



Up to 1,921,706 Shares of Common Stock

This prospectus relates to the resale from time to time by YA II PN, LTD., a Cayman Islands exempt limited company (“Yorkville” or the “Selling Stockholder”) of up to 1,921,706 shares of our Common Stock, par value \$0.01 per share (“Common Stock”). The shares of Common Stock to which this prospectus relates consists of shares that we have issued or that we may, in our discretion, elect to issue and sell to the Selling Stockholder from time to time after the date of this prospectus pursuant to a standby equity purchase agreement we entered into with the Selling Stockholder on July 1, 2025 (the “SEPA”). Such shares include (i) 120,482 shares of Common Stock we issued to Yorkville as consideration for its commitment to purchase shares of our Common Stock pursuant to the SEPA and (ii) up to 1,801,224 shares of Common Stock that may be issued to Yorkville pursuant to the SEPA. See “The Standby Equity Purchase Agreement” for a description of the SEPA and “Selling Stockholders” for additional information regarding Yorkville.

We are not selling any securities under this prospectus and will not receive any proceeds from the sale of Common Stock by the Selling Stockholder. However, we may receive up to \$10,000,000 aggregate gross proceeds from sales of Common Stock we may elect to make to Yorkville pursuant to the SEPA. We will bear all of the registration expenses incurred in connection with the registration of these shares of Common Stock. The Selling Stockholder will pay discounts, commissions, fees of underwriters, selling brokers or dealer managers and similar expenses, if any, incurred for the sale of these shares of Common Stock.

The Selling Stockholder may sell or otherwise dispose of the shares of Common Stock described in this prospectus in a number of different ways and at varying prices. Information about how the Selling Stockholder may sell or otherwise dispose of the shares is described in this prospectus under the caption “Plan of Distribution.” The Selling Stockholder is an “underwriter” within the meaning of Section 2(a)(11) of the Securities Act of 1933, as amended (the “Securities Act”), and any profits on the sales of shares of Common Stock and any discounts, commissions, or concessions received by the Selling Stockholder are deemed to be underwriting discounts and commissions under the Securities Act. If any underwriters, dealers, or agents are involved in the sale of any of the securities, their names and any applicable purchase price, fee, commission, or discount arrangement between or among them will be set forth, or will be calculable from the information set forth, in any applicable prospectus supplement.

Our Common Stock is listed on The Nasdaq Capital Market under the symbol “POAI”. On July 28, 2025, the last reported sale price of our Common Stock on The Nasdaq Capital Market was \$0.82 per share.

Investing in our Common Stock involves a high degree of risk. Please read the under the heading “Risk Factors” beginning on page 7 of this prospectus.

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

The date of this prospectus is July 28, 2025.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-1 that we filed with the Securities and Exchange Commission (the “SEC”), utilizing a shelf registration process, pursuant to which the Selling Stockholder may, from time to time, offer and sell or otherwise dispose of the securities covered by this prospectus.

We may also provide a prospectus supplement or post-effective amendment to the registration statement to add information to, or update or change information contained in, this prospectus. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement or post-effective amendment, you should rely on the prospectus supplement or post-effective amendment, as applicable. You should read both this prospectus and any applicable prospectus supplement or post-effective amendment to the registration statement together with the additional information to which we refer you in the section titled “Where You Can Find More Information.”

You should rely only on the information contained in this prospectus and any prospectus supplement filed by us with the SEC in connection with this offering, and the documents incorporated by reference herein and therein. Neither we nor the Selling Stockholder has authorized anyone to provide you with different or additional information. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The information in this prospectus and any applicable prospectus supplement is accurate only as of the date on its respective cover. Our business, financial condition, results of operations and prospects may have changed since those dates. The Selling Stockholder is offering to sell, and seeking offers to buy, our securities only in jurisdictions where offers and sales are permitted.

For investors outside the United States: Neither we, nor the Selling Stockholder have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of securities and the distribution of this prospectus outside the United States.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Some of the statements made in this prospectus and the documents incorporated by reference herein are “forward-looking statements” and information within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), which are subject to the “safe harbor” created by these sections, that involve substantial risks and uncertainties. Forward-looking statements relate to expectations, beliefs, projections, future plans and strategies, anticipated events or trends and similar matters that are not historical facts. In some cases, you can identify forward-looking statements by terms such as “anticipate,” “believe,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “potential,” “should,” “will” and “would” or the negatives of these terms or other comparable terminology intended to identify statements about the future. These forward-looking statements include, without limitation, our expectations concerning the outlook for our business, plans and goals for future operational performance, future market conditions or economic performance and expected future financial performance, as well as any information concerning possible or assumed future results of operations.

Forward-looking statements involve a number of risks, uncertainties and assumptions, and actual results or events may differ materially from those projected or implied in those statements. Important factors that could cause such differences include, but are not limited to:

- We may not be able to continue operating without additional financing;
- Continued negative operating cash flows;
- Our capital needs to accomplish our goals, including any further financing, which may be highly dilutive and may include onerous terms;
- Risks and uncertainties related to our ability to regain compliance with the Nasdaq continued listing standards in the requirement timeframe;
- Risks related to recent and future acquisitions, including risks related to the benefits and costs of acquisition;
- Risks related to our partnerships with other companies, including the need to negotiate the definitive agreements; possible failure to realize anticipated benefits of these partnerships; and costs of providing funding to our partner companies, which may never be repaid or provide anticipated returns;
- Risks related to the initiation, formation, or success of our collaboration arrangements, commercialization activities and product sales levels by our collaboration partners and future payments that may come due to us under these arrangements;
- Risk that we will be unable to protect our intellectual property or claims that we are infringing on others’ intellectual property;
- The impact of competition;
- Acquisition and maintenance of any necessary regulatory clearances applicable to applications of our technology;
- Inability to attract or retain qualified senior management personnel, including sales and marketing personnel;
- Risk that we never become profitable if our products and services are not accepted by potential customers;
- Possible impact of government regulation and scrutiny;
- Unexpected costs and operating deficits, and lower than expected sales and revenues, if any;
- Adverse results of any legal proceedings;
- The volatility of our operating results and financial condition;
- Management of growth;

- Risk that our business and operations could be materially and adversely affected by disruptions caused by economic and geopolitical uncertainties as well as epidemics or pandemics; and
- Other specific risks that may be alluded to in this report.

Forward-looking statements set forth herein speak only as of the date of this prospectus. Forward-looking statements are not guarantees of performance. There can be no assurance that future developments affecting us will be those that we have anticipated. These forward-looking statements involve a number of risks, uncertainties (some of which are beyond our control) or other assumptions that may cause actual results or performance to be materially different from those expressed or implied by these forward-looking statements. These risks and uncertainties include, but are not limited to, those factors described in the section entitled “Risk Factors” beginning on page 7 of this prospectus. Other sections of this prospectus describe additional factors that could adversely affect our business, financial condition or results of operations. New risk factors emerge from time to time and it is not possible to predict all such risk factors, nor can we assess the impact of all such risk 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. Should one or more of these risks or uncertainties materialize, or should any of our assumptions prove incorrect, actual results may vary in material respects from those projected in these forward-looking statements.

We undertake no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as may be required under applicable securities laws. In the event that any forward-looking statement is updated, no inference should be made that we will make additional updates with respect to that statement, related matters, or any other forward-looking statements except to the extent required by law. All forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the foregoing cautionary statements. Any corrections or revisions and other important assumptions and factors that could cause actual results to differ materially from forward-looking statements, including discussions of significant risk factors, may appear in our public filings with the SEC, which are or will be (as appropriate) accessible at www.sec.gov, and which you are advised to consult. For additional information, please see the section titled “Where You Can Find More Information.”

PROSPECTUS SUMMARY

This summary highlights select information contained elsewhere in, or incorporated by reference into this prospectus. You should read the entire prospectus carefully, including the sections entitled “Risk Factors,” “Cautionary Note Regarding Forward-Looking Statements,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our financial statements and the accompanying notes included elsewhere in, or incorporated by reference into, this prospectus before making an investment decision. Unless otherwise indicated or the context otherwise requires, all references in this prospectus to “we,” “us,” “our,” the “Company,” and similar terms refer to Predictive Oncology Inc.

Company Overview

We are a knowledge-driven company focused on applying artificial intelligence (“AI”) to support the discovery and development of optimal cancer therapies, which can ultimately lead to more effective treatments and improved patient outcomes. We use AI and our proprietary biobank of 150,000 tumor samples, categorized by tumor type, to provide actionable insights about drug compounds to improve the drug discovery process and increase the probability of drug compound success. We also create and develop tumor-specific 3D cell culture models mimicking the physiological environment of human tissue, enabling better-informed decision-making during drug development. Our suite of solutions supports oncology drug development from early discovery to clinical trials.

Our mission is to change the landscape of oncology drug discovery and enable the development of more effective therapies for the treatment of cancer. By harnessing the power of machine learning and scientific rigor, we believe that we can improve the probability of success of advancing pharmaceutical and biological drug candidates with a higher degree of confidence.

Recent Developments

Nasdaq Notice of Delisting

On June 9, 2025, we received a letter (the “Notice”) from the Listing Qualifications Department (the “Staff”) of The Nasdaq Stock Market LLC (“Nasdaq”) notifying the Company that because the Company had not regained compliance with the minimum \$2,500,000 stockholders’ equity requirement for continued listing on The Nasdaq Capital Market as set forth in Nasdaq Listing Rule 5550(b)(1) (the “Stockholders’ Equity Requirement”), the Staff has determined to delist the Company’s securities from The Nasdaq Capital Market. The Company was unable to complete its previously submitted plan of compliance within the 180-day extension period provided under the Listing Rules. On June 11, 2025, we submitted a hearing request to Nasdaq’s Hearings Panel (the “Panel”), which stayed the suspension of the Company’s securities and the filing of the Form 25-NSE pending the Panel’s decision. On June 12, 2025, we were notified that the Panel agreed to consider our appeal at an oral hearing, which the Panel scheduled for July 17, 2025. The Panel has discretion to take actions as prescribed by Nasdaq Listing Rule 5815(c)(1) including, but not limited to, granting an exception to the continued listing standards for a period not to exceed 180 days from the date of the Notice.

On July 8, 2025, we received a letter from the Staff indicating that the bid price for our Common Stock had closed below \$1.00 per share for 30 consecutive business days, and that the Company is therefore not in compliance with the minimum bid price requirement for continued listing under Nasdaq Marketplace Rule 5550(a)(2) (the “Minimum Bid Price Requirement”). The notification had no immediate effect on the listing of the Company’s Common Stock. The Company has a period of 180 calendar days, or until January 5, 2026, to regain compliance with the Minimum Bid Price Requirement. If, at any time before January 5, 2026, the bid price of our Common Stock closes at or above \$1.00 per share for a minimum of 10 consecutive business days, Nasdaq will provide written notification that the Company has achieved compliance with the Minimum Bid Price Requirement.

