

As filed with the Securities and Exchange Commission on August 15, 2024

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

FORM S-3
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

Predictive Oncology Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or jurisdiction
of incorporation or organization)

33-1007393
(I.R.S. Employer
Identification No.)

91 43rd Street, Suite 110
Pittsburgh, Pennsylvania 15201
(412) 432-1500

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

Josh Blacher
Interim Chief Financial Officer
Predictive Oncology Inc.
91 43rd Street, Suite 110
Pittsburgh, Pennsylvania 15201
(412) 432-1500

(Name, address and telephone number of agent for service)

Copy to:
Alan Seem
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Approximate date of commencement of proposed sale to the public: From time to time on or after the effective date of this Registration Statement, as determined by market conditions and other factors.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box:

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

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

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of Securities Act.

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

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

PRELIMINARY PROSPECTUS SUBJECT TO COMPLETION, DATED AUGUST 15, 2024



**1,983,302 Shares of
Common Stock Issuable Upon Exercise of Warrants**

This prospectus relates to the offer and resale from time to time by the selling stockholders named in this prospectus of up to an aggregate of 1,983,302 shares of our common stock, par value \$0.01 per share. These shares consist of (i) 958,117 shares of common stock issuable upon the exercise of Series A Common Stock Purchase Warrants (the “Series A Warrants”) that were initially issued in a private placement to certain institutional and accredited investors, (ii) 958,117 shares of common stock issuable upon the exercise of Series B Common Stock Purchase Warrants (the “Series B Warrants”) that were initially issued in a private placement to certain institutional and accredited investors and (iii) 67,068 shares of common stock issuable upon the exercise of placement agent warrants that were initially issued to certain designees of the placement agent as part of their compensation for serving as placement agent in connection with the private placement completed on July 26, 2024 (the “Placement Agent Warrants” and together with the Series A Warrants and the Series B Warrants, the “Warrants”). For more information about the selling stockholders, please see the section of this prospectus entitled “selling stockholders” beginning on page 18.

Our registration of the securities covered by this prospectus does not mean that the selling stockholders will offer or sell any of the shares of common stock. The selling stockholders may sell or otherwise dispose of the shares of common stock publicly or through private transactions at prevailing market prices or at negotiated prices. We provide more information about how the selling stockholders may sell their shares in the section entitled “Plan of Distribution.”

One or more of the selling stockholders may be deemed to be “underwriters” within the meaning of the Securities Act of 1933, as amended (the “Securities Act”), in connection with the resale of our common stock. We will bear all costs, expenses and fees in connection with the registration of the shares. The selling stockholders will bear all commissions and discounts, if any, attributable to their respective sales of the shares.

We will not receive any proceeds from the sale of shares of common stock by the selling stockholders. We will, however, receive the proceeds from any exercise of the Warrants for cash.

Our common stock is listed on The Nasdaq Capital Market under the symbol “POAI”. On August 13 2024, the last reported sale price of our common stock on The Nasdaq Capital Market was \$0.99 per share.

Investing in our common stock involves a high degree of risk. Please read the information contained in and incorporated by reference under the heading “Risk Factors” beginning on page 11 of this prospectus, under the heading “Risk Factors” beginning on page 11 and the risk factors described in the documents that are incorporated by reference into this prospectus, as they may be amended, updated or modified periodically in our reports filed with the Securities and Exchange Commission.

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 , 2024.

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We have not, nor has any selling stockholder, authorized any dealer, salesperson or other person to give any information or to make any representation other than those contained in or incorporated by reference into this prospectus or any applicable free writing prospectus. You must not rely upon any information or representation not contained in or incorporated by reference into this prospectus or any applicable free writing prospectus as if we had authorized it. This prospectus and any applicable free writing prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor does this prospectus or any applicable free writing prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus, the documents incorporated herein and therein by reference and any applicable free writing prospectus is correct on any date after their respective dates, even though this prospectus or an applicable free writing prospectus is delivered or securities are sold on a later date. Our business, financial condition, results of operations and cash flows may have changed since those dates.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or SEC, utilizing a shelf registration process, pursuant to which the selling stockholders named herein may, from time to time, offer and sell or otherwise dispose of the securities covered by this prospectus. The prospectus describes the specific terms of this offering. We urge you to carefully read this prospectus and the documents incorporated by reference herein and therein, before buying any of the securities being offered under this prospectus. To the extent that any statement that we make in this prospectus is inconsistent with statements made in any documents incorporated by reference herein filed prior to the date of this prospectus, the statements made in this prospectus will be deemed to modify or supersede those made in such documents incorporated by reference herein.

You should rely only on the information contained in this prospectus and any related free-writing prospectus that we or the selling stockholders provide to you or incorporated herein by reference in this prospectus. Neither we nor the selling stockholders have authorized anyone to provide you with different or additional information. If anyone provides you with different, additional or inconsistent information, you should not rely on it.

