.S. IND and plans to commence enrolling patients in the U.S. in 2024.

Based on the clinical data we aim to generate in the THIO-101 study and assuming THIO achieves its intended clinical effect with a manageable safety profile at one of the doses tested in the study, we expect to seek early FDA guidance on the possibility of utilizing one or more of FDA's expedited programs for serious conditions, such as fast track designation, breakthrough therapy designation, priority review and/or accelerated approval designation. Even if granted, accelerated approval status does not guarantee an accelerated review or marketing approval by the FDA. The THIO-101 study protocol may need to be amended to increase the number of patients enrolled, undergo modification of the statistical analysis, or change in the trial design and/or primary endpoints.

On April 11, 2023, we announced positive topline data related to the completion of Part A, safety lead-in portion of the THIO-101 trial which showed that administration of THIO, at the highest dose of 360 mg/cycle in sequential combination with Regeneron's anti-PD-1 therapy, Libtayo was well tolerated with no dose limiting toxicities or significant treatment-related adverse events reported.

On April 18, 2023, we published data in Hepatocellular Carcinoma (HCC) models: as monotherapy, THIO achieved complete and durable responses in HCC the dominant histology in primary liver cancer (90%), in in vivo models. When combined with Libtayo®, duration of response was further potentiated. Upon rechallenge with two times more cancer cells and no additional treatment, tumor growth was completely prevented. Administration of THIO alone and in combination with Libtayo® generated anticancer immune memory.

On April 20, 2023, we announced preliminary survival data from Part A of THIO-101. The first two patients enrolled in Part A of the study continue to be alive, approximately 10 and 9 months respectively, from treatment initiation. Both patients have advanced Stage IV metastatic disease and are heavily pretreated, receiving third and fourth line of therapy respectively after previously failing treatment with an immune checkpoint inhibitor. They continue to be progression free following their last dose of THIO, 7 and 6 months respectively, with no new treatment. The current treatment options in patients with advanced relapsed or refractory NSCLC who failed two or more therapy regimens are limited and show minimal benefit. Furthermore, discontinuation of treatment is rapidly followed by physical decline and death, therefore seeing patients with such survival and no disease progression in this clinical setting, is noteworthy. In real-world clinical practice, observed survival in such heavily pretreated patients is 3-4 months.

On June 20, 2023, we announced updates in enrollment in THIO-101 in Europe. To date, 29 patients have been dosed in THIO-101.With the addition of sites in Hungary, Poland, and Bulgaria in March 2023, THIO-101 has rapidly increased the number of patients enrolled and dosed with THIO. Thirteen sites were activated with another two new additional sites ready to open shortly.

On July 10, 2023, we announced updates on preliminary survival data in the Part A safety lead-in of THIO-101. The first 2 patients enrolled in the study continue to be alive, approximately 12.2 and 11.5 months respectively, from treatment initiation. Both patients have advanced Stage IV metastatic disease and failed 2 prior lines of therapy, including one line with an immune checkpoint inhibitor (CPI), and platinum-based chemotherapy. Following the conclusion of study treatment, they have remained free of disease progression for 10.2 and 8.5 months, respectively, without requiring any additional therapy.

On July 11, 2023, we announced updates on disease control data in the part A safety lead-in of THIO-101. Of the first 11 patients enrolled in THIO-101 to complete at least 1 post baseline response assessment, 9 (82%) met the primary endpoint of disease control (defined as a Complete Response, Partial Response, or Stable Disease per RECIST 1.1). All patients enrolled have previously failed 2 or more prior lines of treatment including an immune CPI and platinum-based chemotherapy for advanced NSCLC.

Our Science—Driven Telomere Targeting Approach

Telomeres are regions of repetitive deoxyribonucleic acid (DNA) nucleotide sequences that are associated with specialized proteins at the ends of linear chromosomes in cells. THIO's mechanism of action comprises telomere targeting and induction of anti-cancer immunogenicity. The enzyme telomerase recognizes THIO's metabolite formed in situ and incorporates it into the structure of the cancer cell's telomeres, creating a faulty structure, which breaks apart the telomere spatial structure. As a result, the THIO-modified telomeric structure unwinds, recognized as DNA damage, and the cancer cells die. We believe THIO transforms "cold" tumors into "hot" tumors rendering them responsive to immunotherapy (checkpoint inhibitors) and this process takes place promptly within 24 to 72 hours. We also believe we can improve the immunotherapy efficacy and we can restore the immunotherapy efficacy in patients who have progressed or developed resistance to prior immunotherapy.

Telomere maintenance is a fundamental biologic process for cell proliferation and resilience in cancer cells, and thus represents one of the key therapeutic targets for cancer treatment. Telomerase is an enzyme that is present in most human cancer cells (over 85% in the aggregate), across various tumor types. In contrast, its activity is detected in less than 1% of normal cells. THIO has only been shown to be active in cancer cells that are telomerase positive (TERT+) and actively dividing. Cancer cells are constantly telomerase positive due to an uncontrolled division process, while a relatively small number of normal cells are telomerase positive only transiently. Therefore, THIO activity is expected to be highly specific to cancer cells versus normal cells. Cancer-specific disturbance of telomeric structure, mediated by telomerase, is likely to lead to disruption in the cell cycle, followed by a very rapid and telomere-length independent cell death. THIO was observed to induce cancer-specific telomere disruption, by using the enzyme telomerase, which differentiates THIO from all other available cancer therapies currently in clinical use. We are also currently developing potential next generation small molecule telomere modifying agents with the goal of identifying additional proprietary drug candidates, across multiple cancer types. We have generated eighty-two (82) new telomere-targeting compounds of which sixty (60) compounds have been evaluated in vitro. Currently, seven (7) molecules have been selected for further evaluation in additional in vitro and in vivo models.

Human clinical trials prior to approval are typically conducted in three sequential Phases that may overlap or be combined. In Phase 1, the drug or biologic is initially introduced into healthy human subjects and tested for safety, dosage tolerance, absorption, metabolism, distribution and excretion. In Phase 2, the drug or biologic is evaluated in a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance, optimal dosage and dosing schedule for patients having the specific disease. In Phase 3, larger-scale clinical trials are undertaken to evaluate clinical efficacy and safety and the overall risk/benefit ratio of the product. Post-approval studies, or Phase 4 clinical trials, may be conducted voluntarily, or as a condition of FDA's approval of a drug. These studies may be used to confirm preliminary efficacy results, gain additional experience from the treatment of certain patient populations, or to support additional indications or labeling changes.

We completed our selection process for the clinical sites for our Phase 2 study in Australia and Europe and our application to start the Phase 2 study in Australia was approved on March 1, 2022, by the Australian Regulatory Agency—Bellberry Human Research Ethics Committee. In July 2022, the first patient was administered with THIO in our Phase 2 human trial (THIO-101) in Australia. In December 2022, regulatory authorities in three European countries, Hungary, Poland, and Bulgaria, approved the implementation of THIO-101, Phase 2 clinical trial evaluating THIO in patients with NSCLC.

In March 2022, the FDA granted Orphan Drug Designation (ODD) to THIO for the treatment of HCC and in May 2022, the FDA granted the second ODD to THIO for the treatment of small cell lung cancer. The FDA's Office of Orphan Products Development may grant orphan designation status to drugs and biologics that are intended for the treatment, diagnosis or prevention of rare diseases, or conditions that affect fewer than 200,000 people in the U.S. ODD provides certain benefits, including financial incentives, to support clinical development and the potential for up to seven years of market exclusivity for the drug for the designated orphan indication in the U.S. if the drug is ultimately approved for its designated indication.