On July 17, 2025, we attended an oral hearing with the Panel, where we presented plans for coming into compliance with the continued listing standards, which include, but are not limited to, continued sales of Common Stock pursuant to our at-the-market offering, sales of Common Stock pursuant to the SEPA, expanding availability of our live cell ChemoFx drug response assay and business collaborations, as well as a potential reverse stock split. We also requested an exception from the continued listing standards through December 8, 2025, to provide us the ability to evidence compliance with the standards.

Following the hearing, on July 23, 2025, we were notified by Nasdaq that the Panel had granted our request for continued listing on The Nasdaq Capital Market pursuant to an extension through December 8, 2025, to demonstrate compliance with all continued listing requirements, including the Stockholders' Equity Requirement and Bid Price Requirement. We are pursuing a number of actions to timely satisfy the terms of the Panel's decision; however, there can be no assurance that we will be able to do so.

The potential alternatives we continue to explore for purposes of our Nasdaq listing (as well as for our ability to continue as a going concern) could involve significant transactions that result in a fundamental change to our primary business operations or the control of the Company by a single or group of investors, or a decision by management and our Board of Directors to pursue a transaction that results in us being acquired by another company.

For more information, see the Risk Factors section of this prospectus.

Renovaro

On January 1, 2025, we entered into a binding letter of intent (the "LOI") with Renovaro, Inc. (NASDAQ: RENB) ("Renovaro") for Predictive Oncology to be acquired by Renovaro (the "Renovaro Merger"). Under the terms of the LOI, Predictive Oncology would be merged into Renovaro in exchange for a newly created series of preferred stock of Renovaro. On February 28, 2025, we entered into an extension agreement with Renovaro (the "Extension Agreement"), pursuant to which the parties amended certain terms of the LOI, including to extend the outside termination date of the LOI from February 28, 2025 to March 31, 2025. No definitive purchase agreement was executed as of March 31, 2025 and the LOI terminated on that date, pursuant to its terms. On April 3, 2025, our Board of Directors notified Renovaro of our decision to discontinue discussions regarding the proposed merger between the two companies. We have no further obligations with respect to the Renovaro Merger, including under the LOI or the Extension Agreement. On May 8, 2025, Renovaro filed a lawsuit in Delaware Chancery Court claiming breaches by us of the LOI and the Extension Agreement and seeking to compel our company to enter into a merger agreement with Renovaro. We do not believe the lawsuit has merit and plan to contest it vigorously.

Standby Equity Purchase Agreement

On July 1, 2025, we entered into the SEPA with Yorkville. Pursuant to the SEPA, we have the right to sell to Yorkville up to \$10 million shares of Common Stock, subject to certain limitations and conditions set forth in the SEPA, from time to time during the term of the SEPA. Sales of the shares of Common Stock to the Selling Stockholder under the SEPA, and the timing of any such sales, are at our option, and we are under no obligation to sell any shares of Common Stock to the Selling Stockholder under the SEPA. In connection with the execution of the SEPA, we issued 120,482 shares of Common Stock to the Selling Stockholder as consideration for its commitment to purchase our Common Stock pursuant to the SEPA.

In accordance with our obligations under the SEPA, we have filed the registration statement of which this prospectus forms a part with the Securities and Exchange Commission (the "SEC") to register under the Securities Act the resale by the Selling Stockholder of up to 1,801,224 shares of Common Stock that we may elect, in our sole discretion, to sell to the Selling Stockholder from time to time under the SEPA and the 120,482 shares of Common Stock we issued to the Selling Stockholder for its commitment to purchase our Common Stock pursuant to the SEPA. Upon the satisfaction of the conditions to the Selling Stockholder's purchase obligation set forth in the SEPA, including that the registration statement of which this prospectus forms a part be declared effective by the SEC and the final form of this prospectus is filed with the SEC, we will have the right, but not the obligation, from time to time at our discretion until the first day of the month following the 36-month period after the date of the SEPA, to direct the Selling Stockholder to purchase a specified number of shares of Common Stock (each such sale, an "Advance") by delivering written notice to the Selling Stockholder (each, an "Advance Notice"). The per share purchase price for the shares of Common Stock, if any, that we elect to sell to the Selling Stockholder in an Advance pursuant to the SEPA will be determined by reference to the volume weighted average price of our Common Stock (the "VWAP") and calculated in accordance with the SEPA, less a discount of 4.0%.

We will control the timing and amount of any sales of Common Stock to the Selling Stockholder and actual sales of shares of our Common Stock to the Selling Stockholder under the SEPA will depend on a variety of factors to be determined by us from time to time, which may include, among other things, market conditions, the trading price of our Common Stock, and determinations by us as to the appropriate sources of funding for our business and its operations.

Under the applicable Nasdaq rules, in no event may we issue to the Selling Stockholder under the SEPA more than 1,921,706 shares of Common Stock, which number of shares is equal to 19.99% of the shares of Common Stock of the Company outstanding as of the date of the SEPA (the “Exchange Cap”), unless (i) we obtain stockholder approval to issue shares of Common Stock in excess of the Exchange Cap in accordance with applicable Nasdaq rules, or (ii) the average price of all applicable sales of shares of Common Stock under the SEPA equal or exceed \$0.83 per share. Moreover, the Selling Stockholder is not obligated to purchase or acquire, and shall not purchase or acquire, any shares of Common Stock under the SEPA which, when aggregated with all other shares of Common Stock then beneficially owned by the Selling Stockholder and its affiliates (as calculated pursuant to Section 13(d) of the Exchange Act and Rule 13d-3 promulgated thereunder), would result in the beneficial ownership by the Selling Stockholder and its affiliates exceeding 4.99% of the then outstanding voting power or number of shares of Common Stock.

If and when we elect to issue and sell shares to the Selling Stockholder under the SEPA, we may need to register for resale under the Securities Act additional shares of our Common Stock in order to receive aggregate gross proceeds equal to the \$10,000,000 available to us under the SEPA, depending on market prices for our Common Stock. If all of the 1,921,706 shares offered by the Selling Stockholder for resale under the registration statement of which this prospectus forms a part were issued and outstanding as of the date hereof, such shares would represent approximately 18.80% of the total number of shares of our Common Stock outstanding as of July 17, 2025. If we elect to issue and sell more than the 1,921,706 shares offered under this prospectus by the Selling Stockholder, which we have the right, but not the obligation, to do, we must first register for resale under the Securities Act any such additional shares. The number of shares ultimately offered for resale by the Selling Stockholder is dependent upon the number of shares we may elect to sell to the Selling Stockholder under the SEPA.

There are substantial risks to our stockholders as a result of the sale and issuance of Common Stock to the Selling Stockholder under the SEPA. These risks include the potential for substantial dilution and significant declines in our stock price. See the section entitled “Risk Factors—Risks Related to this Offering.” Issuances of our Common Stock in this offering will not affect the rights or privileges of our existing stockholders, except that the economic and voting interests of each of our existing stockholders will be diluted as a result of any such issuance. Although the number of shares of Common Stock that our existing stockholders own will not decrease as a result of sales, if any, under the SEPA to the Selling Stockholder, the shares owned by our existing stockholders will represent a smaller percentage of our total outstanding shares after any such issuance to the Selling Stockholder.

Our Business

Drug Discovery Solutions – PEDAL

Patient-centric Drug Discovery using Active Learning (“PEDAL”™), our proprietary AI-driven platform, is designed to provide high-confidence drug-response predictions. This platform combines our biobank of samples with a one-of-a-kind database of historical tumor data, and the power of AI to efficiently build predictive models of tumor drug response. Our PEDAL asset is a unique technology that combines one of the largest privately held commercial biobanks of tumor samples, AI active machine learning, and multi-omic historical tumor data – complete with on-site Clinical Laboratory Improvement Amendments (“CLIA”) certified lab testing capabilities to inform drug/tumor model predictions. PEDAL offers researchers the opportunity to incorporate patient diversity early, efficiently, and cost-effectively into the drug discovery process by using data from hundreds of patient samples. PEDAL works by iterative cycles of active learning to guide the testing of patient samples against specific compounds. This results in PEDAL efficiently building comprehensive predictive models of patient drug response in a matter of weeks. This predictive model can rank compounds against tumor samples of certain profiles that respond to specific drugs and can also predict the set of compounds that provide the best coverage across patient tumor samples.

We believe leveraging our unique, historical database of tumor drug responses, genomics, biomarkers, digitized pathology slides, and histopathology data with over 150,000 patient tumor samples to efficiently build AI driven predictive models of tumor drug response will provide actionable insights critical to new drug development. Through the course of over 15 years of clinical testing of patient tumor responses to drugs, our Pittsburgh lab has amassed a huge proprietary knowledgebase of data. To provide for our patient-centric approach, this dataset has been rigorously de-identified and aggregated to inform our proprietary process to create models of tumor drug response.

PEDAL can significantly increase the probability of clinical success by introducing patient diversity early in the development process, while also decreasing the time and cost of oncology drug discovery programs. Our large knowledgebase of tumor drug response and other data, together with proven AI, has created a unique capability for oncology drug discovery, utilizing this highly efficient screening of drug responses against thousands of diverse, well-characterized patient primary tumor samples. With each iteration of a PEDAL campaign, the program learns, predicts, and then directs the most informative wet lab experimentation, while building the predictive model. This allows for a unique and streamlined approach in which AI-driven predictions are tested against samples from this expansive and diverse biobank to more efficiently and effectively narrow down viable drug-tumor pairings. This novel disruptive approach is ideally suited to the early part of drug discovery while also being highly customizable to meet the needs of our collaborators. Our patient-centric drug discovery approach provides for the prioritization of drug compound candidates while accounting for patient tumor diversity. This should dramatically improve the chances of successfully translating discoveries into successful therapies, while simultaneously lowering costs through shortened development timelines, and most importantly, enhanced “speed-to-patient” for new therapies.

A key part of our commercialization strategy is the understanding that our AI-driven models of tumor drug response serve a key unmet need of pharmaceutical, diagnostic, and biotech industries for actionable multi-omic insights into cancer. In collaboration with these companies, using the predictive models, we will accelerate the search for more effective cancer treatments through biomarker discovery, drug screening, drug repurposing, and ultimately clinical trials with higher probability of success.

PEDAL, which incorporates CORE™, our active machine learning program, with tumor profile data and human tumor samples, provides optimized, efficient, high-confidence drug-response predictions. Our platform is designed to move molecules forward with a higher probability of clinical success. The focus of our business strategy is to leverage and expand our portfolio of proprietary solutions to advance drug discovery and enable oncology drug development for our biopharma partners.

3D Modeling

We also develop tumor-specific in vitro models for oncology drug discovery and research. Our 3D tumor-specific models accelerate the drug development process for our clients and partners by providing drug response predictions with high correlation to clinical response, enabling our biopharma clients to manage pipeline prioritization more efficiently.

The 3D models incorporate tissue-specific extracellular matrices and tumor-specific medium supplements allowing for a true reconstruction of tumor microenvironment. Our approach is compatible with multiple classes of immuno-oncology agents from antibody and antibody-drug conjugates to bi- and tri-specific compounds and CAR-T cells. The organ-specific disease models provide 3D reconstruction of human tissues accurately representing each disease state and mimicking drug response.