The selling stockholders are offering to sell securities only in jurisdictions where such offers and sales are permitted. The distribution of this prospectus and the offering of the securities in certain jurisdictions or to certain persons within such jurisdictions may be restricted by law. 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 the securities and the distribution of this prospectus outside the United States. This prospectus does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

You should assume that the information in this prospectus is accurate only as of the date on the front cover and that any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus, or any sale of a security. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus and the documents incorporated by reference herein when making your investment decision. You should also read and consider the information in the documents we have referred you to in the sections of this prospectus titled “Where You Can Find More Information” and “Information Incorporated by Reference.”

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

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Some of the statements made in this prospectus are “forward-looking statements” that indicate certain risks and uncertainties related to Predictive Oncology Inc. (the “Company”), many of which are beyond the Company’s control. The Company’s actual results could differ materially and adversely from those anticipated in such forward-looking statements as a result of certain factors, including those set forth below and elsewhere in this report. Important factors that may cause actual results to differ from projections include:

- 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 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.

In some cases, you can identify forward-looking statements by terms such as “may”, “will”, “should”, “could”, “would”, “expects”, “plans”, “anticipates”, “believes”, “estimates”, “projects”, “predicts”, “potential” and similar expressions intended to identify forward-looking statements. These statements reflect our current views with respect to future events and are based on assumptions and subject to risks and uncertainties. Given these uncertainties, you should not place undue reliance on these forward-looking statements. Also, these forward-looking statements represent our estimates and assumptions only as of the date of the document containing the applicable statement.

You should read this prospectus and the documents we have filed with the SEC that are incorporated by reference and any free writing prospectus that we have authorized for use in connection with this offering completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in the foregoing documents by these cautionary statements.

PROSPECTUS SUMMARY

This summary highlights certain information about us, this offering and selected information contained elsewhere in, or incorporated by reference into this prospectus. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our common stock. For a more complete understanding of our company and this offering, we encourage you to read and consider carefully the more detailed information in this prospectus, including our financial statements and related notes and the other information incorporated by reference into this prospectus, including the information referred to under the heading “Risk Factors” in this prospectus beginning on page 11 and in the documents incorporated herein by reference.

About Predictive Oncology

We are a knowledge and science-driven company that applies 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 a 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 offer a suite of solutions for 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.

On July 25, 2024, our board of directors approved a plan to implement a strategic cost savings initiative, primarily related to the consolidation of the operations of our Birmingham laboratory into our Pittsburgh laboratory. We began implementing the cost savings initiative in August 2024 and continue to review its progress and effectiveness, including impact of the changes on our operating segments in future reporting periods with the closure of our Birmingham laboratory. The initiative is expected to reduce the Company’s run rate for cash used in operating activities by approximately 20% annually when fully implemented in Q4 2024.

We operate in two business areas. In our first area, we provide optimized, high-confidence drug-response predictions through the application of AI using our proprietary biobank of tumor samples to enable a more informed selection of drug/tumor combinations and increase the probability of success during development. We also create and develop tumor-specific 3D cell culture models mimicking the physiological environment of human tissue enabling better-informed decision-making during development. In our second area, we produce the United States Food and Drug Administration (“FDA”)-cleared STREAMWAY® System and associated products for automated medical fluid waste management and patient-to-drain medical fluid disposal.

Our business is delineated by location and specialty:

- *Pittsburgh:* provides services that include the application of AI using its proprietary biobank of 150,000+ tumor samples. Pittsburgh also creates proprietary 3D culture models used in drug development and provides other contract services and research in the drug discovery continuum.
- *Eagan:* produces the United States Food and Drug Administration (“FDA”)-cleared STREAMWAY System and associated products for automated fluid waste management and patient -to-drain medical fluid disposal.

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.

Infectious and Biohazardous Waste Management

There has long been recognition of the collective potential for ill effects to healthcare workers from exposure to infectious/biohazardous materials. Federal and state regulatory agencies have issued mandatory guidelines for the control of such materials, and particularly bloodborne pathogens. OSHA's Bloodborne Pathogens Standard (29 CFR 1910.1030) requires employers to adopt engineering and work practice controls that would eliminate or minimize employee exposure to hazards associated with bloodborne pathogens. In 2001, in response to the Needlestick Safety and Prevention Act, OSHA revised the Bloodborne Pathogens Standard. The revised standard clarifies and emphasizes the need for employers to select safer needle devices and to involve employees in identifying and choosing these devices. The revised standard also calls for the use of "automated controls" as it pertains to the minimization of healthcare exposure to bloodborne pathogens.

Most surgical procedures produce potentially infectious materials that must be disposed of with the lowest possible risk of cross-contamination to healthcare workers. Current standards of care allow for these fluids to be retained in canisters and located in the operating room where they can be monitored throughout the surgical procedure. Once the procedure is complete these canisters and their contents are disposed using a variety of methods, all of which include manual handling and result in a heightened risk to healthcare workers for exposure to their contents. Canisters are the most prevalent means of collecting and disposing of infectious fluids in hospitals today. Traditional, non-powered canisters and related suction and fluid disposable products are exempt and do not require FDA clearance.