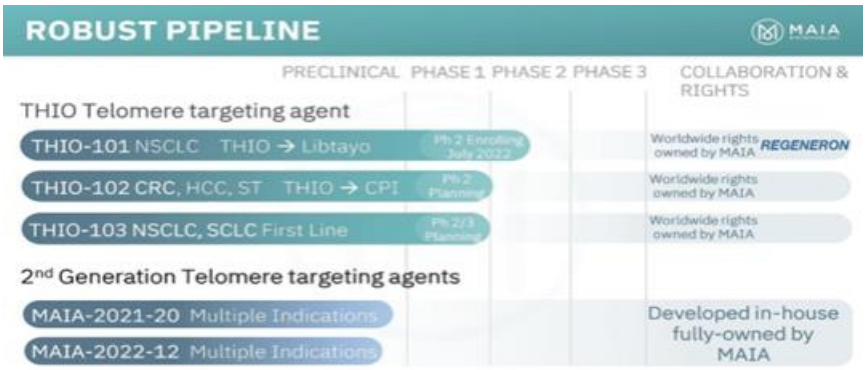
Our Second-Generation Molecule Candidates

Our THIO program drives our development pipeline of second-generation telomere targeting agents. We have initiated an early-stage research and discovery program aimed at identifying new compounds capable of acting through similar mechanisms of activity as THIO, such as the targeting and modifying telomeric structures of cancer cells through cancer-cell intrinsic telomerase activity. The main objective for this program is to discover new compounds with potentially improved specificity towards cancer cells relative to normal cells and with potentially increased anticancer activity. This program may also allow us to strengthen our patent portfolio. Although the program is in early stages and we may not be able to identify suitable compounds, we believe we will be able to create a second generation of THIO-like compounds.

Our current 2nd-generation pipeline of potential telomere-targeting agents includes seven compounds that have successfully undergone in vitro inhibitory testing in five cancer models. The data from those studies showed a significantly lower 50% inhibitory concentration (IC50) for those compounds compared to THIO. Based on those data, we have progressed those seven compounds to in vivo testing. In January 2023, we nominated one lead new molecular entity candidate (designated as MAIA-2021-20) and one back-up new molecular entity candidate (MAIA-2022-12) for further advancement into preclinical GLP-toxicity and other studies and may advance one of these candidates into human clinical trials upon completion of the required preclinical evaluations. We also filed a broad provisional patent application covering the composition of matter for the new telomere-targeting molecules in the fourth quarter of 2022.

OUR PIPELINE

Our robust pipeline includes several targeted immuno-oncology candidates for relapsed and refractory cancers.



Pipeline products are under investigation and have not been proven to be safe or effective. There is no guarantee any product will be approved in the sought-after indication or will meet the developmental milestones set forth above.

Our Strategy

Our goal is to be the leader in the discovery, development and commercialization of cancer telomere targeting agents and other similar small molecules. Our initial focus is to efficiently advance our Phase 2 clinical program using THIO in sequential combination with cemiplimab. Ultimately, we envision positioning THIO as a patient anticancer immunity priming treatment for all immune-activating agents used in the treatment of cancer. To date, THIO has never been tested in clinical trials in combination with any check-point inhibitor. The key elements of our strategy are to:

- Advance our existing clinical programs, including seeking accelerated approval for THIO in NSCLC as a tumor mass-reducing and simultaneously immune system priming agent administered in advance of the immune-activating agent, cemiplimab for treatment of advanced NSCLC, and ultimately, as a cancer treatment foundation in multiple indications and geographies. Even if granted, accelerated approval status does not guarantee an accelerated review or marketing approval by the FDA;
- Broaden the clinical development of THIO by exploring synergistic administration prior to other standard-of care immune-therapies including cell therapy;
- Develop a franchise of telomere-targeting cancer treatments not inclusive of checkpoint inhibitors;
- Leverage our regulatory strategy to acquire additional human data faster outside U.S. for other cancer indications;
- Selectively enter into strategic collaborations with pharmaceutical and biotechnology companies that have immune activating therapies; and
- Expand our existing intellectual property portfolio.

We will face certain challenges in implementing our business strategy including, among others, the fact that earlier development of THIO was not commercially pursued. Even if THIO successfully advances through clinical studies and towards approval for use, we may face early competition from generic alternatives to THIO after expiration of any applicable regulatory exclusivities. The FDA's accelerated approval pathway, even if initially granted, does not guarantee an accelerated review or marketing approval by the FDA.

Our Intellectual Property

Our global patent and patent-pending estate covers several areas. Telomerase mediated telomere altering compounds and treatment of therapy-resistant cancers are part of our portfolio. Further, THIO's immunogenic treatment strategy, which focuses on sequential combination with checkpoint inhibitors has been filed. We maintain four issued patents and have sixteen (16) pending applications.

Our Leadership Team

We have assembled an experienced management team with deep research, development, and commercialization experience in the areas of cancer treatment, telomere-related science, immunotherapy, and spreading across a vast array of oncology indications. Members of our team bring experiences from multiple biotech and pharmaceutical companies including Pfizer Inc., Bayer Oncology, Novartis Oncology, Astellas Pharma Inc., Janssen—a Johnson & Johnson pharmaceutical company, Incyte Corporation, Pharmacyclics Inc., Juno Therapeutics Inc., Celgene, Cephalon Inc., Geron Corporation, and AbbVie Bio Corp., among others.

Recent Developments

On April 27, 2023, we sold 2,555,500 shares of the Company's common stock at a price of $2.25 per share in an underwritten public offering. ThinkEquity LLC ("ThinkEquity") served as underwriter of the offering. The aggregate net proceeds of the offering were approximately $5.1 million, after deducting underwriting discounts and estimated offering expenses. The shares of common stock were offered, issued and sold to the public pursuant to the Registration Statement on Form S-1, as amended from time to time (File No. 333-269606). We intend to use the net proceeds from the offering to fund the ongoing clinical trials of THIO, pre-clinical development of second-generation of telomere targeting compounds, and other research and development activities, as well as for working capital and other general corporate purposes. Concurrently with the closing of the public offering, we also issued warrants to purchase an aggregate of up to 127,775 shares of our common stock to ThinkEquity or its designees, at an exercise price of $2.8125 per share. These warrants are exercisable beginning on October 24, 2023, and expire on April 24, 2028, pursuant to the terms and conditions of the warrants.

Corporate Information

We were incorporated in Delaware in August 2018, and have operations in Chicago, Illinois, with some of our team members setup virtually and working remotely in California, Nevada and Florida, among others. Our principal executive office is located at 444 West Lake Street, Suite 1700, Chicago, IL 60606, and our phone number is (312) 416-8592. In July 2021, we established a wholly-owned Australian subsidiary, MAIA Biotechnology Australia Pty Ltd., to conduct various preclinical and clinical activities for the development of our product candidates. In April 2022, we established a wholly owned Romanian subsidiary, MAIA Biotechnology Romania S.R.L. to conduct various preclinical and clinical activities for the development of our product candidates. Our website address is www.MAIABiotech.com. The information contained on our website is not incorporated by reference into this prospectus, and you should not consider any information contained on, or that can be accessed through, our website as part of this prospectus or in deciding whether to purchase our securities.

RISK FACTORS

Before purchasing any of the securities you should carefully consider the risk factors incorporated by reference in this prospectus from our Annual Report on Form 10-K for the fiscal year ended December 31, 2022 and any subsequent updates described in our Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as the risks, uncertainties and additional information set forth in our reports filed with the Securities and Exchange Commission (the "SEC") on Forms 10-K, 10-Q and 8-K and in the other documents incorporated by reference in this prospectus. For a description of these reports and documents, and information about where you can find them, see "Additional Information" and "Incorporation of Certain Information by Reference." Additional risks not presently known or that we presently consider to be immaterial could subsequently materially and adversely affect our financial condition, results of operations, business and prospects.