Our 3D platform maintains tumor-tumor and tumor-stroma interactions and incorporates both cellular and extracellular elements of tissue microenvironment including soluble factors in an organ- and disease-specific manner. It is compatible with multiple cell types, drug classes, and downstream analysis methods. Our models support proliferation of malignant and non-malignant cellular components of tissues.

Applications include providing efficacy screening of anticancer compounds, evaluation of mechanisms of drug resistance, identification of new drug combinations, rescue of failed drug candidates, assessment of off-target toxicity, target discovery and biomarker discovery. Product offerings include preclinical testing services based on our proprietary models directly to clients in the biopharmaceutical industry.

Clinical Testing

Through our wholly owned subsidiary, Helomics Corporation (“Helomics”), we offer a group of clinically relevant, cancer-related tumor profiling and biomarker tests for gynecological cancers that determine how likely the patient is to respond to various types of available chemotherapy treatments and which therapies might be indicated by relevant tumor biomarkers.

Clinical diagnostic testing is comprised of our Tumor Drug Response Testing (ChemoFx™), Genomic Profiling Testing (BioSpeciFx), and other biomarker tests. The Tumor Drug Response Testing test determines how a patient’s tumor specimen reacts to a panel of various chemotherapy drugs, while the Genomic and biomarker profiling evaluates the expression and/or status of a particular gene or protein related to a patient’s tumor specimen.

Testing involves obtaining tumor tissue during biopsy or surgery, which is then sent to our CLIA certified laboratory using a special collection kit. Tumor Drug Response Testing is a fresh tissue platform that uses the patient’s own live tumor cells to help physicians identify effective treatment options for each gynecologic cancer patient.

Genomic Profiling offers a select group of clinically relevant protein expression and genomic mutation tests associated with drug response and disease prognosis. Physicians can select biomarkers for testing from carefully chosen panels of relevant tests, organized by cancer pathway and tumor type. Results for these tests are presented in a clear, easy to understand format, including summaries of the clinical relevance of each marker.

Our Industry

Drug Discovery and Development Solutions

The growing demand for the improvement in the discovery and development process of novel drug therapies is driving the demand for AI-empowered solutions. Growing partnerships and cooperation are expected to fuel global market for AI in drug development. The adoption of AI solutions in the drug development process increases efficiency, reduces cycle time, and increases the productivity and accuracy of the risky and long process. Due to these advantages, the importance of AI in drug discovery and development is expected to drive the global market. AI-powered drug discovery is an emerging approach that considers individual variability in multi-omics, including genes, disease and environment to develop effective therapies. This approach predicts more accurately which treatment, dose, and therapeutic regimen could provide the best possible clinical outcome. Biopharmaceutical companies, contract research organizations, academia, and other stakeholders began integrating AI-based solutions in their drug development processes to enhance outcomes and curb costs.

We believe we are uniquely positioned with our PEDAL platform to provide early insights that clients can use to prioritize drugs for development and identify biomarker-informed indications. In addition, the PEDAL platform can be used to re-purpose previously failed drug compounds. We aim to leverage the PEDAL platform for our biopharma clients and help them prioritize their oncology portfolio. The PEDAL platform supports a biopharma client's decision on the drug molecules with a higher likelihood of clinical success. With PEDAL, we look to improve/enhance the way that the biopharma industry carries out the development of oncology drugs. We believe our platform provides unique financial- and time-saving advantages for pharmaceutical companies.

We believe the passage of the FDA Modernization Act 2.0 will increase the use of non-animal methods to study the mechanisms of diseases and to test the effectiveness of new drugs. The FDA Modernization Act 2.0 allows for alternatives to animal-testing requirements for the development of drugs and allows drug manufacturers to opt out of animal testing while utilizing other testing methods to develop drugs, such as cell-based assays, organ-on-a-chip technology, computer models, and other human biology-based test methods. We expect the market to continue to grow due to a shift towards more efficient, accurate and predictive models.

Corporate Information

Our principal executive offices are located at 91 43rd Street, Suite 110 Pittsburgh, Pennsylvania and our telephone number is (412) 432-1500.

We were originally incorporated in Minnesota on April 23, 2002, and reincorporated in Delaware in 2013. We changed our name from Skyline Medical Inc. to Precision Therapeutics Inc. on February 1, 2018, and to Predictive Oncology Inc. on June 13, 2019. Additional information about us is available on our website at predictive-oncology.com. Information contained on our website is not incorporated by reference into this prospectus.

For a description of our business, financial condition, results of operations and other important information regarding us, we refer you to our filings with the SEC incorporated by reference into this prospectus. For instructions on how to find copies of these documents, see "Where You Can Find More Information."

THE OFFERING

Any investment in the securities offered hereby is speculative and involves a high degree of risk. You should carefully consider the information set forth under “*Risk Factors*” on page 7 of this prospectus.

Issuer Predictive Oncology Inc.

Shares of Common Stock that may be offered and sold by the Selling Stockholder Up to 1,921,706 shares, consisting of (i) 120,482 Commitment Shares and (ii) up to 1,801,224 shares of Common Stock that may be issued to Yorkville pursuant to the SEPA.

Terms of the Offering The Selling Stockholder will determine when and how it will dispose of any shares of Common Stock registered under this prospectus for resale.

Common Stock Outstanding Before this Offering 10,222,221 shares

Common Stock Outstanding After this Offering 12,023,445 shares, assuming the sale by us of a total of 1,801,224 shares pursuant to the SEPA. The actual number of shares issued will vary depending upon the actual sales under the SEPA.

Use of Proceeds The Selling Stockholder will receive any proceeds from the resale of the shares offered pursuant to this prospectus. We will not receive any of the proceeds from these resales. However, we may receive up to \$10,000,000 in aggregate gross proceeds under the SEPA from sales of Common Stock that we may elect to make to the Selling Stockholder pursuant to the SEPA, if any, from time to time in our discretion. See “Use of Proceeds” for more information.

Risk Factors Investing in our Common Stock involves a high degree of risk, and the purchasers of our Common Stock may lose all or part of their investment. Please see “Risk Factors” beginning on page 7 of this prospectus, as well as the other information included in or incorporated by reference in this prospectus, for a discussion of risks you should carefully consider before investing in our securities.

Nasdaq Capital Market Symbol “POAI”

RISK FACTORS

An investment in our securities involves a number of risks. Before deciding to invest in our securities, you should carefully consider the risks described below, together with all of the other information included in this prospectus and the information incorporated by reference herein, including the discussion under the sections captioned "Risk Factors" contained in our most recent Annual Report on Form 10-K and any other subsequently filed document that is also incorporated or deemed to be incorporated by reference in this prospectus. If any of these risks actually occurs, our business, financial condition, results of operations or cash flow could be 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 described in the documents referenced above are not the only ones that we face. Additional risks not presently known to us or that we currently deem immaterial may also affect our business.

Risks Related to this Offering

It is not possible to predict the actual number of shares we will sell under the SEPA to Yorkville, or the actual gross proceeds resulting from those sales. Further, we may not have access to the full amount available under the SEPA with Yorkville.

On July 1, 2025, or the Effective Date, we entered into the SEPA with Yorkville, pursuant to which Yorkville has committed to purchase up to \$10,000,000 of shares of our Common Stock, subject to certain limitations and conditions set forth in the SEPA. The shares of our Common Stock that may be issued under the SEPA may be sold by us to Yorkville at our discretion from time to time for a period of up to 36 months, unless the SEPA is earlier terminated.

We generally have the right to control the timing and amount of any sales of our shares of Common Stock to Yorkville under the SEPA. Sales of our Common Stock, if any, to Yorkville will depend upon market conditions and other factors to be determined by us. We may ultimately decide to sell to Yorkville all, some or none of the shares of our Common Stock that may be available for us to sell to Yorkville pursuant to the SEPA.

Because the per share purchase price that Yorkville will pay for the shares we may elect to sell pursuant to the SEPA, if any, will fluctuate based on the market prices of our Common Stock prior to each Advance made pursuant to the SEPA, as of the date of this prospectus, it is not possible for us to predict the number of shares of Common Stock that we will sell to Yorkville under the SEPA, the purchase price per share that Yorkville will pay for shares purchased from us under the SEPA, or the aggregate gross proceeds that we will receive from those purchases by Yorkville under the SEPA, if any.

Although the SEPA provides that we may sell up to an aggregate of \$10,000,000 of our Common Stock to Yorkville, only 1,921,706 shares of our Common Stock are being registered under the Securities Act for resale by Yorkville under the registration statement that includes this prospectus. If we elect to sell to Yorkville all of the 1,921,706 shares of Common Stock being registered for resale under this prospectus, depending on the market price of our Common Stock prior to each Advance made pursuant to the SEPA, the actual gross proceeds from the sale of all such shares may be substantially less than the \$10,000,000 available to us under the SEPA, which could materially adversely affect our liquidity.

Unless there is a significant increase in the market price of our Common Stock, it will be necessary for us to issue and sell to Yorkville under the SEPA more than the 1,921,706 shares being registered for resale in order to receive aggregate gross proceeds equal to \$10,000,000 under the SEPA, and we will be required to file with the SEC one or more additional registration statements to register under the Securities Act the resale by the Yorkville of any such additional shares we wish to sell from time to time under the SEPA, which the SEC must declare effective. Further, we would need to obtain stockholder approval to issue shares of Common Stock in excess of the Exchange Cap under the SEPA in accordance with applicable Nasdaq rules, unless the sales prices of all applicable sales of shares of Common Stock under the SEPA equal or exceed \$0.83 per share (which represents the lower of (i) the Nasdaq official closing price (as reflected on Nasdaq.com) immediately prior to the Effective Date or (ii) the average Nasdaq official closing price for the five (5) trading days immediately prior to the Effective Date). Any issuance and sale by us under the SEPA of shares of Common Stock in addition to the 1,921,706 shares of Common Stock being registered for resale under the registration statement that includes this prospectus would cause additional dilution to our stockholders.

We are not required or permitted to issue any shares of Common Stock under the SEPA if such issuance would breach our obligations under the rules or regulations of Nasdaq. In addition, Yorkville will not be required to, and may not, purchase any shares of our Common Stock if such sale would result in its beneficial ownership exceeding 4.99% of the then issued and outstanding Common Stock. Finally, the SEPA requires that as of each date on which we require Yorkville to purchase shares, our Common Stock will be registered under Section 12(b) of the Exchange Act and approved for listing on the Principal Market (as defined in the SEPA). Therefore, a delisting of our Common Stock from the Nasdaq Capital Market would negatively impact our ability to sell shares to Yorkville. See—Our Common Stock could be delisted from the Nasdaq Capital Market, which delisting could hinder your ability to obtain accurate quotations on the price of our Common Stock or dispose of our Common Stock in the secondary market. Our inability to access a part or all of the amount available under the SEPA, in the absence of any other financing sources, could have a material adverse effect on our business.

Investors who buy shares of Common Stock at different times will likely pay different prices.

Pursuant to the SEPA, we control the timing and amount of any sales of Common Stock to Yorkville. If and when we do elect to sell shares of our Common Stock to Yorkville pursuant to the SEPA, Yorkville may resell all, some, or none of such shares in its discretion and at different prices, subject to the terms of the SEPA. As a result, investors who purchase shares from Yorkville in this offering at different times may experience different outcomes in their investment results. Investors may experience a decline in the value of the shares they purchase from Yorkville in this offering as a result of future sales made by us to Yorkville at prices lower than the prices such investors paid for their shares in this offering.