We expect the hospital surgery market to continue to increase due to population growth, the aging of the population, and expansion of surgical procedures to new areas (for example, use of the endoscope) which requires more fluid management and new medical technology.

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

Common stock offered by selling stockholders	1,983,302 shares, which comprise (i) 958,117 shares of common stock issuable upon the exercise of the Series A Warrants, (ii) 958,117 shares of common stock issuable upon the exercise of the Series B Warrants and (iii) 67,068 shares of stock issuable upon the exercise of the Placement Agent Warrants.
Plan of Distribution	The selling stockholders may sell or otherwise dispose the shares of our common stock covered by this prospectus in a number of different ways and at varying prices. For further information, see “Plan of Distribution” in this prospectus.
Use of Proceeds	The selling stockholders will receive all of the net proceeds from the sale of the shares offered pursuant to this prospectus. We will not receive any of the proceeds from these sales. However, we will receive proceeds from the exercise of the Warrants if exercised for cash.
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 11 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

In making your investment decision, you should rely only on statements made in this prospectus in determining whether to purchase our securities.

You should carefully evaluate all of the information in this prospectus. We have in the past received, and may continue in the future to receive, media coverage, including coverage that is not directly attributable to statements made by our officers and employees, that incorrectly reports on statements made by our officers or employees or that is misleading as a result of omitting to state information provided by us or our officers or employees. You should rely only on the information contained in this prospectus in determining whether to purchase our securities.

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

In order to raise additional capital, we may at any time, including during the pendency of this offering, offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share in this offering. We may sell shares of our common stock or other securities in any other offering at a price per share that is less than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by investors in this offering.

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.

USE OF PROCEEDS

We will not receive any proceeds from the sale of shares of our common stock by the selling stockholders identified in this prospectus. However, we will receive proceeds from the exercise of the Warrants for cash. We expect to use the net proceeds from the exercise of the Warrants 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. There is no assurance that the holders of the Warrants will elect to exercise any or all of such Warrants. The Warrants contain a “cashless exercise” feature that allows the holders to exercise any of such Warrants without making a cash payment to us if there is not an effective registration statement covering the resale of the shares issuable upon exercise of such Warrants.

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 August 13, 2024, 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 August 13, 2024, we had 6,667,221 shares of common stock outstanding held by approximately 154 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 August 13, 2024, the last reported sale price per share for our common stock as reported by The Nasdaq Capital Market was \$0.99.

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.

Series A Warrants, Series B Warrants and Placement Agent Warrants

On July 25, 2024, the Company entered into definitive agreements with certain of its existing warrant holders for the exercise of warrants to purchase an aggregate of 958,117 shares of its common stock having a current exercise price of \$14.00 originally issued in February 2021, June 2021 and May 2022, at a reduced exercise price of \$1.32 per share.

In consideration for the immediate cash exercise of the warrants, the Company concurrently issued to the warrant holders new unregistered Series A warrants to purchase up to 958,117 shares of common stock (the "Series A Warrants") and new Series B warrants to purchase up to 958,117 shares of common stock (the "Series B Warrants"). The Series A Warrants and the Series B Warrants have an exercise price of \$1.07 per share, and are exercisable immediately upon issuance. The Series A Warrants have a term equal to five years from the date of issuance, and the Series B Warrants have a term equal to 18 months from the date of issuance. Additionally, the Company issued to the placement agent (or its designees) as compensation, warrants to purchase up to 67,068 shares of common stock of the Company (the "Placement Agent Warrants").

SELLING STOCKHOLDERS

This prospectus covers the resale by the selling stockholders or their permitted transferees of up to 1,983,302 shares that have been or may be issued by us to the selling stockholders under the arrangements and agreements described herein. The selling stockholders have not had any position or office, or other material relationship with us or any of our affiliates over the past three years. The following table sets forth certain information regarding the beneficial ownership of shares of common stock by the selling stockholders as of August 13, 2024 and the number of shares of our common stock being offered pursuant to this prospectus.

The table below (i) lists the selling stockholders and other information regarding the beneficial ownership of our common stock by the selling stockholder; (ii) have been prepared based upon information furnished to us by the selling stockholder; and (iii) to our knowledge, is accurate as of the date of this prospectus. The selling stockholders may sell all, some or none of their shares in this offering. The selling stockholders identified in the table below may have sold, transferred or otherwise disposed of some or all of its shares since the date of this prospectus in transactions exempt from or not subject to the registration requirements of the Securities Act. Information concerning the selling stockholders may change from time to time and, if necessary, we will amend or supplement this prospectus accordingly and as required.