FORWARD-LOOKING STATEMENTS

This prospectus, including the documents that we incorporate by reference, contains forward-looking statements as that term is defined in the federal securities laws. The events described in forward-looking statements contained in this prospectus, including the documents that we incorporate by reference, may not occur. Generally, these statements relate to our business plans or strategies, projected or anticipated benefits or other consequences of our plans or strategies, financing plans, projected or anticipated benefits from acquisitions that we may make, or projections involving anticipated revenues, earnings or other aspects of our operating results or financial position, and the outcome of any contingencies. Any such forward-looking statements are based on current expectations, estimates and projections of management. We intend for these forward-looking statements to be covered by the safe-harbor provisions for forward-looking statements. Words such as "may," "expect," "believe," "anticipate," "project," "plan," "intend," "estimate," and "continue," and their opposites and similar expressions are intended to identify forward-looking statements. We caution you that these statements are not guarantees of future performance or events and are subject to a number of uncertainties, risks and other influences, many of which are beyond our control that may influence the accuracy of the statements and the projections upon which the statements are based. Factors that may affect our results include, but are not limited to, the risks and uncertainties discussed in the "Risk Factors" section on page 8 of this prospectus, in our Annual Report on Form 10-K for the fiscal year ended December 31, 2022 or in other reports we file with the Securities and Exchange Commission.

Any one or more of these uncertainties, risks and other influences could materially affect our results of operations and whether forward-looking statements made by us ultimately prove to be accurate. Our actual results, performance and achievements could differ materially from those expressed or implied in these forward-looking statements. We undertake no obligation to publicly update or revise any forward-looking statements, whether from new information, future events or otherwise.

You should rely only on the information in this prospectus. We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely upon it.

USE OF PROCEEDS

Unless we inform you otherwise in the prospectus supplement relating to a particular offering of securities, we will use the net proceeds from the sale of the securities offered by this prospectus and the exercise price from the exercise of any convertible securities, if any, for general corporate purposes, which may include funding research, development and commercialization of our product candidates, clinical trials, acquisitions or investments in businesses, products or technologies that are complementary to our own, increasing our working capital and capital expenditures.

When particular securities are offered, the prospectus supplement relating to that offering will set forth our intended use of the net proceeds received from the sale of those securities we sell. Pending the application of the net proceeds for these purposes, we expect to invest the proceeds in short-term, interest-bearing instruments or other investment-grade securities.

THE SECURITIES WE MAY OFFER

General

The descriptions of the securities contained in this prospectus, together with the applicable prospectus supplements, summarize all of the material terms and provisions of the various types of securities that we may offer. We will describe in the applicable prospectus supplement relating to any securities the particular terms of the securities offered by that prospectus supplement. If we indicate in the applicable prospectus supplement, the terms of the securities may differ from the terms we have summarized below. We may also include in the prospectus supplement information about material United States federal income tax considerations relating to the securities, and the securities exchange, if any, on which the securities will be listed.
We may sell from time to time, in one or more offerings:

- common stock;
- preferred stock:
- warrants to purchase shares of common stock or preferred stock;
- debt securities;
- subscription rights to purchase shares of common stock, preferred stock, warrants, debt securities or units; and
- units consisting of any combination of the securities listed above.

In this prospectus, we refer to the common stock, preferred stock, warrants, debt securities, subscription rights and units collectively as “securities.” The total dollar amount of all securities that we may sell pursuant to this prospectus will not exceed $150,000,000.

If we issue debt securities at a discount from their original stated principal amount, then, for purposes of calculating the total dollar amount of all securities issued under this prospectus, we will treat the initial offering price of the debt securities as the total original principal amount of the debt securities.

This prospectus may not be used to consummate a sale of securities unless it is accompanied by a prospectus supplement.

DESCRIPTION OF CAPITAL STOCK

General

Our authorized capital stock consists of:

- 150,000,000 shares of common stock, par value $0.0001 per share; and
- 30,000,000 shares of preferred stock, par value $0.0001 per share.

As of August 11, 2023, 13,648,425 shares of common stock were issued and outstanding and no shares of preferred stock were issued and outstanding.

The additional shares of our authorized capital stock available for issuance may be issued at times and under circumstances so as to have a dilutive effect on earnings per share and on the equity ownership of the holders of our common stock. The ability of our board of directors to issue additional shares of stock could enhance the board's ability to negotiate on behalf of the stockholders in a takeover situation but could also be used by the board to make a change of control more difficult, thereby denying stockholders the potential to sell their shares at a premium and entrenching current management. The following description is a summary of the material provisions of our capital stock. You should refer to our certificate of incorporation and our bylaws (each as amended and restated, our "certificate of incorporation" and our "bylaws", respectively), both of which are on file with the SEC as exhibits to previous SEC filings, for additional information. The summary below is qualified by provisions of applicable law.

Common Stock

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. An election of directors by our stockholders shall be determined by a plurality of the votes cast by the stockholders entitled to vote in the election. Subject to the supermajority votes for some matters, other matters shall be decided by the affirmative vote of our stockholders having a majority in voting power of the votes cast by the stockholders present or represented and voting on such matter. Holders of common stock are entitled to receive proportionately any dividends as may be declared by our board of directors, subject to any preferential dividend rights of any series of preferred stock that we may designate and issue in the future.

In the event of our liquidation or dissolution, the holders of common stock are entitled to receive on a pro rata basis our net assets available for distribution to stockholders after the payment of all debts and other liabilities, subject to the prior rights of any holders of outstanding preferred stock. Holders of common stock have no preemptive, subscription, redemption or conversion rights. Our outstanding shares of common stock are validly issued, fully paid and nonassessable. The rights, preferences and privileges of holders of common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future.

Transfer Agent and Registrar

Our stock transfer agent and registrar is Computershare Trust Company, N.A., and its address is 6200 S. Quebec St. Greenwood Village, CO 80111.

Preferred Stock

Under the terms of our certificate of incorporation our board of directors is authorized to direct us to issue shares of preferred stock in one or more series without stockholder approval. Our board of directors has the discretion to determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock.

The purpose of authorizing our board of directors to issue preferred stock and determine its rights and preferences is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions, future financings and other corporate purposes, could have the effect of making it more difficult for a third party to acquire, or could discourage a third party from seeking to acquire, a majority of our outstanding voting stock. As of the date of this registration statement, there are no shares of preferred stock outstanding, and we have no present plans to issue any shares of preferred stock.

Transfer Agent and Registrar for Preferred Stock

The transfer agent and registrar for any series or class of preferred stock will be set forth in each applicable prospectus supplement.

Anti-takeover Effects of Delaware Law and our Certificate of Incorporation

Some provisions of Delaware law, our certificate of incorporation and our bylaws contain provisions that delay, defer, or discourage transactions involving an actual or potential change in control of us or change in our management. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in our best interests, including transactions which provide for payment of a premium over the market price for our shares. These provisions, summarized below, are intended to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of the increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

Authorized but Unissued Shares

Our authorized but unissued shares of common stock and preferred stock are available for future issuance without stockholder approval. These additional shares may be utilized for a variety of corporate purposes, including future public offerings to raise additional capital and corporate acquisitions. The existence of authorized but unissued shares of common stock and preferred stock could render more difficult or discourage an attempt to obtain control of a majority of our common stock by means of a proxy contest, tender offer, merger or otherwise.

Stockholder Meetings

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.

Requirements for Advance Notification of Stockholder Nominations and Proposals

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 advance notice in writing, and also specify requirements as to the form and content of a stockholder's notice.

Delaware Anti-Takeover Statute

We are subject to Section 203 of the Delaware's General Corporation Law (DGCL), which prohibits persons deemed to be "interested stockholders" from engaging in a "business combination" with a publicly held Delaware corporation for three years following the date these persons become interested stockholders unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. Generally, an "interested stockholder" is a person who, together with affiliates and associates, owns, or within three years prior to the determination of interested stockholder status did own, 15% or more of a corporation's voting stock. Generally, a "business combination" includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. The existence of this provision may have an anti-takeover effect with respect to transactions not approved in advance by the board of directors.