The sale and issuance of our Common Stock to Yorkville will cause dilution to our existing stockholders, and the sale of the shares of Common Stock acquired by Yorkville, or the perception that such sales may occur, could cause the price of our Common Stock to fall.

The purchase price for the shares of Common Stock that we may sell to Yorkville under the SEPA will fluctuate based on the market price of our Common Stock. Depending on a number of factors, including market liquidity, sales of such shares of Common Stock may cause the trading price of our Common Stock to fall.

If and when we do sell shares of Common Stock to Yorkville, it may resell all, some, or none of those shares of Common Stock at its discretion, subject to the terms of the SEPA. Therefore, sales of Common Stock to Yorkville by us could result in substantial dilution to the interests of other holders of our Common Stock. Additionally, the sale of a substantial number of shares of our Common Stock to Yorkville, or the anticipation of such sales, could make it more difficult for us to sell equity or equity-related securities in the future at a desirable time and price.

Our management team will have broad discretion over the use of the net proceeds from our sale of shares of Common Stock to Yorkville, if any, and you may not agree with how we use the proceeds and the proceeds may not be invested successfully.

Our management team will have broad discretion as to the use of the net proceeds from our sale of shares of Common Stock to Yorkville, if any, and we could use such proceeds for purposes other than those contemplated at the time of commencement of this offering. Accordingly, you will be relying on the judgment of our management team with regard to the use of those net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that, pending their use, we may invest those net proceeds in a way that does not yield a favorable, or any, return for us. The failure of our management team to use such funds effectively could have a material adverse effect on our business, financial condition, operating results and cash flows.

We are pursuing alternatives to obtain additional funding for our business and to avoid delisting of our Common Stock from the Nasdaq Capital Market, which could change the nature our business and your investment or cause us to terminate the SEPA.

As disclosed in the risk factors below under the heading “—Risk Factors Related to Our Business, the Securities Market and Ownership of our Common Stock”, we continue to evaluate alternatives to obtain additional funding to maintain our future operations and to regain and maintain continued listing on The Nasdaq Capital Market. These alternatives could include transactions that result in a change to our business operations, capital or ownership structure, including those that make the continuation of the SEPA no longer necessary or advisable, or a transaction that results in our Common Stock no longer being listed on The Nasdaq Capital Market (notwithstanding our current intention to regain and maintain such listing), such as a merger or acquisition. The decision to pursue and enter into any such transaction will be made by management and our Board of Directors based on determinations of what is in the best interest of the Company and its stockholders. Depending on alternatives that may be pursued, and the timing of any such actions, the focus and nature of our business could ultimately be different than it is currently or at the time of investors’ purchases of shares, we may not be able to successfully implement any such alternatives, and investors purchasing shares may experience a decline in the value of their shares or lose their investment entirely. It also is possible that the SEPA and the offering of the resale of shares by Yorkville may be terminated, including before the resale of any or all of the shares registered by the registration statement of which this prospectus forms a part are completed.

Risk Factors Related to Our Business, the Securities Market and Ownership of our Common Stock

There is substantial doubt about our ability to continue as a going concern. We require significant additional funding to maintain operations and implement our business plan. The financing we have obtained to date has been dilutive, and any additional financing, if available, may also be dilutive.

We have incurred significant and recurring losses from operations for the past several years and, as of March 31, 2025, had an accumulated deficit of \$182,869,144. We had cash and cash equivalents of \$3,087,588 as of March 31, 2025, and need to raise significant additional capital to meet our operating needs. We had short-term obligations of \$4,609,043 and long-term operating lease obligations of \$1,405,004 as of March 31, 2025. We do not expect to generate sufficient operating revenue to sustain our operations in the near term. During the year ended December 31, 2024, and the three months ended March 31, 2025, we incurred negative cash flows from continuing operating activities of \$10,974,568 and \$985,840, respectively. Although we have attempted to improve our operating margin by bolstering revenues and curtailing expenses and continue to seek ways to generate revenue through business development activities, there is no guarantee that we will be able to improve our operating margin sufficiently or achieve profitability in the near term. These conditions raise substantial doubt about our ability to continue as a going concern within one year after the date our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2024 were issued. We continue to evaluate alternatives to obtain the required additional funding to maintain future operations, but there can be no assurances that such funding will be available under acceptable terms, if at all.

Alternatives to obtain additional funding may include, but are not limited to, equity financing, issuing debt, entering into other financing arrangements, or monetizing operating businesses or assets. These possibilities, to the extent available, may be on terms that result in significant dilution to our existing stockholders or that result in our existing stockholders losing part or all of their investment. For example, since May 2024 we have raised approximately \$3.9 million in net proceeds through at-the-market offerings of shares of our Common Stock. We have also raised approximately \$2.8 million in the aggregate over the last 12 months through cash exercises of certain outstanding warrants pursuant to agreements with certain warrant holders to reduce the exercise price of those warrants and issue new warrants as consideration for the cash exercises; an issuance of shares of our Common Stock in a registered direct offering; and the sale of our STREAMWAY business. Despite these sources of funding, we may be unable to access additional financing or obtain additional liquidity under acceptable terms, if at all. If such financing or adequate funds from operations are not available, we would be forced to limit our business activities and we could default on existing payment obligations, which would have a material adverse effect on our financial condition and results of operations, and may ultimately be required to cease our operations and liquidate our business.

Our Common Stock could be delisted from the Nasdaq Capital Market, which delisting could hinder your ability to obtain accurate quotations on the price of our Common Stock or dispose of our Common Stock in the secondary market.

On May 13, 2022, we received a letter from the Listing Qualifications Department of Nasdaq (the “Staff”) informing us that because the closing bid price for our Common Stock listed on Nasdaq was below \$1.00 for 30 consecutive trading days, we did not comply with the minimum closing bid price requirement for continued listing under Nasdaq Listing Rule 5550(a)(2), requiring a minimum bid price of \$1.00 per share (the “Minimum Bid Price Requirement”). The letter stated that we had 180 days, or until November 9, 2022, to regain compliance by maintaining a closing bid price of at least \$1.00 for a minimum of 10 consecutive trading days. This deadline was subsequently extended by Nasdaq to May 8, 2023. On April 23, 2023, we effected a 20-for-1 reverse stock split to cure this deficiency. As a result, our stock price increased significantly, and we regained compliance with the Minimum Bid Price Requirement.

After a subsequent decline in our stock price, on September 19, 2024, we received another letter from the Staff informing us that did not meet the Minimum Bid Price Requirement. The letter stated that we had 180 days, or until March 18, 2025, to regain compliance by maintaining a closing bid price of at least \$1.00 for a minimum of 10 consecutive trading days. We regained compliance with the Minimum Bid Price Requirement, as our stock price began trading above the minimum requirement.

On November 20, 2024, we received a letter from the Staff notifying us that we were not in compliance with the minimum stockholders’ equity requirement for continued listing as set forth in Nasdaq Listing Rule 5550(b)(1) (the “Stockholders’ Equity Requirement”), because our stockholders’ equity of \$1,966,969, as reported in our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2024, was below the required minimum of \$2.5 million, and because, as of the date of the notice, we did not meet either of the alternative compliance standards, relating to market value of listed securities of at least \$35 million or net income from continuing operations of \$500,000 in the most recently completed fiscal year or in two of the last three most recently completed fiscal years. Under Nasdaq rules and as specified in the notice, we had until Monday, January 6, 2025 to submit to Nasdaq a plan to regain compliance with the Stockholders’ Equity Requirement. If our plan to regain compliance is accepted, Nasdaq may grant an extension of up to 180 calendar days from the date of the Notice for the Company to evidence compliance. We submitted our plan on January 6, 2025, citing the Company’s proposed merger with Renovaro, and requested a 180-day extension to regain compliance with the Stockholders’ Equity Requirement. In response, the Nasdaq requested upon execution, or by no later than March 1, 2025, a copy of the definitive merger documentation and a detailed timeline to complete the merger. On February 28, 2025, the Company notified the Staff that the Company continues to progress in discussions with Renovaro to finalize the merger. The Company also notified the Staff of the Extension Agreement entered into with Renovaro on February 28, 2025, which extended the outside termination date from February 28, 2025, to March 31, 2025. As a result of the termination of negotiations with Renovaro, we were unable to complete the previously submitted plan.

On June 9, 2025, we received a letter from the Staff notifying us that because the Company had not regained compliance with the Stockholders' Equity Requirement, the Staff determined to delist the Company's securities from The Nasdaq Capital Market. On June 11, 2025, we submitted a hearing request to Nasdaq's Hearings Panel (the "Panel"), which stayed the suspension of the Company's securities and the filing of the Form 25-NSE pending the Panel's decision. On June 12, 2025, we were notified that the Panel agreed to consider our appeal at an oral hearing, which the Panel scheduled for July 17, 2025. The Panel has discretion to take actions as prescribed by Nasdaq Listing Rule 5815(c)(1) including, but not limited to, granting an exception to the continued listing standards for a period not to exceed 180 days from the date of the Notice.

On July 8, 2025, we received a letter from the Staff indicating that the bid price for our Common Stock had closed below \$1.00 per share for 30 consecutive business days, and that the Company is therefore not in compliance with the Minimum Bid Price Requirement. The notification had no immediate effect on the listing of the Company's Common Stock. The Company has a period of 180 calendar days, or until January 5, 2026, to regain compliance with the Minimum Bid Price Requirement. We intend to continue actively monitoring the bid price for our Common Stock and will consider available options to resolve the deficiency and regain compliance with the Minimum Bid Price Requirement, which may include effecting a reverse stock split.

On July 17, 2025, we attended an oral hearing with the Panel, where we presented plans for coming into compliance with the continued listing standards, which include, but are not limited to, continued sales of Common Stock pursuant to our at-the-market offering, sales of Common Stock pursuant to the SEPA, expanding availability of our live cell ChemoFx drug response assay and business collaborations, as well as a potential reverse stock split. We also requested an exception from the continued listing standards through December 8, 2025, to provide us the ability to evidence compliance with the standards.

Following the hearing, on July 23, 2025, we were notified by Nasdaq that the Panel had granted our request for continued listing on The Nasdaq Capital Market pursuant to an extension through December 8, 2025, to demonstrate compliance with all continued listing requirements, including the Stockholders' Equity Requirement and Bid Price Requirement. We are pursuing a number of actions to timely satisfy the terms of the Panel's decision; however, there can be no assurance that we will be able to do so.

In the event our Common Stock is delisted from the Nasdaq Capital Market and we are also unable to maintain listing on another alternate exchange, trading in our Common Stock could thereafter be conducted through one or more over-the-counter markets. In such event, the liquidity of our Common Stock would likely be impaired, not only in the number of shares which could be bought and sold, but also through delays in the timing of the transactions, and there would likely be a reduction in our coverage by security analysts and the news media, thereby resulting in lower prices for our Common Stock than might otherwise prevail.