Name of selling stockholder	Shares beneficially owned as of the date of this prospectus ⁽¹⁾		Number of shares being offered		Number of shares to be beneficially owned and percentage of beneficial ownership after the offering ⁽¹⁾⁽²⁾		
	Number	Percentage of class ⁽³⁾	Number	Percentage of class ⁽³⁾	Number of shares	Percentage of class ⁽³⁾	Percentage of class ⁽³⁾
Armistice Capital, LLC	1,254,630	(4)	1,254,630	(4)	0		%
Intracoastal Capital LLC	290,920	(5)	228,728	(5)	69,615	1.0	%
Cavalry Special Ops Fund LLC	69,004	(6)	69,004	(6)	0	0	%
Cavalry Fund I LP	69,004	(7)	69,004	(7)	0	0	%
Lind Global Fund II LP	110,140	(8)	110,140	(8)	0	0	%
Bigger Capital Fund, LP	51,000	(9)	51,000	(9)	0	0	%
District 2 Capital Fund, LP	51,000	(10)	51,000	(10)	0	0	%
KBB Asset Management	82,728	(11)	82,728	(11)	0	0	%
Michael Vasinkevich ⁽¹⁶⁾	43,007	(12)	43,007	(12)	0	0	%
Noam Rubinstein ⁽¹⁶⁾	21,126	(13)	21,126	(13)	0	0	%
Craig Schwabe ⁽¹⁶⁾	2,264	(14)	2,264	(14)	0	0	%
Charles Worthman ⁽¹⁶⁾	671	(15)	671	(15)	0	0	%

(1) Beneficial ownership is determined in accordance with SEC rules and generally includes voting or investment power with respect to shares of common stock. Shares of common stock subject to options and warrants currently exercisable, or exercisable within 60 days, are counted as outstanding for computing the percentage of the person holding such options or warrants but are not counted as outstanding for computing the percentage of any other person. Substantially all of the warrants and convertible securities included in the table are subject to restrictions that prevent exercise to the extent that after the exercise the holder or its affiliates would beneficially own in excess of 4.99% of the Company's outstanding stock.

(2) The amount and percentage of shares of our common stock that will be beneficially owned by the selling stockholders after completion of the offering assume that they will sell all shares of our common stock being offered pursuant to this prospectus.

(3) Based on 6,667,221 shares of our common stock issued and outstanding as of August 13, 2024. All shares of our common stock being offered pursuant to this prospectus by a Selling Stockholder are counted as outstanding for computing the percentage beneficial ownership of such Selling Stockholder.

- (4) The securities are directly held by Armistice Capital Master Fund Ltd., a Cayman Islands exempted company (the “Master Fund”), and may be deemed to be beneficially owned by: (i) Armistice Capital, LLC (“Armistice Capital”), as the investment manager of the Master Fund; and (ii) Steven Boyd, as the Managing Member of Armistice Capital. The warrants are subject to a beneficial ownership limitation of 4.99%, which such limitation restricts the Selling Stockholder from exercising that portion of the warrants that would result in the Selling Stockholder and its affiliates owning, after exercise, a number of shares of common stock in excess of the beneficial ownership limitation. The address of Armistice Capital Master Fund Ltd. is c/o Armistice Capital, LLC, 510 Madison Avenue, 7th Floor, New York, NY 10022.
- (5) Mitchell P. Kopin (“Mr. Kopin”) and Daniel B. Asher (“Mr. Asher”), each of whom are managers of Intracoastal Capital LLC (“Intracoastal”), have shared voting control and investment discretion over the securities reported herein that are held by Intracoastal. As a result, each of Mr. Kopin and Mr. Asher may be deemed to have beneficial ownership (as determined under Section 13(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”)) of the securities reported herein that are held by Intracoastal. Includes 228,728 shares issuable upon exercise of warrants. Such warrants are subject to restrictions that prevent exercise to the extent that after the exercise the holder or its affiliates would beneficially own in excess of 4.99% of the Company’s outstanding stock.
- (6) Includes 69,004 shares issuable upon exercise of warrants. Such warrants are subject to restrictions that prevent exercise to the extent that after the exercise the holder or its affiliates would beneficially own in excess of 4.99% of the Company’s outstanding stock.
- (7) Includes 69,004 shares issuable upon exercise of warrants. Such warrants are subject to restrictions that prevent exercise to the extent that after the exercise the holder or its affiliates would beneficially own in excess of 4.99% of the Company’s outstanding stock.
- (8) Includes 110,140 shares issuable upon exercise of warrants. Such warrants are subject to restrictions that prevent exercise to the extent that after the exercise the holder or its affiliates would beneficially own in excess of 4.99% of the Company’s outstanding stock.
- (9) Includes 51,000 shares issuable upon exercise of warrants. Such warrants are subject to restrictions that prevent exercise to the extent that after the exercise the holder or its affiliates would beneficially own in excess of 4.99% of the Company’s outstanding stock.
- (10) Includes 51,000 shares issuable upon exercise of warrants. Such warrants are subject to restrictions that prevent exercise to the extent that after the exercise the holder or its affiliates would beneficially own in excess of 4.99% of the Company’s outstanding stock.
- (11) Includes 82,728 shares issuable upon exercise of warrants. Such warrants are subject to restrictions that prevent exercise to the extent that after the exercise the holder or its affiliates would beneficially own in excess of 4.99% of the Company’s outstanding stock.
- (12) Includes 43,007 shares issuable upon exercise of warrants. Such warrants are subject to restrictions that prevent exercise to the extent that after the exercise the holder or its affiliates would beneficially own in excess of 4.99% of the Company’s outstanding stock.
- (13) Includes 21,126 shares issuable upon exercise of warrants. Such warrants are subject to restrictions that prevent exercise to the extent that after the exercise the holder or its affiliates would beneficially own in excess of 4.99% of the Company’s outstanding stock.
- (14) Includes 2,264 shares issuable upon exercise of warrants. Such warrants are subject to restrictions that prevent exercise to the extent that after the exercise the holder or its affiliates would beneficially own in excess of 4.99% of the Company’s outstanding stock.
- (15) Includes 671 shares issuable upon exercise of warrants. Such warrants are subject to restrictions that prevent exercise to the extent that after the exercise the holder or its affiliates would beneficially own in excess of 4.99% of the Company’s outstanding stock.
- (16) The selling stockholder is affiliated with H.C. Wainwright & Co., LLC, a registered broker dealer with a registered address of H.C. Wainwright & Co., LLC, 430 Park Avenue, 3rd Floor, New York, NY 10022, and has sole voting and dispositive power over the securities held. The number of shares being offered consist of shares of common stock issuable upon exercise of certain warrants which were received as compensation in connection with our private placement completed on July 26, 2024. The selling stockholder acquired the warrants in the ordinary course of business and, at the time the warrants were acquired, the selling stockholder had no agreement or understanding, directly or indirectly, with any person to distribute such securities.