Choice of Forum

The Court of Chancery of the State of Delaware is the exclusive forum in which we and our directors may be sued by our stockholders, to the fullest extent permitted by law, for: any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty; any action asserting a claim against us arising pursuant to the DGCL, our certificate of incorporation, or our bylaws; or any action asserting a claim against us that is governed by the internal affairs doctrine. Our bylaws will not apply to suits brought to enforce a duty or liability created by the Securities Act or the Exchange Act, or any other claim for which federal courts have exclusive jurisdiction. Section 22 of the Securities Act of 1933, as amended (the "Securities Act") creates concurrent jurisdiction

Warrants

In connection with the sale of certain of our outstanding convertible promissory notes in 2020 and 2021, we issued to each such lender warrants equal to that number of shares of common stock as determined by multiplying the number of shares which would be issuable upon conversion of such note by 50%, for a total of 686,489 warrants at an exercise price of $6.00 per share. As of August 11th , 2023, 681,985 of these warrants were outstanding and will expire on the earlier of the occurrence of a change of control or September 2028.

In January 2022, the Company and certain warrant holders executed waivers related to the acceptance and approval of an amendment to the holders' warrant agreements originally issued between May 6, 2020 and February 26, 2021 in connection with the Company's issuance of convertible notes. The amendment removed the IPO expiration provision from the warrant agreements, and the warrants will only be exercisable, in whole or in part, during the exercise period ending on earliest to occur of: (a) various dates in 2028 as stated within the warrant agreements; or (b) immediately prior to the closing of a change of control.

In connection with the closing of our initial public offering, we issued the representative of the underwriters warrants to purchase up to 115,000 shares of common stock at an exercise price of $6.25 per share. The representative's warrants are exercisable beginning on January 23, 2023, and expire on July 27, 2027.

In connection with the closing of our April 2023 public offering, we issued the representative of the underwriters warrants to purchase up to 127,775 shares of our common stock at an exercise price of $2.8125 per share. The representative's warrants are exercisable beginning on October 24, 2023, and expire on April 24, 2028.

National Securities Exchange Listing

Our common stock is listed on NYSE American, or the "NYSE American," under the symbol "MAIA."

DESCRIPTION OF STOCK WARRANTS

We summarize below some of the provisions that will apply to the warrants unless the applicable prospectus supplement provides otherwise. This summary may not contain all information that is important to you. The complete terms of the warrants will be contained in the applicable warrant certificate and warrant agreement. These documents have been or will be included or incorporated by reference as exhibits to the registration statement of which this prospectus is a part. You should read the warrant certificate and the warrant agreement. You should also read the prospectus supplement, which will contain additional information and which may update or change some of the information below.

General

We may issue, together with common or preferred stock as units or separately, warrants for the purchase of shares of our common or preferred stock. The terms of each warrant will be discussed in the applicable prospectus supplement relating to the particular series of warrants. The form(s) of certificate representing the warrants and/or the warrant agreement will be, in each case, filed with the SEC as an exhibit to a document incorporated by reference in the registration statement of which this prospectus is a part on or prior to the date of any prospectus supplement relating to an offering of the particular warrant. The following summary of material provisions of the warrants and the warrant agreements are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and warrant certificate applicable to a particular series of warrants.

The prospectus supplement relating to any series of warrants that are offered by this prospectus will describe, among other things, the following terms to the extent they are applicable to that series of warrants:

- the procedures and conditions relating to the exercise of the warrants;
- the number of shares of our common or preferred stock, if any, issued with the warrants;
- the date, if any, on and after which the warrants and any related shares of our common or preferred stock will be separately transferable;
- the offering price of the warrants, if any;
- the number of shares of our common or preferred stock which may be purchased upon exercise of the warrants and the price or prices at which the shares may be purchased upon exercise;
- the date on which the right to exercise the warrants will begin and the date on which the right will expire;
- a discussion of the material United States federal income tax considerations applicable to the exercise of the warrants;
- anti-dilution provisions of the warrants, if any;
- call provisions of the warrants, if any; and
- any other material terms of the warrants.

Each warrant may entitle the holder to purchase for cash, or, in limited circumstances, by effecting a cashless exercise for, the number of shares of our common or preferred stock at the exercise price that is described in the applicable prospectus supplement. Warrants will be exercisable during the period of time described in the applicable prospectus supplement. After that period, unexercised warrants will be void. Warrants may be exercised in the manner described in the applicable prospectus supplement.

A holder of a warrant will not have any of the rights of a holder of our common or preferred stock before the stock is purchased upon exercise of the warrant. Therefore, before a warrant is exercised, the holder of the warrant will not be entitled to receive any dividend payments or exercise any voting or other rights associated with shares of our common or preferred stock which may be purchased when the warrant is exercised.

Transfer Agent and Registrar

The transfer agent and registrar, if any, for any warrants will be set forth in the applicable prospectus supplement.

DESCRIPTION OF DEBT SECURITIES

This prospectus describes certain general terms and provisions of debt securities that we may offer. The debt securities may be issued pursuant to, in the case of senior debt securities, a senior indenture, and in the case of subordinated debt securities, a subordinated indenture, in each case in the forms filed as exhibits to this registration statement, which we refer to as the "indentures." The indentures will be entered into between us and a trustee to be named prior to the issuance of any debt securities, which we refer to as the "trustee." The indentures will not limit the amount of debt securities that can be issued thereunder and will provide that the debt securities may be issued from time to time in one or more series pursuant to the terms of one or more securities resolutions or supplemental indentures creating such series.

We have summarized below the material provisions of the indentures and the debt securities or indicated which material provisions will be described in the related prospectus supplement for any offering of debt securities. These descriptions are only summaries, and you should refer to the relevant indenture for the particular offering of debt securities itself which will describe completely the terms and definitions of the offered debt securities and contain additional information about the debt securities.

Terms

When we offer to sell a particular series of debt securities, we will describe the specific terms of the securities in a prospectus supplement. The prospectus supplement will set forth the following terms, as applicable, of the debt securities offered thereby:

- the designation, aggregate principal amount, currency or composite currency and denominations;
- the price at which such debt securities will be issued and, if an index formula or other method is used, the method for determining amounts of principal or interest;
- the maturity date and other dates, if any, on which principal will be payable;
- whether the debt securities rank as senior debt, senior subordinated debt, subordinated debt or any combination thereof, and the terms of any subordination;
- whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;
- the interest rate (which may be fixed or variable), if any;
- the date or dates from which interest will accrue and on which interest will be payable, and the record dates for the payment of interest;
- the manner of paying principal and interest;
- the place or places where principal and interest will be payable;
- the terms of any mandatory or optional redemption by us or any third party including any sinking fund;
- the terms of any conversion or exchange;
- the terms of any redemption at the option of holders or put by the holders;
- any tax indemnity provisions;
- if the debt securities provide that payments of principal or interest may be made in a currency other than that in which the debt securities are denominated, the manner for determining such payments;
- the portion of principal payable upon acceleration of a Discounted Debt Security (as defined below);
- whether and upon what terms debt securities may be defeased;
- any events of default or covenants in addition to or in lieu of those set forth in the indentures;
- provisions for electronic issuance of debt securities or for the issuance of debt securities in uncertificated form; and
- any additional provisions or other special terms not inconsistent with the provisions of the indentures, including any terms that may be required or advisable under United States or other applicable laws or regulations, or advisable in connection with the marketing of the debt securities.

Debt securities of any series may be issued as registered debt securities or uncertificated debt securities, in such denominations as specified in the terms of the series.

Securities may be issued under the indentures as Discounted Debt Securities to be offered and sold at a substantial discount from the principal amount thereof. Special United States federal income tax and other considerations applicable thereto will be described in the prospectus supplement relating to such Discounted Debt Securities. "Discounted Debt Security" means a security where the amount of principal due upon acceleration is less than the stated principal amount.