If, in an attempt to regain compliance with Nasdaq's Minimum Bid Price Requirement, we elect to pursue and conduct a reverse stock split, the impact of the reverse stock split on the future market price of our Common Stock and our ability to maintain the listing of our Common Stock on Nasdaq will be uncertain.

If we elect to pursue and conduct a reverse stock split in an attempt to regain compliance with Nasdaq's Minimum Bid Price Requirement, we cannot assure stockholders that the proposed reverse stock split will sufficiently increase our stock price or be completed before Nasdaq commences delisting procedures related to the Minimum Bid Price Requirement. The effect of a reverse stock split on our stock price cannot be predicted with any certainty, and the history of reverse stock splits for other companies, including those in our industry, is varied, particularly since some investors may view a reverse stock split negatively. It is possible that our stock price after a reverse stock split will not increase in the same proportion as the reduction in the number of shares outstanding, causing a reduction in our overall market capitalization. Further, even if we implement a reverse stock split, our stock price may decline due to various factors, including our future performance and general industry, market and economic conditions. This percentage decline, as an absolute number and as a percentage of our overall market capitalization, may be greater than would occur in the absence of a reverse stock split.

In addition, a reverse stock split may decrease the liquidity of our Common Stock and result in higher transaction costs. The liquidity of our Common Stock may be negatively impacted by the reduced number of shares outstanding after a reverse stock split, which would be exacerbated if the stock price does not increase following the reverse stock split. In addition, a reverse stock split would increase the number of stockholders owning “odd lots” of fewer than 100 shares, trading in which generally results in higher transaction costs. Accordingly, a reverse stock split may not achieve the desired results of increasing marketability and liquidity.

The implementation of a reverse stock split would not have an effect on the actual or intrinsic value of our business or a stockholder’s proportional ownership interest (subject to the treatment of fractional shares). However, should the overall value of our Common Stock decline after a reverse stock split, then the actual or intrinsic value of shares held by stockholders will also proportionately decrease as a result of the overall decline in value.

You may experience dilution as a result of future equity offerings.

We may in the future offer additional shares of our Common Stock or other securities convertible into or exchangeable for our Common Stock. Although no assurances can be given that we will consummate future financings, in the event we do, or in the event we sell shares of Common Stock or other securities convertible into shares of our Common Stock in the future, additional and potentially substantial dilution could occur. See the Risk Factor titled “*There is substantial doubt about our ability to continue as a going concern. We require significant additional funding to maintain operations and implement our business plan. the financing we have obtained to date has been dilutive, and any additional financing, if available, may also be dilutive.*”

Because we do not anticipate paying any cash dividends on our capital stock in the foreseeable future, capital appreciation, if any, will be your sole source of gain.

We plan to reinvest all of our earnings, to the extent we have earnings, in order to continue to develop our products, to market our products, to cover operating costs and to otherwise become and remain competitive. We do not plan to pay any cash dividends with respect to our securities in the foreseeable future. Any future determination to pay cash dividends will be at the discretion of our board of directors and will depend on applicable law and then-existing conditions, including our financial condition, operating results, contractual restrictions, capital requirements, business prospects and other factors our board of directors may deem relevant. See “Dividend Policy.” As a result, capital appreciation, if any, of our Common Stock will be your sole source of gain for the foreseeable future.

Shares eligible for future sale may adversely affect the market.

From time to time, certain stockholders may be eligible to sell some or all of their shares of Common Stock pursuant to Rule 144, promulgated under the Securities Act, subject to certain limitations. In general, pursuant to Rule 144 as in effect as of the date of this filing, a stockholder (or stockholders whose shares are aggregated) who has satisfied the applicable holding period and is not deemed to have been one of our affiliates at the time of sale, or at any time during the three months preceding a sale, may sell their shares of Common Stock. Any substantial sale, or cumulative sales, of our Common Stock pursuant to Rule 144 or pursuant to any resale prospectus may have a material adverse effect on the market price of our securities.

Our board of directors’ ability to issue undesignated preferred stock and the existence of anti-takeover provisions may depress the value of our Common Stock.

Our authorized capital includes 20 million shares of preferred stock. Of this amount, 2,300,000 shares have been designated as series B convertible preferred stock, of which 79,246 shares are outstanding. The remaining authorized shares are undesignated preferred stock. Our board of directors has the power to issue any or all of the shares of undesignated preferred stock, including the authority to establish one or more series and to fix the powers, preferences, rights, and limitations of such class or series, without seeking stockholder approval. Further, as a Delaware corporation, we are subject to provisions of the Delaware General Corporation Law regarding business combinations. We may, in the future, consider adopting additional anti-takeover measures. The authority of our board of directors to issue undesignated stock and the anti-takeover provisions of Delaware law, as well as any future anti-takeover measures adopted by us, may, in certain circumstances, delay, deter, or prevent takeover attempts and other changes in control not approved by our board of directors. As a result, our stockholders may lose opportunities to dispose of their shares at favorable prices generally available in takeover attempts or that may be available under a merger proposal and the market price, voting, and other rights of the holders of Common Stock may also be affected.

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

The trading price of our Common Stock may fluctuate substantially and will depend on several factors, many of which are beyond our control and may not be related to our operating performance. These fluctuations could cause you to lose all or part of your investment in our securities.

In addition, the stock market in general has experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry factors, as well as general economic, political and market conditions such as recessions or interest rate changes, may seriously affect the market price of our Common Stock, regardless of our actual operating performance.

Further, in the past, following periods of volatility in the overall market and the market prices of particular companies' securities, securities class action litigations have often been instituted against these companies. Litigation of this type, if instituted against us, could result in substantial costs and a diversion of our management's attention and resources. Any adverse determination in any such litigation or any amounts paid to settle any such actual or threatened litigation could require that we make significant payments.

THE STANDBY EQUITY PURCHASE AGREEMENT

On July 1, 2025, we entered into the SEPA with the Selling Securityholder. Pursuant to the SEPA, we have the right to sell to the Selling Securityholder up to \$10,000,000 of shares of our Common Stock, subject to certain limitations and conditions set forth in the SEPA, from time to time during the term of the SEPA. In connection with the execution of the SEPA, we issued 120,482 shares of Common Stock to the Selling Securityholder as consideration for its commitment to purchase our Common Stock pursuant to the SEPA. Sales of Common Stock to the Selling Securityholder under the SEPA, and the timing of any such sales, are at our option, and we are under no obligation to sell any securities to the Selling Securityholder under the SEPA.

In accordance with our obligations under the SEPA, we have filed the registration statement of which this prospectus forms a part with the SEC to register under the Securities Act the resale by the Selling Securityholder of up to 1,921,706 shares of Common Stock that we may elect, in our sole discretion, to issue and sell to the Selling Securityholder, from time to time under the SEPA. Upon the satisfaction of the conditions to the Selling Securityholder's purchase obligation set forth in the SEPA, including that the registration statement of which this prospectus forms a part be declared effective by the SEC and the final form of this prospectus is filed with the SEC, we will have the right, but not the obligation, from time to time at our discretion until the 36-month anniversary of the date of the SEPA, to direct the Selling Securityholder to purchase an Advance by delivering an Advance Notice to the Selling Securityholder. The per share purchase price for the shares of Common Stock that we elect to sell to the Selling Securityholder in an Advance will be determined by reference to the VWAP and calculated in accordance with the SEPA, less a discount of 4.0%.

We will control the timing and amount of any sales of Common Stock to the Selling Securityholder. Actual sales of shares of our Common Stock to the Selling Securityholder under the SEPA will depend on a variety of factors to be determined by us from time to time, which may include, among other things, market conditions, the trading price of our Common Stock, and determinations by us as to the appropriate sources of funding for our company and its operations.

Under the applicable Nasdaq rules, in no event may we issue to the Selling Securityholder under the SEPA more than 1,921,706 shares of Common Stock, which number of shares is equal to the Exchange Cap, unless (i) we obtain stockholder approval to issue shares of Common Stock in excess of the Exchange Cap in accordance with applicable Nasdaq rules, or (ii) all applicable sales of shares of Common Stock under the SEPA equal or exceed \$0.83 per share (which represents the lower of (i) the Nasdaq official closing price (as reflected on Nasdaq.com) immediately prior to the date of the SEPA or (ii) the average Nasdaq official closing price for the five (5) trading days immediately prior to the date of the SEPA). Moreover, we may not issue or sell any shares of Common Stock to the Selling Securityholder under the SEPA which, when aggregated with all other shares of Common Stock then beneficially owned by the Selling Securityholder and its affiliates (as calculated pursuant to Section 13(d) of the Exchange Act and Rule 13d-3 promulgated thereunder), would result in the beneficial ownership by the Selling Securityholder and its affiliates to exceed 4.99% of the voting power or shares of Common Stock then outstanding. Notwithstanding this limitation, the Selling Securityholder may sell our Common Stock in the public market at any time, so long as the registration statement of which this prospectus forms a part remains effective and this prospectus remains usable and the related SEPA with the Selling Securityholder has not been terminated.

Neither we nor the Selling Securityholder may assign or transfer any of our respective rights and obligations under the SEPA, and no provision of the SEPA may be modified or waived by the parties other than by an instrument in writing signed by both parties.

The net proceeds from sales, if any, under the SEPA, will depend on the frequency and prices at which we sell shares of Common Stock to the Selling Securityholder. To the extent we sell shares under the SEPA, we currently plan to use any proceeds therefrom for working capital and general corporate purposes.

The SEPA contains customary representations, warranties, conditions, and indemnification obligations of the parties. The representations, warranties, and covenants contained in such agreements were made only for purposes of such agreements and as of specific dates, were solely for the benefit of the parties to such agreements and may be subject to limitations agreed upon by the contracting parties.

Advances of Common Stock Under the SEPA

Advances

We will have the right, but not the obligation, from time to time at our discretion, until the first day of the month following the 36-month period after the date of the SEPA, to direct the Selling Securityholder to purchase up to a specified maximum amount of shares of Common Stock as set forth in the SEPA by delivering an Advance Notice on any trading day (each, an "Advance Notice Date").