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.

PLAN OF DISTRIBUTION

We are registering the resale by the selling stockholders or their permitted transferees of up to 1,983,302 shares of common stock that are issuable upon the exercise of the Warrants. The selling stockholders will act independently of us in making decisions with respect to the timing, manner and size of each sale. We will pay all fees and expenses incident to the registration of the securities to be offered and sold pursuant to this prospectus. The selling stockholders will bear all commissions and discounts, if any, attributable to their sale of securities.

The selling stockholders or their permitted transferees may, from time to time, sell any or all of shares of our common stock covered hereby on the Nasdaq stock market, or any other stock exchange, market or trading facility on which the shares are traded or in private transactions. These sales may be at fixed prices, at prevailing market prices at the time of sale, at varying prices or at negotiated prices. The selling stockholders may use any one or more of the following methods when selling securities:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- 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.

The selling stockholders may also sell securities under Rule 144 under the Securities Act, if available, rather than under this prospectus.

Broker-dealers engaged by the selling stockholders may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling stockholders (or, if any broker-dealer acts as agent for the purchaser of securities, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2121; and in the case of a principal transaction a markup or markdown in compliance with FINRA Rule 2121. Discounts, concessions, commissions and similar selling expenses, if any, that can be attributed to the sale of common stock will be paid by the selling stockholders and/or the purchasers.

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

The selling stockholders and any broker-dealers or agents that are involved in selling the securities may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act.

We agreed to keep this prospectus effective until no Selling Stockholder owns any Series A Warrants, Series B Warrants, the Placement Agent Warrants or shares of common stock issuable upon exercise of the Series A Warrants, the Series B Warrants or the Placement Agent Warrants.

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

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), Palo Alto, California.

EXPERTS

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.

The consolidated financial statements of the Company as of December 31, 2022, and for the year ended December 31, 2022, incorporated in this Prospectus and in the Registration Statement by reference to the Annual Report on Form 10-K for the year ended December 31, 2023, have been so incorporated in reliance on the report of Baker Tilly US, LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

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-3 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):

- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2023 filed on March 28, 2024;
- Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2024 filed on May 14, 2024;
- Our Quarterly Report on Form 10-Q for the quarter ended June 30, 2024 filed on August 13, 2024;
- Current Reports on Form 8-K filed on January 4, 2024, February 8, 2024, April 8, 2024, May 6, 2024, May 15, 2024, May 30, 2024, July 29, 2024 and August 14, 2024; and
- The description of the Company’s common stock filed as Exhibit 4.29 “Description of Registrant’s Securities” to the Company’s Annual Report on Form 10-K on March 28, 2024.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, which we refer to as the “Exchange Act” in this prospectus, 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 provide to each person, including any beneficial owner, to whom a prospectus is delivered, 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 1,983,302 Shares of
Common Stock Issuable Upon Exercise of Warrants**

PROSPECTUS

, 2024

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses Of Issuance And Distribution.

The following table sets forth the costs and expenses, payable by the registrant in connection with the sale of common stock being registered. All amounts are estimates except the SEC registration fee and the Nasdaq listing fee.

Securities and Exchange Commission registration fee	\$289.81
FINRA filing fee	\$0
Printing and engraving expenses	\$1,500
Legal fees and expenses	\$10,000
Accounting fees and expenses	\$83,500
Miscellaneous	\$0
Total	<u>\$95,289.81</u>

Item 15. Indemnification of Directors and Officers.