We are not obligated to issue all debt securities of one series at the same time and, unless otherwise provided in the prospectus supplement, we may reopen a series, without the consent of the holders of the debt securities of that series, for the issuance of additional debt securities of that series. Additional debt securities of a particular series will have the same terms and conditions as outstanding debt securities of such series, except for the date of original issuance and the offering price, and will be consolidated with, and form a single series with, such outstanding debt securities.

Ranking

The senior debt securities will rank equally with all of our other senior and unsubordinated debt. Our secured debt, if any, will be effectively senior to the senior debt securities to the extent of the value of the assets securing such debt. The subordinated debt securities will be subordinate and junior in right of payment to all of our present and future senior indebtedness to the extent and in the manner described in the prospectus supplement and as set forth in the board resolution, officer's certificate or supplemental indenture relating to such offering.

The debt securities will be obligations exclusively of MAIA. To the extent that our ability to service our debt, including the debt securities, may be dependent upon the earnings of our subsidiaries, our ability to do so will be dependent on the ability of our subsidiaries to distribute those earnings to us as dividends, loans or other payments.

Certain Covenants

Any covenants that may apply to a particular series of debt securities will be described in the prospectus supplement relating thereto.

Successor Obligor

The indentures will provide that, unless otherwise specified in the securities resolution or supplemental indenture establishing a series of debt securities, we shall not consolidate with or merge into, or transfer all or substantially all of our assets to, any person in any transaction in which we are not the survivor, unless:

- the person is organized under the laws of the United States or a jurisdiction within the United States;
- the person assumes by supplemental indenture all of our obligations under the relevant indenture, the debt securities and any coupons;
- immediately after the transaction no Default (as defined below) exists; and
- we deliver to the trustee an officers' certificate and opinion of counsel stating that the transaction complies with the foregoing requirements and that all conditions precedent provided for in the indenture relating to the transaction have been complied with.

In such event, the successor will be substituted for us, and thereafter all of our obligations under the relevant indenture, the debt securities and any coupons will terminate.

The indentures will provide that these limitations shall not apply if our board of directors makes a good faith determination that the principal purpose of the transaction is to change our state of incorporation.

Exchange of Debt Securities

Registered debt securities may be exchanged for an equal aggregate principal amount of registered debt securities of the same series and date of maturity in such authorized denominations as may be requested upon surrender of the registered debt securities at an agency of the Company maintained for such purpose and upon fulfillment of all other requirements of such agent.

Default and Remedies

Unless the securities resolution or supplemental indenture establishing the series otherwise provides (in which event the prospectus supplement will so state), an "Event of Default" with respect to a series of debt securities will occur if:

1. we default in any payment of interest on any debt securities of such series when the same becomes due and payable and the default continues for a period of 30 days;

2. we default in the payment of all or any part of the principal and premium, if any, of any debt securities of such series when the same becomes due and payable at maturity or upon redemption, acceleration or otherwise and such default shall continue for five or more days;

3. we default in the performance of any of our other agreements applicable to the series and the default continues for 30 days after the notice specified below;

4. a court of competent jurisdiction enters an order or decree under any Bankruptcy Law (as defined below) that:

    a. is for relief against us in an involuntary case,

    b. appoints a Custodian (as defined below) for us or for any substantial part of our property, or

    c. orders the winding up or liquidation of us, and the order or decree remains unstayed and in effect for 90 days;

5. we, pursuant to or within the meaning of any Bankruptcy Law:

    a. commence a voluntary case,

    b. consent to the entry of an order for relief against us in an involuntary case,

    c. consent to the appointment of a Custodian for us or for any substantial part of our property, or

    d. make a general assignment for the benefit of our creditors; or

The term "Bankruptcy Law" means Title 11 of the United States Code or any similar Federal or State law for the relief of debtors. The term "Custodian" means any receiver, trustee, assignee, liquidator or a similar official under any Bankruptcy Law.

"Default" means any event which is, or after notice or passage of time would be, an Event of Default. A Default under subparagraph (3) above is not an Event of Default until the trustee or the holders of at least 25% in principal amount of the series notify us of the Default and we do not cure the Default within the time specified after receipt of the notice.

The trustee may require indemnity satisfactory to it before it enforces the indentures or the debt securities of the series. Subject to certain limitations, holders of a majority in principal amount of the debt securities of the series may direct the trustee in its exercise of any trust or power with respect to such series. Except in the case of Default in payment on a series, the trustee may withhold from securityholders of such series notice of any continuing Default if the trustee determines that withholding notice is in the interest of such securityholders. We are required to furnish the trustee annually a brief certificate as to our compliance with all conditions and covenants under the indentures.

The indentures will not have cross-default provisions. Thus, a default by us on any other debt, including any other series of debt securities, would not constitute an Event of Default.

Amendments and Waivers

The indentures and the debt securities or any coupons of the series may be amended, and any Default may be waived as follows:

Unless the securities resolution or supplemental indenture otherwise provides (in which event the applicable prospectus supplement will so state), the debt securities and the indentures may be amended with the consent of the holders of a majority in principal amount of the debt securities of all series affected voting as one class. Unless the securities resolution or supplemental indenture otherwise provides (in which event the applicable prospectus supplement will so state), a Default other than a Default in payment on a particular series may be waived with the consent of the holders of a majority in principal amount of the debt securities of the series. However, without the consent of each securityholder affected, no amendment or waiver may:

- change the fixed maturity of or the time for payment of interest on any debt security;
- reduce the principal, premium or interest payable with respect to any debt security;
- change the place of payment of a debt security or the currency in which the principal or interest on a debt security is payable;
- change the provisions for calculating any redemption or repurchase price with respect to any debt security;
- adversely affect any holder's right to receive payment of principal and interest or to institute suit for the enforcement of any such payment;
- reduce the amount of debt securities whose holders must consent to an amendment or waiver;
- make any change that materially adversely affects the right to convert any debt security;
- waive any Default in payment of principal of or interest on a debt security; or
- adversely affect any holder's rights with respect to redemption or repurchase of a debt security.

Without the consent of any securityholder, the indentures or the debt securities may be amended to:

- provide for assumption of our obligations to securityholders in the event of a merger or consolidation requiring such assumption;
- cure any ambiguity, omission, defect or inconsistency;
- conform the terms of the debt securities to the description thereof in the prospectus and prospectus supplement offering such debt securities;
- create a series and establish its terms;
- provide for the acceptance of appointment by a successor trustee or to facilitate the administration of the trusts by more than one trustee;
- provide for uncertificated or unregistered securities;
- make any change that does not adversely affect the rights of any securityholder;

- add to our covenants; or
- make any other change to the indentures so long as no debt securities are outstanding.

Conversion Rights

Any securities resolution or supplemental indenture establishing a series of debt securities may provide that the debt securities of such series will be convertible at the option of the holders thereof into or for our common stock or other equity or debt instruments. The securities resolution or supplemental indenture may establish, among other things, (1) the number or amount of shares of common stock or other equity or debt instruments for which $1,000 aggregate principal amount of the debt securities of the series is convertible, as may be adjusted pursuant to the terms of the relevant indenture and the securities resolution; and (2) provisions for adjustments to the conversion rate and limitations upon exercise of the conversion right. The indentures provide that we will not be required to make an adjustment in the conversion rate unless the adjustment would require a cumulative change of at least 1% in the conversion rate. However, we will carry forward any adjustments that are less than 1% of the conversion rate and take them into account in any subsequent adjustment of the conversion rate.