Conditions to Each Advance

The Selling Securityholder's obligation to accept Advance Notices that are timely delivered by us under the SEPA and to purchase shares of our Common Stock in Advances under the SEPA are subject to the satisfaction, at the applicable Advance Notice Date, of the conditions precedent thereto set forth in the SEPA, all of which are entirely outside of the Selling Securityholder's control, which conditions include the following:

- the accuracy in all material respects of our representations and warranties included in the SEPA and the applicable Advance Notice;
- there being an effective registration statement pursuant to which the Selling Securityholder is permitted to utilize the prospectus thereunder to resell all of the Advance Shares pursuant to such Advance Notice;
- the sale and issuance of such Advance Shares being legally permitted by all laws and regulations to which we are subject;
- no Material Outside Event (as such term is defined in the SEPA) shall have occurred and be continuing;
- us having performed, satisfied, and complied in all material respects with all covenants, agreements, and conditions required by the SEPA to be performed, satisfied, or complied with by us;
- no statute, rule, regulation, executive order, decree, ruling, or injunction having been enacted, entered, promulgated, or endorsed by any court or governmental authority of competent jurisdiction that prohibits or directly, materially, and adversely affects any of the transactions contemplated by the Purchaser Agreement;

- no (i) suspension of trading in the Common Shares by the SEC, the Principal Market, or FINRA, (ii) receipt of any notice that the listing or quotation of the Common Shares on the Principal Market shall be terminated, nor shall there have been imposed any suspension of, or restriction on, accepting additional deposits of the Common Shares, electronic trading or book-entry services by DTC with respect to the Common Shares that is continuing, (iii) receipt of notice from DTC to the effect that a suspension of, or restriction on, accepting additional deposits of the Common Shares, electronic trading or book-entry services by DTC with respect to the Common Shares is being imposed or is contemplated, or (iv) circumstance that would make any of the Common Shares issuable pursuant to the applicable Advance Notice be ineligible for deposit at the brokerage account provided by the Investor for the delivery of such Common Shares;
- there being a sufficient number of authorized but unissued and otherwise unreserved Common Stock for the issuance of all of the shares of Common Stock issuable pursuant to such Advance Notice; and
- except with respect to the first Advance Notice, we have delivered all shares of Common Stock relating to all prior Advances.

Termination of the SEPA

Unless earlier terminated as provided in the SEPA, the SEPA will terminate automatically on the earliest to occur of:

- the 36-month anniversary of the date of the SEPA; and
- the date on which the Selling Securityholder shall have purchased shares of Common Stock under the SEPA for an aggregate gross purchase price equal to \$10,000,000.

We also have the right to terminate the SEPA at any time, at no cost or penalty, upon five trading days' prior written notice to the Selling Securityholder; *provided* that (i) there are no outstanding Advance Notices under which we are yet to issue Common Stock and (ii) we have paid all amounts owed to the Selling Securityholder pursuant to the SEPA. We and the Selling Securityholder may also terminate the SEPA at any time by mutual written consent.

No Short-Selling by the Selling Securityholder

The Selling Securityholder has agreed that it and its affiliates will not engage in any short sales during the term of the SEPA and will not enter into any transaction that establishes a net short position with respect to the Common Stock. The SEPA stipulates that the Selling Securityholder may sell our Common Stock to be issued pursuant to an Advance Notice, following receipt of the Advance Notice, but prior to receiving such shares, and may sell other Common Stock acquired pursuant to the SEPA that the Selling Securityholder has continuously held from a prior date of acquisition.

Effect of Sales of Our Common Stock under the SEPA on Our Stockholders

All shares of Common Stock that are being registered under the Securities Act for resale by the Selling Securityholder in this offering are expected to be freely tradable. The shares of Common Stock being registered for resale in this offering may be issued and sold by us to the Selling Securityholder from time to time at our discretion over the term of the SEPA. The resale by the Selling Securityholder of a significant amount of shares registered for resale in this offering at any given time, or the perception that these sales may occur, could cause the market price of our Common Stock to decline and to be highly volatile. Sales of our Common Stock, if any, to the Selling Securityholder under the SEPA will depend upon market conditions and other factors to be determined by us. We may ultimately decide to sell to the Selling Securityholder all, some, or none of the shares of our Common Stock that may be available for us to sell to the Selling Securityholder pursuant to the SEPA.

If and when we do elect to sell shares of our Common Stock to the Selling Securityholder pursuant to the SEPA, the Selling Securityholder may resell all, some, or none of such shares in its discretion and at different prices subject to the terms of the SEPA. As a result, investors who purchase shares from the Selling Securityholder in this offering at different times will likely pay different prices for those shares, and so may experience different outcomes in their investment results. Investors may experience a decline in the value of the shares they purchase from the Selling Securityholder in this offering as a result of future sales made by us to the Selling Securityholder at prices lower than the prices such investors paid for their shares in this offering. In addition, if we sell a substantial number of shares to the Selling Securityholder under the SEPA, or if investors expect that we will do so, the actual sales of shares or the mere existence of our arrangement with the Selling Securityholder may make it more difficult for us to sell equity or equity-related securities in the future at a desirable time and price.

Because the purchase price per share to be paid by the Selling Securityholder for the shares of Common Stock that we may elect to sell to the Selling Securityholder under the SEPA, if any, will fluctuate based on the market prices of our Common Stock during the applicable pricing period, as of the date of this prospectus we cannot reliably predict the number of shares of Common Stock that we will sell to the Selling Securityholder under the SEPA, the actual purchase price per share to be paid by the Selling Securityholder for those shares, or the actual gross proceeds to be received by us from those sales, if any. As of the date of this prospectus, there were 10,222,221 shares of our Common Stock outstanding. If all of the 1,921,706 shares offered for resale by the Selling Securityholder under the registration statement that includes this prospectus were issued and outstanding as of the date of this prospectus, such shares would represent approximately 18.80% of the total number of shares of our Common Stock outstanding.

Although the SEPA provides that we may, in our discretion, from time to time after the date of this prospectus and during the term of the SEPA, direct the Selling Securityholder to purchase shares of our Common Stock from us in one or more Advances under the SEPA, for a maximum aggregate purchase price of up to \$10,000,000, only 1,921,706 shares of Common Stock are being registered for resale under the registration statement that includes this prospectus. While the market price of our Common Stock may fluctuate from time to time after the date of this prospectus and, as a result, the actual purchase price to be paid by the Selling Securityholder under the SEPA for shares of our Common Stock, if any, may also fluctuate, in order for us to receive the full amount of the Selling Securityholder's commitment under the SEPA, it is possible that we may need to issue and sell more than the number of shares being registered for resale under the registration statement that includes this prospectus.

If it becomes necessary for us to issue and sell to the Selling Securityholder more shares than are being registered for resale under this prospectus in order to receive aggregate gross proceeds equal to \$10,000,000 under the SEPA, we must first (i) to the extent necessary, obtain stockholder approval prior to issuing shares of the Common Stock in excess of the Exchange Cap in accordance with applicable Nasdaq rules, and (ii) file with the SEC one or more additional registration statements to register under the Securities Act the resale by the Selling Securityholder of any such additional shares of our Common Stock, which the SEC must declare effective, in each case, before we may elect to sell any additional shares of our Common Stock to the Selling Securityholder under the SEPA. The number of shares of our Common Stock ultimately offered for resale by the Selling Securityholder depends upon the number of shares of Common Stock, if any, we ultimately sell to the Selling Securityholder under the SEPA.

The issuance, if any, of shares of our Common Stock to the Selling Securityholder pursuant to the SEPA would not affect the rights or privileges of our existing stockholders, except that the economic and voting interests of each of our existing stockholders would be diluted. Although the number of shares of our Common Stock that our existing stockholders own would not decrease as a result of sales, if any, under the SEPA, the shares of our Common Stock owned by our existing stockholders would represent a smaller percentage of our total outstanding shares of our Common Stock after any such issuance.

USE OF PROCEEDS

We will not receive any proceeds from the sale of shares of our Common Stock by Selling Stockholder. However, we will receive proceeds from any sale of shares of Common Stock to the Selling Stockholder pursuant to the SEPA. We expect to use the net proceeds from sales to the Selling Stockholder for general corporate purposes and working capital requirements. We may also use a portion of the net proceeds to:

- make capital expenditures;
- license or acquire intellectual property or technologies to incorporate into our products, or
- fund possible investments in and acquisitions of complementary businesses, partnerships and minority investments.

We have not determined the amounts we plan to spend on the areas listed above or the timing of these expenditures. As a result, our management will have broad discretion to allocate the net proceeds of the offerings. We have no current plans, commitments or agreements with respect to any acquisition as of the date of this prospectus.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our shares of Common Stock and do not anticipate paying any cash dividends on our shares of Common Stock in the foreseeable future. Payment of cash dividends, if any, in the future will be at the discretion of our board of directors and will depend on applicable law and then-existing conditions, including our financial condition, operating results, contractual restrictions, capital requirements, business prospects and other factors our board of directors may deem relevant.

DETERMINATION OF OFFERING PRICE

The prices at which the shares of Common Stock covered by this prospectus may actually be sold will be determined by the prevailing public market price for shares of our Common Stock or by negotiations between the Selling Stockholder and buyers of our Common Stock in private transactions or as otherwise described in “Plan of Distribution.”

SELLING STOCKHOLDER

This prospectus covers the resale by the Selling Stockholder of up to 1,921,706 shares of Common Stock that have been or may be issued by us to the Selling Stockholder under SEPA. We are registering the shares of Common Stock included in this prospectus pursuant to the provisions of the SEPA we entered into with the Selling Stockholder in order to permit the Selling Stockholder to offer the shares included in this prospectus for resale from time to time. Except for the transactions contemplated by the SEPA, and as set forth in the section titled “Plan of Distribution” in this prospectus, the Selling Stockholder has not had any material relationship with us within the past three years.

The table below presents information regarding the Selling Stockholder and the shares of Common Stock that may be resold by the Selling Stockholder from time to time under this prospectus. This table is prepared based on information supplied to us by the Selling Stockholder and reflects holdings as of July 17, 2025. The number of shares in the column “Maximum Number of Shares of Common Stock to be Offered” represents all of the shares of Common Stock being offered for resale by the Selling Stockholder under this prospectus. The Selling Stockholder may sell some, all or none of the shares being offered for resale in this offering. We do not know how long the Selling Stockholder will hold the shares before selling them, and we are not aware of any existing arrangements between the Selling Stockholder and any other stockholder, broker, dealer, underwriter or agent relating to the sale or distribution of the shares of our Common Stock being offered for resale by this prospectus.

Beneficial ownership is determined in accordance with Rule 13d-3(d) promulgated by the SEC under the Exchange Act, and includes shares of Common Stock with respect to which the Selling Stockholder has sole or shared voting and investment power. The percentage of shares of Common Stock beneficially owned by the Selling Stockholder prior to the offering shown in the table below is based on an aggregate of 10,222,221 shares of our Common Stock outstanding on July 17, 2025. Because the purchase price to be paid by the Selling Stockholder for shares of Common Stock, if any, that we may elect to sell to the Selling Stockholder in one or more advances from time to time under the SEPA will fluctuate based on the market prices of our Common Stock, the actual number of shares of Common Stock that we may sell to the Selling Stockholder under the SEPA may be fewer than the number of shares being offered for resale under this prospectus. The fourth column assumes the resale by the Selling Stockholder of all of the shares of Common Stock being offered for resale pursuant to this prospectus.

We have determined beneficial ownership in accordance with the rules of the SEC. Except as indicated by the footnotes below, we believe, based on the information furnished to us, that the Selling Stockholder has sole voting and investment power with respect to all shares of Common Stock that it beneficially owns. Except as otherwise described below, based on the information provided to us by the Selling Stockholder, the Selling Stockholder is not a broker-dealer or an affiliate of a broker-dealer.