We are a Delaware corporation and certain provisions of the Delaware Statutes and our bylaws provide for indemnification of our officers and directors against liabilities that they may incur in such capacities. A summary of the circumstances in which indemnification is provided is discussed below, but this description is qualified in its entirety by reference to our bylaws and to the statutory provisions.

Section 145 of the Delaware General Corporation Law provides for, under certain circumstances, the indemnification of our officers, directors, employees and agents against liabilities that they may incur in such capacities. A summary of the circumstances in which such indemnification provided for is contained herein, but that description is qualified in its entirety by reference to the relevant Section of the Delaware General Corporation Law.

In general, the statute provides that any director, officer, employee or agent of a corporation may be indemnified against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement, actually and reasonably incurred in a proceeding (including any civil, criminal, administrative or investigative proceeding) to which the individual was a party by reason of such status. Such indemnity may be provided if the indemnified person's actions resulting in the liabilities: (i) were taken in good faith; (ii) were reasonably believed to have been in or not opposed to our best interest; and (iii) with respect to any criminal action, such person had no reasonable cause to believe the actions were unlawful. Unless ordered by a court, indemnification generally may be awarded only after a determination of independent members of the Board of Directors or a committee thereof, by independent legal counsel or by vote of the stockholders that the applicable standard of conduct was met by the individual to be indemnified.

The statutory provisions further provide that to the extent a director, officer, employee or agent is wholly successful on the merits or otherwise in defense of any proceeding to which he was a party, he is entitled to receive indemnification against expenses, including attorneys' fees, actually and reasonably incurred in connection with the proceeding.

Indemnification in connection with a proceeding by or in the right of the Company in which the director, officer, employee or agent is successful is permitted only with respect to expenses, including attorneys' fees actually and reasonably incurred in connection with the defense. In such actions, the person to be indemnified must have acted in good faith, in a manner believed to have been in our best interest and must not have been adjudged liable to us unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability, in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expense which the Court of Chancery or such other court shall deem proper. Indemnification is otherwise prohibited in connection with a proceeding brought on behalf of the Company in which a director is adjudged liable to us, or in connection with any proceeding charging improper personal benefit to the director in which the director is adjudged liable for receipt of an improper personal benefit.

Delaware law authorizes us to reimburse or pay reasonable expenses incurred by a director, officer, employee or agent in connection with a proceeding in advance of a final disposition of the matter. Such advances of expenses are permitted if the person furnishes to us a written agreement to repay such advances if it is determined that he is not entitled to be indemnified by us.

The statutory section cited above further specifies that any provisions for indemnification of or advances for expenses does not exclude other rights under our certificate of incorporation, corporate bylaws, resolutions of our stockholders or disinterested directors, or otherwise. These indemnification provisions continue for a person who has ceased to be a director, officer, employee or agent of the corporation and inure to the benefit of the heirs, executors and administrators of such persons.

The statutory provision cited above also grants the power to the Company to purchase and maintain insurance policies that protect any director, officer, employee or agent against any liability asserted against or incurred by him in such capacity arising out of his status as such. Such policies may provide for indemnification whether or not the corporation would otherwise have the power to provide for it.

Article 8 of our certificate of incorporation provides that we shall indemnify our directors and officers to the fullest extent permitted by the Delaware General Corporation Law.

We have purchased directors' and officers' liability insurance in order to limit the exposure to liability for indemnification of directors and officers, including liabilities under the Securities Act of 1933.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted for our directors, officers, and controlling persons pursuant to the foregoing provisions or otherwise, we have been advised that in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable.

Item 16. Exhibits.

EXHIBIT INDEX

Exhibit Number	Description
<u>2.1</u>	<u>Agreement and Plan of Merger dated November 24, 2021 by and among the Company, Golden Gate Acquisition, Inc., zPREDICTA, Inc. and Tom Kelly, as Representative (Filed on December 1, 2021 as an exhibit to our Current Report on Form 8-K, and incorporated herein by reference).</u>
<u>3.1</u>	<u>Certificate of Incorporation (Filed on December 19, 2013 as an exhibit to our Current Report on Form 8-K, and incorporated herein by reference).</u>
<u>3.2</u>	<u>Certificate of Amendment to Certificate of Incorporation to effect reverse stock split and reduction in authorized share capital filed with the Delaware Secretary of State on October 20, 2014. (Filed on October 24, 2014 as an exhibit to our Current Report on Form 8-K, and incorporated herein by reference).</u>
<u>3.3</u>	<u>Certificate of Amendment to Certificate of Incorporation regarding increase in share capital, filed with the Delaware Secretary of State on July 24, 2015. (Filed on June 30, 2015 as an appendix to our Information Statement on Schedule 14C, and incorporated herein by reference).</u>