Legal Defeasance and Covenant Defeasance

Debt securities of a series may be defeased in accordance with their terms and, unless the securities resolution or supplemental indenture establishing the terms of the series otherwise provides, as set forth below. We at any time may terminate as to a series all of our obligations (except for certain obligations, including obligations with respect to the defeasance trust and obligations to register the transfer or exchange of a debt security, to replace destroyed, lost or stolen debt securities and coupons and to maintain paying agencies in respect of the debt securities) with respect to the debt securities of the series and any related coupons and the relevant indenture, which we refer to as legal defeasance. We at any time may terminate as to a series our obligations with respect to any restrictive covenants which may be applicable to a particular series, which we refer to as covenant defeasance.

We may exercise our legal defeasance option notwithstanding our prior exercise of our covenant defeasance option. If we exercise our legal defeasance option, a series may not be accelerated because of an Event of Default. If we exercise our covenant defeasance option, a series may not be accelerated by reference to any covenant which may be applicable to a series.

To exercise either defeasance option as to a series, we must (1) irrevocably deposit in trust with the trustee (or another trustee) money or U.S. Government Obligations (as defined below), deliver a certificate from a nationally recognized firm of independent accountants expressing their opinion that the payments of principal and interest when due on the deposited U.S. Government Obligations, without reinvestment, plus any deposited money without investment will provide cash at such times and in such amounts as will be sufficient to pay the principal and interest when due on all debt securities of such series to maturity or redemption, as the case may be; and (2) comply with certain other conditions. In particular, we must obtain an opinion of tax counsel that the defeasance will not result in recognition of any gain or loss to holders for federal income tax purposes.

“U.S. Government Obligations” means direct obligations of the United States or any agency or instrumentality of the United States, the payment of which is unconditionally guaranteed by the United States, which, in either case, have the full faith and credit of the United States pledged for payment and which are not callable at the issuer’s option, or certificates representing an ownership interest in such obligations.

Regarding the Trustee

Unless otherwise indicated in a prospectus supplement, the trustee will also act as depository of funds, transfer agent, paying agent and conversion agent, as applicable, with respect to the debt securities. In certain circumstances, we or the securityholders may remove the trustee as the trustee under a given indenture. The indenture trustee may also provide additional unrelated services to us as a depository of funds, registrar, trustee and similar services.

Governing Law

The indentures and the debt securities will be governed by New York law, except to the extent that the Trust Indenture Act of 1939 is applicable.

DESCRIPTION OF SUBSCRIPTION RIGHTS

We may issue subscription rights to purchase our common stock, preferred stock, warrants, debt securities or units in any combination. These subscription rights may be offered independently or together with any other security offered hereby and may or may not be transferable by the stockholder receiving the subscription rights in such offering. In connection with any offering of subscription rights, we may enter into a standby arrangement with one or more underwriters or other purchasers pursuant to which the underwriters or other purchasers may be required to purchase any securities remaining unsubscribed for after such offering.

The prospectus supplement relating to any subscription rights we offer, if any, will, to the extent applicable, include specific terms relating to the offering, including some or all of the following:

- the price, if any, for the subscription rights;
- the exercise price payable for our securities upon the exercise of the subscription rights;
- the number of subscription rights to be issued to each stockholder;
- the number and terms of our securities which may be purchased per each subscription right;
- the extent to which the subscription rights are transferable;
- any other terms of the subscription rights, including the terms, procedures and limitations relating to the exchange and exercise of the subscription rights;
- the date on which the right to exercise the subscription rights shall commence, and the date on which the subscription rights shall expire;
- the extent to which the subscription rights may include an over-subscription privilege with respect to unsubscribed securities or an over-allotment privilege to the extent the securities are fully subscribed; and
- if applicable, the material terms of any standby underwriting or purchase arrangement which may be entered into by us in connection with the offering of subscription rights.

DESCRIPTION OF UNITS

We may issue units comprised of one or more of the other securities described in this prospectus in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security (but, to the extent convertible securities are included in the units, the holder of the units will be deemed the holder of the convertible securities and not the holder of the underlying securities). The unit agreement under which a unit is issued, if any, may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date. The applicable prospectus supplement may describe:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units;

- the terms of the unit agreement governing the units;
- United States federal income tax considerations relevant to the units; and
- whether the units will be issued in fully registered global form.

This summary of certain general terms of units and any summary description of units in the applicable prospectus supplement do not purport to be complete and are qualified in their entirety by reference to all provisions of the applicable unit agreement and, if applicable, collateral arrangements and depositary arrangements relating to such units. The forms of the unit agreements and other documents relating to a particular issue of units will be filed with the SEC each time we issue units, and you should read those documents for provisions that may be important to you.

FORMS OF SECURITIES

Each security may be represented either by a certificate issued in definitive form to a particular investor or by one or more global securities representing the entire issuance of securities. Certificated securities in definitive form and global securities will be issued in registered form. Definitive securities name you or your nominee as the owner of the security, and in order to transfer or exchange these securities or to receive payments other than interest or other interim payments, you or your nominee must physically deliver the securities to the trustee, registrar, paying agent or other agent, as applicable. Global securities name a depositary or its nominee as the owner of the debt securities or warrants represented by these global securities. The depositary maintains a computerized system that will reflect each investor's beneficial ownership of the securities through an account maintained by the investor with its broker/dealer, bank, trust company or other representative, as we explain more fully below.

Global Securities

Registered Global Securities. We may issue the securities in the form of one or more fully registered global securities that will be deposited with a depositary or its nominee identified in the applicable prospectus supplement and registered in the name of that depositary or nominee. In those cases, one or more registered global securities will be issued in a denomination or aggregate denominations equal to the portion of the aggregate principal or face amount of the securities to be represented by registered global securities. Unless and until it is exchanged in whole for securities in definitive registered form, a registered global security may not be transferred except as a whole by and among the depositary for the registered global security, the nominees of the depositary or any successors of the depositary or those nominees.

If not described below, any specific terms of the depositary arrangement with respect to any securities to be represented by a registered global security will be described in the prospectus supplement relating to those securities. We anticipate that the following provisions will apply to all depositary arrangements.

Ownership of beneficial interests in a registered global security will be limited to persons, called participants, that have accounts with the depositary or persons that may hold interests through participants. Upon the issuance of a registered global security, the depositary will credit, on its book-entry registration and transfer system, the participants' accounts with the respective principal or face amounts of the securities beneficially owned by the participants. Any dealers, underwriters or agents participating in the distribution of the securities will designate the accounts to be credited. Ownership of beneficial interests in a registered global security will be shown on, and the transfer of ownership interests will be effected only through, records maintained by the depositary, with respect to interests of participants, and on the records of participants, with respect to interests of persons holding through participants. The laws of some states may require that some purchasers of securities take physical delivery of these securities in definitive form. These laws may impair your ability to own, transfer or pledge beneficial interests in registered global securities.

So long as the depositary, or its nominee, is the registered owner of a registered global security, that depositary or its nominee, as the case may be, will be considered the sole owner or holder of the securities represented by the registered global security for all purposes under the applicable indenture or warrant agreement. Except as described below, owners of beneficial interests in a registered global security will not be entitled to have the securities represented by the registered global security registered in their names, will not receive or be entitled to receive physical delivery of the securities in definitive form and will not be considered the owners or holders of the securities under the applicable indenture, warrant agreement or unit agreement. Accordingly, each person owning a beneficial interest in a registered global security must rely on the procedures of the depositary for that registered global security and, if that person is not a participant, on the procedures of the participant through which the person owns its interest, to exercise any rights of a holder under the applicable indenture, warrant agreement or unit agreement. We understand that under existing industry practices, if we request any action of holders or if an owner of a beneficial interest in a registered global security desires to give or take any action that a holder is entitled to give or take under the applicable indenture, warrant agreement or unit agreement, the depositary for the registered global security would authorize the participants holding the relevant beneficial interests to give or take that action, and the participants would authorize beneficial owners owning through them to give or take that action or would otherwise act upon the instructions of beneficial owners holding through them.