Name of selling stockholder	Shares beneficially owned as of the date of this prospectus	Maximum number of shares being offered	Number of shares to be beneficially owned and percentage of beneficial ownership after the offering	
			Number of shares	Percentage of class
YA II PN, LTD ⁽¹⁾	120,482 ⁽²⁾	1,921,706 ⁽³⁾	-	0%

- (1) YA II PN, Ltd. is managed by Yorkville Advisors Global, LP (“Yorkville LP”). Yorkville Advisors Global II, LLC (“Yorkville LLC”) is the General Partner of Yorkville LP. All investment decisions for YA II PN, Ltd. are made by Yorkville LLC’s President and Managing Member, Mr. Mark Angelo. The business address of YA II PN, Ltd. is 1012 Springfield Avenue, Mountainside, NJ 07092.
- (2) Represents 120,482 shares of Common Stock we issued to the Selling Stockholder in consideration for entering into the SEPA with us.
- (3) Includes 120,482 Commitment Shares and assumes the sale of all shares being offered pursuant to this prospectus. Yorkville is not obligated to acquire shares of our Common Stock pursuant to the SEPA to the extent such shares, when aggregated with all other shares of our Common Stock then beneficially owned by Yorkville, would cause Yorkville’s beneficial ownership of our Common Stock to exceed 4.99% of the voting power or shares of Common Stock then outstanding.

PLAN OF DISTRIBUTION

The shares of Common Stock offered by this prospectus are being offered by the Selling Stockholder. The Selling Stockholder will act independently of us in making decisions with respect to the timing, manner and size of each sale. The shares of Common Stock may be sold or distributed from time to time by the Selling Stockholder directly to one or more purchasers or through brokers, dealers, or underwriters who may act solely as agents at market prices prevailing at the time of sale, at prices related to the prevailing market prices, at negotiated prices, or at fixed prices, which may be changed. The sale of the shares of Common Stock offered by this prospectus could be effected in one or more of the following methods:

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

We will not receive any of the proceeds from the sale of the securities by the Selling Securityholder. We may receive up to \$10,000,000 aggregate gross proceeds under the SEPA from any sales we make to the Selling Securityholder pursuant to the SEPA. The net proceeds from sales, if any, under the SEPA will depend on the frequency and prices at which we sell shares of Common Stock to the Selling Securityholder after the date of this prospectus.

The Selling Securityholder may sell the securities at prices then prevailing, related to the then prevailing market price or at negotiated prices. The offering price of the securities from time to time will be determined by the Selling Securityholder and, at the time of the determination, may be higher or lower than the market price of our securities on Nasdaq or any other exchange or market.

In order to comply with the securities laws of certain states, if applicable, the shares of Common Stock may be sold only through registered or licensed brokers or dealers. In addition, in certain states, the shares of Common Stock may not be sold unless they have been registered or qualified for sale in the state or an exemption from the state's registration or qualification requirement is available and complied with.

The Selling Stockholder is an "underwriter" within the meaning of Section 2(a)(11) of the Securities Act. Brokers, dealers, underwriters, or agents participating in the distribution of the shares of our Common Stock offered by this prospectus may receive compensation in the form of commissions, discounts, or concessions from the purchasers, for whom the broker-dealers may act as agent, of the shares of Common Stock sold by the Selling Stockholder through this prospectus. The compensation paid to any such particular broker-dealer by any such purchasers of shares of our Common Stock sold by the Selling Stockholder may be less than or in excess of customary commissions. Neither we nor the Selling Stockholder can presently estimate the amount of compensation that any agent will receive from any purchasers of shares of our Common Stock sold by the Selling Stockholder.

We know of no existing arrangements between the Selling Stockholder or any other stockholder, broker, dealer, underwriter, or agent relating to the sale or distribution of the shares of our Common Stock offered by this prospectus.

We may from time to time file with the SEC one or more supplements to this prospectus or amendments to the registration statement of which this prospectus forms a part to amend, supplement or update information contained in this prospectus, including, if and when required under the Securities Act, to disclose certain information relating to a particular sale of shares of Common Stock offered by this prospectus by the Selling Stockholder, including the names of any brokers, dealers, underwriters or agents participating in the distribution of such shares of Common Stock by the Selling Stockholder, any compensation paid by the Selling Stockholder to any such brokers, dealers, underwriters or agents, and any other required information required to be disclosed under the Securities Act.

We will pay the expenses incident to the registration under the Securities Act of the offer and sale of the shares of our Common Stock covered by this prospectus by the Selling Stockholder.

As consideration for its irrevocable commitment to purchase our Common Stock under the SEPA, we have issued to the Selling Stockholder 120,482 shares of our Common Stock as "Commitment Shares" upon execution of the SEPA. In addition, we have paid the Selling Stockholder a structuring fee of \$25,000.

We also have agreed to indemnify the Selling Stockholder against certain liabilities in connection with the offering of shares of our Common Stock offered hereby, including liabilities arising under the Securities Act or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities. The Selling Stockholder has agreed to indemnify us against liabilities under the Securities Act that may arise from certain written information furnished to us by the Selling Stockholder specifically for use in this prospectus or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers, and controlling persons, we have been advised that in the opinion of the SEC this indemnification is against public policy as expressed in the Securities Act and is therefore, unenforceable.

The Selling Stockholder has represented to us that at no time prior to the date of the SEPA has the Selling Stockholder or its agents, representatives or affiliates engaged in or effected, in any manner whatsoever, directly or indirectly, any short sale (as such term is defined in Rule 200 of Regulation SHO of the Exchange Act) of our Common Stock or any hedging transaction, which establishes a net short position with respect to our Common Stock. The Selling Stockholder has agreed that during the term of the SEPA, neither the Selling Stockholder nor any of its agents, representatives or affiliates will enter into or effect, directly or indirectly, any of the foregoing transactions.

The Selling Stockholder is subject to the applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M. With certain exceptions, Regulation M precludes the Selling Stockholder, any affiliated purchasers, and any broker-dealer or other person who participates in the distribution from bidding for or purchasing, or attempting to induce any person to bid for or purchase any security that is the subject of the distribution until the entire distribution is complete. Regulation M also prohibits any bids or purchases made in order to stabilize the price of a security in connection with the distribution of that security. All of the foregoing may affect the marketability of the securities offered by this prospectus.

This offering will terminate on the date that all shares of our Common Stock offered by this prospectus have been sold by the Selling Stockholder.

DESCRIPTION OF CAPITAL STOCK

The following description summarizes the material terms of our capital stock. This summary is, however, subject to the provisions of our certificate of incorporation and bylaws. For greater detail about our capital stock, please refer to our certificate of incorporation and bylaws.

General

Our authorized capital stock consists of 200,000,000 shares of Common Stock, and 20,000,000 shares of preferred stock, \$0.01 par value per share ("Preferred Stock"). Out of the Preferred Stock, as of July 17, 2025, 2,300,000 shares have been designated Series B Convertible Preferred Stock, of which 79,246 shares were outstanding.

The outstanding shares of our Common Stock and Preferred Stock are fully paid and nonassessable.

The Series B Convertible Preferred Stock is convertible into 16 shares of Common Stock, subject to a 4.99% beneficial ownership blocker.

Our board of directors is authorized, subject to any limitations prescribed by law, to provide for the issuance of the shares of Preferred Stock in series and, by filing a certificate pursuant to the applicable law of the State of Delaware, to establish from time to time the number of shares to be included in each such series, and to fix the designation, powers, preferences and rights of the shares of each such series and any qualifications, limitations or restrictions thereon. The number of authorized shares of Preferred Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the outstanding shares of Common Stock without a vote of the holders of the Preferred Stock, or of any series thereof, unless a vote of any such holders is required pursuant to the certificate or certificates establishing the series of Preferred Stock.

Common Stock

As of July 17, 2025, we had 10,222,221 shares of Common Stock outstanding held by approximately 156 stockholders of record.

Voting Rights. The holders of our Common Stock are entitled to one vote for each outstanding share of Common Stock owned by that shareholder on every matter properly submitted to the shareholders for their vote. Shareholders are not entitled to vote cumulatively for the election of directors.

Dividend Rights. Subject to the dividend rights of the holders of any outstanding series of preferred stock, holders of our Common Stock are entitled to receive ratably such dividends and other distributions of cash or any other right or property as may be declared by our Board of Directors out of our assets or funds legally available for such dividends or distributions.

Liquidation Rights. In the event of any voluntary or involuntary liquidation, dissolution or winding up of our affairs, holders of our Common Stock would be entitled to share ratably in our assets that are legally available for distribution to shareholders after payment of liabilities and after the satisfaction of any liquidation preference owed to the holders of any Preferred Stock.

Conversion, Redemption and Preemptive Rights. Holders of our Common Stock have no conversion, redemption, preemptive, subscription or similar rights.

Anti-Takeover Provisions

Bylaws. Certain provisions of our Bylaws could have anti-takeover effects. These provisions are intended to enhance the likelihood of continuity and stability in the composition of our corporate policies formulated by our Board of Directors. In addition, these provisions also are intended to ensure that our Board of Directors will have sufficient time to act in what our Board of Directors believes to be in the best interests of our Company and our shareholders. Nevertheless, these provisions could delay or frustrate the removal of incumbent directors or the assumption of control of us by the holder of a large block of Common Stock, and could also discourage or make more difficult a merger, tender offer, or proxy contest, even if such event would be favorable to the interest of our shareholders. These provisions are summarized below.

Advance Notice Provisions for Raising Business or Nominating Directors. Sections 2.09 and 2.10 of our Bylaws contain advance-notice provisions relating to the ability of shareholders to raise business at a shareholder meeting and make nominations for directors to serve on our Board of Directors. These advance-notice provisions generally require shareholders to raise business within a specified period of time prior to a meeting in order for the business to be properly brought before the meeting.

Number of Directors and Vacancies. Our Bylaws provide that the exact number of directors shall be determined from time to time solely by resolution adopted by the affirmative vote of a majority of the entire Board of Directors. The Board of Directors is divided into three classes, as nearly equal in number as possible, designated: Class I, Class II and Class III (each, a “Class”). In the case of any increase or decrease, from time to time, in the number of directors, the number of directors in each class shall be apportioned as nearly equal as possible. Except as otherwise provided in the Certificate of Incorporation, each director serves for a term ending on the date of the third annual meeting of the Company’s stockholders following the annual meeting at which such director was elected; provided, that the term of each director shall continue until the election and qualification of a successor and be subject to such director’s earlier death, resignation or removal. Vacancies on the Board of Directors resulting from death, resignation, removal or otherwise and newly created directorships resulting from any increase in the number of directors may be filled solely by a majority of the directors then in office (although less than a quorum) or by the sole remaining director.

Delaware Law. We are subject to Section 203 of the Delaware General Corporation Law. This provision generally prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years following the date the stockholder became an interested stockholder, unless:

- prior to such date, the board of directors approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding those shares owned by persons who are directors and also officers and by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or subsequent to such date, the business combination is approved by the board of directors and authorized at an annual meeting or special meeting of stockholders and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an “interested stockholder” as any entity or person beneficially owning 15% or more of the outstanding voting stock of a corporation, or an affiliate or associate of the corporation and was the owner of 15% or more of the outstanding voting stock of a corporation at any time within three years prior to the time of determination of interested stockholder status; and any entity or person affiliated with or controlling or controlled by such entity or person.