- [3.4](#) [Certificate of Amendment to Certificate of Incorporation to increase authorized share capital, filed with the Delaware Secretary of State on September 16, 2016. \(Filed on September 16, 2016 as an exhibit to our Current Report on Form 8-K, and incorporated herein by reference\).](#)
- [3.5](#) [Certificate of Amendment to Certificate of Incorporation to effect reverse stock split and reduction in authorized share capital, filed with the Delaware Secretary of State on October 26, 2016. \(Filed on October 27, 2016 as an exhibit to our Current Report on Form 8-K, and incorporated herein by reference\).](#)
- [3.6](#) [Certificate of Amendment to Certificate of Incorporation regarding increase in share capital, filed with the Delaware Secretary of State on January 26, 2017. \(Filed on January 27, 2017 as an exhibit to our Current Report on Form 8-K, and incorporated herein by reference\).](#)
- [3.7](#) [Certificate of Amendment to Certificate of Incorporation to effect reverse stock split, filed with the Delaware Secretary of State on January 2, 2018. \(Filed on January 2, 2018 as an exhibit to our Current Report on Form 8-K, and incorporated herein by reference\).](#)
- [3.8](#) [Certificate of Amendment to Certificate of Incorporation to effect name change, filed with the Delaware Secretary of State on February 1, 2018. \(Filed on February 6, 2018 as an exhibit to our Current Report on Form 8-K, and incorporated herein by reference\).](#)
- [3.9](#) [Form of Certificate of Designation of Preferences, Rights and Limitations of Series B Convertible Preferred Stock. \(Filed on August 20, 2015 as an exhibit to our Registration Statement on Form S-1 \(File No. 333-198962\), and incorporated herein by reference\).](#)
- [3.10](#) [Certificate of Designation of Preferences, Rights and Limitations of Series C Convertible Preferred Stock. \(Filed on November 29, 2017 as an exhibit to our Current Report on Form 8-K, and incorporated herein by reference\).](#)
- [3.11](#) [Certificate of Amendment to Certificate of Incorporation dated March 22, 2019. \(Filed on March 22, 2019 as an exhibit to our Current Report on Form 8-K, and incorporated herein by reference\).](#)
- [3.12](#) [Certificate of Designation Of Preferences, Rights And Limitations of Series D Convertible Preferred Stock. \(Filed on April 1, 2020 as an exhibit to our Annual Report on Form 10-K, and incorporated herein by reference\).](#)
- [3.13](#) [Certificate of Designation of Preferences, Rights and Limitations of Series E Convertible Preferred Stock Effective June 13, 2019. \(Filed on June 19, 2019 as an exhibit to our Current Report on Form 8-K, and incorporated herein by reference\).](#)
- [3.14](#) [Certificate of Amendment of Certificate of Incorporation, changing name from Precision Therapeutics Inc. to Predictive Oncology Inc. \(Filed on June 13, 2019 as an exhibit to our Current Report on Form 8-K, and incorporated herein by reference\).](#)
- [3.15](#) [Certificate of Amendment of Certificate of Incorporation, amending number of shares of common stock and preferred stock, effecting a reverse stock split. \(Filed on October 28, 2019 as an exhibit to our Current Report on Form 8-K\).](#)
- [3.16](#) [Certificate of Amendment to the Certificate of Incorporation, doubling number of shares of common stock and preferred stock due to stock split. \(Filed on August 19, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [3.17](#) [Certificate of Designation of Series F Preferred Stock \(Filed on March 16, 2023 as an exhibit to the Form 8-A and incorporated herein by reference.\)](#)

- [3.18](#) [Certificate of Amendment to Certificate of Incorporation \(Filed on April 20, 2023 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [3.19](#) [Second Amended and Restated Bylaws of the Company, effective as of September 9, 2022 \(Filed on September 30, 2022 as an exhibit to our Registration Statement on Form S-1 \(File No. 333-267689\).\)](#)
- [4.1](#) [Form of specimen certificate evidencing shares of Series B Convertible Preferred Stock. \(Filed on August 10, 2015 as an exhibit to our Registration Statement on Form S-1/A \(File No. 333-198962\) and incorporated herein by reference.\)](#)
- [4.2](#) [Form of Unit Purchase Option issued February 27, 2019. \(Filed on March 1, 2019 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.3](#) [Form of Common Stock Purchase Warrant issued March 29, 2019. \(Filed on April 2, 2019 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.4](#) [Form of Unit Purchase Option for the Purchase of Units issued March 29, 2019. \(Filed on April 2, 2019 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.5](#) [Common Stock Purchase Warrant Issued to Oasis Capital, LLC dated September 27, 2019. \(Filed on September 30, 2019 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.6](#) [Form of Specimen Common Stock Certificate. \(Filed on October 3, 2019 as an exhibit to our Registration Statement on Form S-3 \(File No. 333-234073\) and incorporated herein by reference.\)](#)
- [4.7](#) [Form of Common Stock Purchase Warrant Issued on or about October 1, 2019. \(Filed on October 10, 2019 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.8](#) [Common Stock Purchase Warrant issued to Oasis Capital, LLC dated February 5, 2020. \(Filed on February 7, 2020 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.9](#) [Description of Registrant's Securities. \(Filed on March 31, 2022 as an exhibit to our Annual Report on Form 10-K for the year ended December 31, 2021 and incorporated herein by reference.\)](#)
- [4.10](#) [Common Stock Purchase Warrant issued to Oasis Capital, LLC dated March 6, 2020. \(Filed on April 6, 2020 as an exhibit to our Registration Statement on Form S-3 \(File No. 333-237581\) and incorporated herein by reference.\)](#)
- [4.11](#) [Form of Helomics Common Stock Purchase Warrant issued April 4, 2019. \(Filed on January 24, 2019 as Annex H to Amendment No. 2 to Form S-4 \(File No. 333-228031\) and incorporated herein by reference.\)](#)
- [4.12](#) [Form of Common Stock Purchase Warrant issued January 12, 2021. \(Filed on January 12, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.13](#) [Form of Common Stock Purchase Warrant issued January 19, 2021. \(Filed on January 21, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.14](#) [Form of Placement Agent Warrant to H.C. Wainwright & Co., LLC or its designees in connection with certain financing transactions in 2020 and 2021. \(Filed on January 29, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.15](#) [Form of Common Stock Purchase Warrant dated February 10, 2021. \(Filed on February 12, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)