Payments to holders with respect to securities represented by a registered global security registered in the name of a depositary or its nominee will be made to the depositary or its nominee, as the case may be, as the registered owner of the registered global security. None of the Company, the trustees, the warrant agents, the unit agents or any other agent of the Company, the trustees, the warrant agents or the unit agents will have any responsibility or liability for any aspect of the records relating to payments made on account of beneficial ownership interests in the registered global security or for maintaining, supervising or reviewing any records relating to those beneficial ownership interests.

We expect that the depositary for any of the securities represented by a registered global security, upon receipt of any payment of principal, premium, interest or other distribution of underlying securities or other property to holders on that registered global security, will immediately credit participants' accounts in amounts proportionate to their respective beneficial interests in that registered global security as shown on the records of the depositary. We also expect that payments by participants to owners of beneficial interests in a registered global security held through participants will be governed by standing customer instructions and customary practices, as is now the case with the securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of those participants.

If the depositary for any of these securities represented by a registered global security is at any time unwilling or unable to continue as depositary or ceases to be a clearing agency registered under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and a successor depositary registered as a clearing agency under the Exchange Act is not appointed by us within 90 days, we will issue securities in definitive form in exchange for the registered global security that had been held by the depositary. Any securities issued in definitive form in exchange for a registered global security will be registered in the name or names that the depositary gives to the relevant trustee or warrant agent or other relevant agent of ours or theirs. It is expected that the depositary's instructions will be based upon directions received by the depositary from participants with respect to ownership of beneficial interests in the registered global security that had been held by the depositary.

PLAN OF DISTRIBUTION

Initial Offering and Sale of Securities

Unless otherwise set forth in a prospectus supplement accompanying this prospectus, we may sell the securities being offered hereby, from time to time, by one or more of the following methods:

- to or through underwriting syndicates represented by managing underwriters;
- through one or more underwriters without a syndicate for them to offer and sell to the public;
- through dealers or agents; and

- to investors directly in negotiated sales or in competitively bid transactions.

Offerings of securities covered by this prospectus also may be made into an existing trading market for those securities in transactions at other than a fixed price, either:

- on or through the facilities of the NYSE American or any other securities exchange or quotation or trading service on which those securities may be listed, quoted, or traded at the time of sale; and/or

- to or through a market maker other than on the securities exchanges or quotation or trading services set forth above.

Those at-the-market offerings, if any, will be conducted by underwriters acting as principal or agent of the Company, who may also be third-party sellers of securities as described above. The prospectus supplement with respect to the offered securities will set forth the terms of the offering of the offered securities, including:

- the name or names of any underwriters, dealers or agents;

- the purchase price of the offered securities and the proceeds to us from such sale;

- any underwriting discounts and commissions or agency fees and other items constituting underwriters' or agents' compensation;

- any initial public offering price and any discounts or concessions allowed or reallowed or paid to dealers;

- any securities exchange on which such offered securities may be listed; and

- any underwriter, agent or dealer involved in the offer and sale of any series of the securities.

The distribution of the securities may be effected from time to time in one or more transactions:

- at fixed prices, which may be changed;

- at market prices prevailing at the time of the sale;

- at varying prices determined at the time of sale; or

- at negotiated prices.

Each prospectus supplement will set forth the manner and terms of an offering of securities including:

- whether that offering is being made to underwriters, through agents or directly to the public;

- the rules and procedures for any auction or bidding process, if used;

- the securities' purchase price or initial public offering price; and

- the proceeds we anticipate from the sale of the securities, if any.

In addition, we may enter into derivative or hedging transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. The applicable prospectus supplement may indicate, in connection with such a transaction, that the third parties may sell securities covered by and pursuant to this prospectus and an applicable prospectus supplement. If so, the third party may use securities pledged by us or borrowed from us or others to settle such sales and may use securities received from us to close out any related short positions. We may also loan or pledge securities covered by this prospectus and an applicable prospectus supplement to third parties, who may sell the loaned securities or, in an event of default in the case of a pledge, sell the pledged securities pursuant to this prospectus and the applicable prospectus supplement.

Sales Through Underwriters

If underwriters are used in the sale of some or all of the securities covered by this prospectus, the underwriters will acquire the securities for their own account. The underwriters may resell the securities, either directly to the public or to securities dealers, at various times in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase the securities will be subject to certain conditions. Unless indicated otherwise in a prospectus supplement, the underwriters will be obligated to purchase all the securities of the series offered if any of the securities are purchased.

Any initial public offering price and any concessions allowed or reallowed to dealers may be changed intermittently.

Sales Through Agents

Unless otherwise indicated in the applicable prospectus supplement, when securities are sold through an agent, the designated agent will agree, for the period of its appointment as agent, to use specified efforts to sell the securities for our account and will receive commissions from us as will be set forth in the applicable prospectus supplement.

Securities bought in accordance with a redemption or repayment under their terms also may be offered and sold, if so indicated in the applicable prospectus supplement, in connection with a remarketing by one or more firms acting as principals for their own accounts or as agents for us. Any remarketing firm will be identified and the terms of its agreement, if any, with us and its compensation will be described in the prospectus supplement. Remarketing firms may be deemed to be underwriters in connection with the securities remarketed by them.

If so indicated in the applicable prospectus supplement, we may authorize agents, underwriters or dealers to solicit offers by certain specified institutions to purchase securities at a price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a future date specified in the prospectus supplement. These contracts will be subject only to those conditions set forth in the applicable prospectus supplement, and the prospectus supplement will set forth the commissions payable for solicitation of these contracts.

Direct Sales

We may also sell offered securities directly to institutional investors or others. In this case, no underwriters or agents would be involved. The terms of such sales will be described in the applicable prospectus supplement.

General Information

Broker-dealers, agents or underwriters may receive compensation in the form of discounts, concessions or commissions from us and/or the purchasers of securities for whom such broker-dealers, agents or underwriters may act as agents or to whom they sell as principal, or both. This compensation to a particular broker-dealer might be in excess of customary commissions.

Underwriters, dealers and agents that participate in any distribution of the offered securities may be deemed “underwriters” within the meaning of the Securities Act, so any discounts or commissions they receive in connection with the distribution may be deemed to be underwriting compensation. Those underwriters and agents may be entitled, under their agreements with us, to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, or to contribution by us to payments that they may be required to make in respect of those civil liabilities. Certain of those underwriters or agents may be customers of, engage in transactions with, or perform services for, us or our affiliates in the ordinary course of business. We will identify any underwriters or agents, and describe their compensation, in a prospectus supplement. Any institutional investors or others that purchase offered securities directly, and then resell the securities, may be deemed to be underwriters, and any discounts or commissions received by them from us and any profit on the resale of the securities by them may be deemed to be underwriting discounts and commissions under the Securities Act.

We will file a supplement to this prospectus, if required, pursuant to Rule 424(b) under the Securities Act, if we enter into any material arrangement with a broker, dealer, agent or underwriter for the sale of securities through a block trade, special offering, exchange distribution or secondary distribution or a purchase by a broker or dealer. Such prospectus supplement will disclose:

- the name of any participating broker, dealer, agent or underwriter;
- the number and type of securities involved;
- the price at which such securities were sold;
- any securities exchanges on which such securities may be listed;
- the commissions paid or discounts or concessions allowed to any such broker, dealer, agent or underwriter, where applicable; and
- other facts material to the transaction.

In order to facilitate the offering of certain securities under this prospectus or an applicable prospectus supplement, certain persons participating in the offering of those securities may engage in transactions that stabilize, maintain or otherwise affect the price of those securities during and after the offering of those securities. Specifically, if the applicable prospectus supplement permits, the underwriters of those securities may over-allot or otherwise create a short position in those securities for their own account by selling more of those securities than have been sold to them by us and may elect to cover any such short position by purchasing those securities in the open market.