These statutory provisions could delay or frustrate the removal of incumbent directors or a change in control of our company. They could also discourage, impede, or prevent a merger, tender offer, or proxy contest, even if such event would be favorable to the interests of stockholders. In addition, note that while Delaware law permits companies to opt out of its business combination statute, our Certificate of Incorporation does not include this opt-out provision.

Transfer Agent and Registrar

The transfer agent and registrar for our Common Stock is Pacific Stock Transfer.

Listing

The shares of our Common Stock are listed on The Nasdaq Capital Market under the symbol “POAI.” On July 28, 2025, the last reported sale price per share for our Common Stock as reported by The Nasdaq Capital Market was \$0.82.

Preferred Stock

Our Board of Directors has the authority, without action by our stockholders, to designate and issue up to 20,000,000 shares of preferred stock in one or more series or classes and to designate the rights, preferences and privileges of each series or class, which may be greater than the rights of our Common Stock. The Board’s authority to issue preferred stock without stockholder approval could make it more difficult for a third party to acquire control of our company, and could discourage such attempt.

Series B Convertible Preferred Stock Outstanding

In connection with an offering of units that closed on August 31, 2015, we issued as part of the units 1,895,010 shares of Series B Convertible Preferred Stock pursuant to a Certificate of Designation approved by our Board.

The Series B Convertible Preferred Stock separated from the other securities included within the units as of February 29, 2016 and are currently convertible. As of August 13, 2024, 79,246 shares of Series B Convertible Preferred Stock remain outstanding.

The Series B Convertible Preferred Stock is convertible into sixteen (16) shares of Common Stock. The number of shares of Common Stock issuable upon conversion of the Series B Convertible Preferred Stock is subject to appropriate adjustment in the event of stock dividends, stock splits, reorganizations or similar events affecting our Common Stock.

Upon the occurrence of a “Fundamental Transaction”, each share of Series B Convertible Preferred Stock shall be automatically converted into one share of Common Stock of the Company, subject to the beneficial ownership limitation discussed in the next paragraph. A “Fundamental Transaction” means that (i) the Company shall, directly or indirectly, in one or more related transactions, (1) consolidate or merge with or into (whether or not the Company is the surviving corporation) any other person unless the shareholders of the Company immediately prior to such consolidation or merger continue to hold more than 50% of the outstanding shares of voting stock after such consolidation or merger, or (2) sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of the properties and assets of the Company and its subsidiaries, taken as a whole, to any other person, or (3) allow any other person to make a purchase, tender or exchange offer that is accepted by the holders of more than 50% of the outstanding shares of voting stock of the Company (not including any shares of voting stock of the Company held by the person or persons making or party to, or associated or affiliated with the persons making or party to, such purchase, tender or exchange offer), or (4) consummate a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with any other person whereby such other person acquires more than 50% of the outstanding shares of voting stock of the Company (not including any shares of voting stock of the Company held by the other person or other persons making or party to, or associated or affiliated with the other persons making or party to, such stock or share purchase agreement or other business combination), or (ii) any “person” or “group” (as these terms are used for purposes of Sections 13(d) and 14(d) of the Exchange Act and the rules and regulations promulgated thereunder), other than a Permitted Holder, is or shall become the “beneficial owner” (as defined in Rule 13d-3 under the Exchange Act), directly or indirectly, of 50% of the aggregate ordinary voting power represented by issued and outstanding voting stock of the Company.

The Series B Convertible Preferred Stock is not convertible by the holder of such preferred stock to the extent (and only to the extent) that the holder or any of its affiliates would beneficially own in excess of 4.99% of the Common Stock of the Company. For purposes of the limitation described in this paragraph, beneficial ownership and all determinations and calculations are determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder.

The Series B Convertible Preferred Stock has no voting rights, except that the holders of shares of a majority of the Series B Convertible Preferred Stock will be required to effect or validate any amendment, alteration or repeal of any of the provisions of the Certificate of Designation that materially adversely affects the powers, preferences or special rights of the Series B Convertible Preferred Stock, whether by merger or consolidation or otherwise; provided, however, that (i) in the event of an amendment to terms of the Series B Convertible Preferred Stock, including by merger or consolidation, so long as the Series B Convertible Preferred Stock remains outstanding with the terms thereof materially unchanged, or the Series B Convertible Preferred Stock is converted into, preference securities of the surviving entity, or its ultimate parent, with such powers, preferences or special rights that are, in the good faith determination of the Board of the Company, taken as a whole, not materially less favorable to the holders of the Series B Convertible Preferred Stock than the powers, preferences or special rights of the Series B Convertible Preferred Stock in effect prior to such amendment or the occurrence of such event, taken as a whole, then such amendment or the occurrence of such event will not be deemed to materially and adversely affect such powers, preferences or special rights of the Series B Convertible Preferred Stock and (ii) the authorization, establishment or issuance by the Corporation of any other series of preferred stock with powers, preferences or special rights that are senior to or on a parity with the Series B Preferred Stock, including, but not limited to, powers, preferences or special rights with respect to dividends, distributions or liquidation preferences, shall not be deemed to materially and adversely affect the power, preferences or special rights of the Series B Preferred Stock, and in the case of either clause (i) or (ii), the holders shall not have any voting rights with respect thereto, and provided further that, (iii) prior to the date that is the six month anniversary of the Issuance Date, no amendment, alteration or repeal of any of the provisions of this Certificate of Designation shall be made that affects the powers, preferences or special rights of the Series B Preferred Stock in any manner, whether by merger or consolidation or otherwise. An amendment to the terms of the Series B Convertible Preferred Stock only requires the vote of the holders of Series B Convertible Preferred Stock.

With respect to payment of dividends and distribution of assets upon liquidation or dissolution or winding up of the Company, the Series B Convertible Preferred Stock shall rank equal to the Common Stock of the Company. No sinking fund has been established for the retirement or redemption of the Series B Convertible Preferred Stock. As such, the Series B Convertible Preferred Stock is not subject to any restriction on the repurchase or redemption of shares by the Company due to an arrearage in the payment of dividends or sinking fund installments.

The Series B Convertible Preferred Stock also has no liquidation rights or preemption rights, and there are no special classifications of our Board related to the Series B Convertible Preferred Stock.

The shares of Common Stock issuable upon conversion of the Series B Convertible Preferred Stock have been duly authorized, validly issued and fully paid and are non-assessable. We have authorized and reserved at least that number of shares of Common Stock equal to the number of shares of Common Stock issuable upon conversion of all outstanding Series B Convertible Preferred Stock.

THE HOLDER OF SERIES B CONVERTIBLE PREFERRED STOCK DO NOT POSSESS ANY RIGHTS AS A STOCKHOLDER UNDER THE SHARES OF SERIES B CONVERTIBLE PREFERRED STOCK UNTIL THE HOLDER CONVERTS THE SHARES OF SERIES B CONVERTIBLE PREFERRED STOCK.

There is no established public trading market for our Series B Convertible Preferred Stock, and we do not expect a market to develop. We do not intend to apply to list Series B Convertible Preferred Stock on any securities exchange. Without an active market, the liquidity of the Series B Convertible Preferred Stock will be limited.

LEGAL MATTERS

The validity of any securities offered from time to time by this prospectus and any related prospectus supplement will be passed upon by DLA Piper LLP (US), Washington, D.C.

EXPERTS

The consolidated financial statements of Predictive Oncology Inc. (the "Company") as of December 31, 2024 and for the year then ended, have been incorporated by reference herein and in the registration statement in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in auditing and accounting. The audit report covering the December 31, 2024 consolidated financial statements contains an explanatory paragraph that states that the Company's recurring losses from operations and accumulated deficit raise substantial doubt about the Company's ability to continue as a going concern. The consolidated financial statements do not include any adjustments that might result from the outcome of that uncertainty.

The consolidated financial statements of Predictive Oncology Inc. (the Company) as of December 31, 2023 and for the year ended December 31, 2023 incorporated by reference in this Prospectus and in the Registration Statement have been so incorporated in reliance on the report of BDO USA, P.C., an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting. The report on the consolidated financial statements contains an explanatory paragraph regarding the Company's ability to continue as a going concern.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. The SEC maintains a web site that contains reports, proxy and information statements and other information about issuers, such as us, who file electronically with the SEC. The address of that website is <http://www.sec.gov>.

The Company's website address is www.predictive-oncology.com. Information on the Company's website, any subsection, page, or other subdivision of the Company's website, or any website linked to by content on the Company's website, is not part of this prospectus and you should not rely on that information unless that information is also in this prospectus or incorporated by reference in this prospectus.

This prospectus and any prospectus supplement are part of a registration statement on Form S-1 under the Securities Act we filed with the SEC and do not contain all of the information set forth in the registration statement and the exhibits to the registration statement. The full registration statement may be obtained from the SEC or us, as provided below. Forms of the indenture and other documents establishing the terms of the offered securities are or may be filed as exhibits to the registration statement or documents incorporated by reference in the registration statement. Statements in this prospectus or any prospectus supplement about these documents are summaries and each statement is qualified in all respects by reference to the document to which it refers. You should refer to the actual documents for a more complete description of the relevant matters. You may inspect a copy of the registration statement through the SEC's website, as provided above.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to “incorporate by reference” information into this prospectus, 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, and subsequent information that we file with the SEC will automatically update and supersede that information. Any statement contained in this prospectus or a previously filed document incorporated by reference will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or a subsequently filed document incorporated by reference modifies or replaces that statement.

This prospectus and any accompanying prospectus supplement incorporate by reference the documents set forth below that have previously been filed with the SEC. We incorporate by reference the documents listed below and any future filings we will make with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (other than information furnished in Current Reports on Form 8-K filed under Item 2.02 or 7.01 of such form unless such form expressly provides to the contrary):

- the Registrant’s Annual Report on Form 10-K for the fiscal year ended December 31, 2024, filed with the Commission on [March 31, 2025](#) (the “Annual Report”);
- the Registrant’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2025, filed with the Commission on [May 14, 2025](#);
- the Registrant’s Current Reports on Form 8-K and Form 8-K/A filed with the Commission on [January 6, 2025](#), [January 6, 2025](#), [February 19, 2025](#), [March 5, 2025](#), [March 20, 2025](#), [April 18, 2025](#), [June 6, 2025](#), [June 11, 2025](#), [July 8, 2025](#), [July 11, 2025](#), [July 18, 2025](#), and [July 24, 2025](#); and
- the description of the Registrant’s Common Stock included as [Exhibit 4.7](#) to the Annual Report, including any amendment or report filed for purposes of updating such description.

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 all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents.

We will furnish, on written or oral request, a copy of any or all of the information that has been incorporated by reference in this prospectus but not delivered with this prospectus. Exhibits to the filings will not be sent, however, unless those exhibits have specifically been incorporated by reference in this prospectus or any accompanying prospectus supplement. You may request a copy of this information at no cost, by writing or telephoning us at the following address or telephone number:

Predictive Oncology Inc.
Attention: Corporate Secretary
91 43rd Street, Suite 110
Pittsburgh, Pennsylvania 15201
(412) 432-1500



PREDICTIVE ONCOLOGY INC.

Up to 1,921,706 Shares of Common Stock

PROSPECTUS

July 28, 2025