In addition, the underwriters may stabilize or maintain the price of those securities by bidding for or purchasing those securities in the open market and may impose penalty bids, under which selling concessions allowed to syndicate members or other broker-dealers participating in the offering are reclaimed if securities previously distributed in the offering are repurchased in connection with stabilization transactions or otherwise. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. The imposition of a penalty bid may also affect the price of securities to the extent that it discourages resales of the securities. No representation is made as to the magnitude or effect of any such stabilization or other transactions. Such transactions, if commenced, may be discontinued at any time.

In order to comply with the securities laws of certain states, if applicable, the securities must be sold in such jurisdictions only through registered or licensed brokers or dealers. In addition, in certain states the securities 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.

Rule 15c6-1 under the Exchange Act generally requires that trades in the secondary market settle in two business days, unless the parties to any such trade expressly agree otherwise. Your prospectus supplement may provide that the original issue date for your securities may be more than two scheduled business days after the trade date for your securities. Accordingly, in such a case, if you wish to trade securities on any date prior to the second business day before the original issue date for your securities, you will be required, by virtue of the fact that your securities initially are expected to settle in more than two scheduled business days after the trade date for your securities, to make alternative settlement arrangements to prevent a failed settlement.

This prospectus, any applicable prospectus supplement and any applicable pricing supplement in electronic format may be made available on the internet sites of, or through other online services maintained by, us and/or one or more of the agents and/or dealers participating in an offering of securities, or by their affiliates. In those cases, prospective investors may be able to view offering terms online and, depending upon the particular agent or dealer, prospective investors may be allowed to place orders online.

Other than this prospectus, any applicable prospectus supplement and any applicable pricing supplement in electronic format, the information on our website or the website of any agent or dealer, and any information contained in any other website maintained by any agent or dealer:

- is not part of this prospectus, any applicable prospectus supplement or any applicable pricing supplement or the registration statement of which they form a part;
- has not been approved or endorsed by us or by any agent or dealer in its capacity as an agent or dealer, except, in each case, with respect to the respective website maintained by such entity; and
- should not be relied upon by investors.

There can be no assurance that we will sell all or any of the securities offered by this prospectus.

This prospectus may also be used in connection with any issuance of common stock or preferred stock upon exercise of a warrant if such issuance is not exempt from the registration requirements of the Securities Act.

In addition, we may issue the securities as a dividend or distribution or in a subscription rights offering to our existing securityholders. In some cases, we or dealers acting with us or on our behalf may also purchase securities and reoffer them to the public by one or more of the methods described above. This prospectus may be used in connection with any offering of our securities through any of these methods or other methods described in the applicable prospectus supplement.

LEGAL MATTERS

Unless otherwise indicated in the applicable prospectus supplement, the validity of the securities offered hereby will be passed upon for us by Mitchell Silberberg & Knupp, LLP, New York, New York. If the validity of the securities offered hereby in connection with offerings made pursuant to this prospectus are passed upon by counsel for the underwriters, dealers or agents, if any, such counsel will be named in the prospectus supplement relating to such offering.

EXPERTS

The audited financial statements incorporated by reference in this prospectus and elsewhere in the registration statement have been so incorporated by reference in reliance upon the report of Grant Thornton LLP, independent registered public accountants, upon the authority of said firm as experts in accounting and auditing. The consolidated balance sheet of MAIA Biotechnology, Inc. and Subsidiaries as of December 31, 2021, and the related consolidated statements of operations, changes in stockholders' equity (deficit), and cash flows for the year then ended, have been audited by EisnerAmper LLP, independent registered public accounting firm, as stated in their report which is incorporated herein. Such financial statements have been incorporated herein in reliance on the report of such firm given upon their authority as experts in accounting and auditing.

MAIA Biotechnology, Inc. has agreed to indemnify and hold EisnerAmper LLP harmless against and from any and all legal costs and expenses incurred by EisnerAmper LLP in successful defense of any legal action or proceeding that arises as a result of EisnerAmper LLP's consent to the inclusion of its audit report on the Company's past financial statements included in this registration statement.

ADDITIONAL INFORMATION

This prospectus is part of a registration statement on Form S-3 that we have filed with the SEC relating to the shares of our securities being offered hereby. This prospectus does not contain all of the information in the registration statement and its exhibits. The registration statement, its exhibits and the documents incorporated by reference in this prospectus and their exhibits, all contain information that is material to the offering of the securities hereby. Whenever a reference is made in this prospectus to any of our contracts or other documents, the reference may not be complete. You should refer to the exhibits that are a part of the registration statement in order to review a copy of the contract or documents.

We file annual, quarterly and current reports, proxy statements and other information with the SEC. The SEC maintains an Internet site at http://www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers, such as us, that file electronically with the SEC. Additionally, you may access our filings with the SEC through our website at www.MAIABiotech.com. We have included our website address as an inactive textual reference only and our website and the information contained on, or that can be accessed through, our website will not be deemed to be incorporated by reference in, and are not considered part of, this prospectus.

We will provide you without charge, upon your oral or written request, with an electronic or paper copy of any or all reports, proxy statements and other documents we file with the SEC, as well as any or all of the documents incorporated by reference in this prospectus (other than exhibits to such documents unless such exhibits are specifically incorporated by reference into such documents). Requests for such copies should be directed to:

MAIA Biotechnology, Inc.
444 West Lake Street, Suite 1700
Chicago, IL 60606
Attention: Vlad Vitoc
Telephone number: (312) 416-8592

You should rely only on the information in this prospectus and the additional information described above and under the heading "Incorporation of Certain Information by Reference" below. We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely upon it. We are not making an offer to sell these securities in any jurisdiction where such offer or sale is not permitted. You should assume that the information in this prospectus was accurate on the date of the front cover of this prospectus only. Our business, financial condition, results of operations and prospects may have changed since that date.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to "incorporate by reference" information that we file with it into this prospectus, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is an important part of this prospectus. The information incorporated by reference is considered to be a part of this prospectus, and information that we file later with the SEC will automatically update and supersede information contained in this prospectus and any accompanying prospectus supplement.

We incorporate by reference the documents listed below that we have previously filed with the SEC:

- Our Annual Report on Form 10-K for the year ended December 31, 2022, filed with the SEC on March 24, 2023;
- Our Quarterly Reports on Form 10-Q for the quarter ended March 31, 2023, filed with the SEC on May 8, 2023, and for the quarter ended June 30, 2023, filed with the SEC on August 8, 2023;
- Our Current Reports on Form 8-K filed with the SEC on February 6, 2023, March 17, 2023, April 27, 2023 and May 30, 2023 (other than any portions thereof deemed furnished and not filed);
- Our Definitive Proxy Statement on Schedule 14A, filed with the SEC on April 19, 2023; and
- The description of our common stock, par value $0.0001 per share, contained in Exhibit 4.1 to our Annual Report on Form 10-K filed with the SEC on March 24, 2023, including any amendment or report filed for the purpose of updating such description.

All reports and other documents that we file with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus but before the termination of the offering of the securities hereunder will also be considered to be incorporated by reference into this prospectus from the date of the filing of these reports and documents, and will supersede the information herein; provided, however, that all reports, exhibits and other information that we "furnish" to the SEC will not be considered incorporated by reference into this prospectus. We undertake to provide without charge to each person (including any beneficial owner) who receives a copy of this prospectus, upon written or oral request, a copy of all of the preceding documents that are incorporated by reference (other than exhibits, unless the exhibits are specifically incorporated by reference into these documents). You may request a copy of these materials in the manner set forth under the heading "Additional Information," above.

Up to Shares of Common Stock
Up to Pre-Funded Warrants to Purchase Shares of Common Stock
Up to Shares of Common Stock Underlying the Pre-Funded Warrants

PRELIMINARY PROSPECTUS SUPPLEMENT

Book-Running Manager

Konik Capital Partners
a division of T.R. Winston & Co.

, 2026