- [4.16](#) [Form of Common Stock Purchase Warrant dated February 23, 2021. \(Filed on February 22, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.17](#) [Form of Common Stock Purchase Warrant dated June 16, 2021. \(Filed on June 16, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.18](#) [Form of Placement Agent Warrant dated June 16, 2021. \(Filed on June 16, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.19](#) [Form of Series A Warrant \(Filed on January 2, 2018 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.20](#) [Form of Series B Warrant \(Filed on March 16, 2020 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.21](#) [Form of Prefunded Warrant \(Filed on March 16, 2020 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.22](#) [Form of Prefunded Common Stock Purchase Warrant \(Filed on March 23, 2020 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.23](#) [Common Stock Purchase Warrant issued to Oasis Capital, LLC dated April 5, 2020 \(Filed on April 6, 2020 as an exhibit to our Registration Statement on Form S-3 \(File No. 333-237581\) and incorporated herein by reference\).](#)
- [4.24](#) [Form of Common Stock Purchase Warrant \(Filed on May 8, 2020 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.25](#) [Form of Common Stock Purchase Warrant Issued to Investors \(Filed on June 26, 2020 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.26](#) [Form of Common Stock Purchase Warrant \(Filed on October 10, 2019 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.27](#) [Form of Common Stock Purchase Warrant \(Filed on January 12, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.28](#) [Form of Common Stock Purchase Warrant \(Filed on January 21, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.29](#) [Form of Common Stock Purchase Warrant \(Filed on January 26, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.30](#) [Form of Placement Agent Warrant to H.C. Wainwright & Co., LLC or its designees in connection with certain financing transactions in 2020 and 2021 \(Filed on January 29, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.31](#) [Form of Common Stock Purchase Warrant dated February 16, 2021 \(Filed on February 12, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.32](#) [Form of Common Stock Purchase Warrant dated February 22, 2021 \(Filed on February 22, 2021 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)
- [4.33](#) [Form of Series A Common Stock Purchase Warrant dated July 26, 2024 \(Filed on July 29, 2024 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.\)](#)

4.34	Form of Series B Common Stock Purchase Warrant dated July 26, 2024 (Filed on July 29, 2024 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.)
4.35	Form of Private Placement Agent Warrant dated July 26, 2024 (Filed on July 29, 2024 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.)
4.36	Form of Warrant Inducement Agreement dated July 26, 2024 (Filed on July 29, 2024 as an exhibit to our Current Report on Form 8-K and incorporated herein by reference.)
5.1*	Opinion of DLA Piper LLP (US)
23.1*	Consent of BDO USA P.C.
23.2*	Consent of Baker Tilly US, LLP
23.3*	Consent of DLA Piper LLP (US) (included as part of Exhibit 5.1)
24.1*	Power of Attorney (included on signature page)
107*	Filing Fee Table

* Filed herewith

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

- (a)(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) to include any prospectus required by section 10(a)(3) of the Securities Act of 1933;
 - (ii) to reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, an increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;
 - (iii) to include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.
- (2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser:

- (i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), 424(b)(5), or 424(b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), 415(a)(1)(vii), or 415(a)(1)(x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.
- (5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities: The undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
- (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.
- (b) The undersigned registrant hereby further undertakes that, for the purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in this registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (c) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

- (d) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question of whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.
- (e) If and when applicable, the Registrant hereby further undertakes to file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act in accordance with the rules and regulations prescribed by the Securities and Exchange Commission under Section 305(b)(2) of the Trust Indenture Act.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Pittsburgh, Commonwealth of Pennsylvania, on August 15, 2024.

PREDICTIVE ONCOLOGY INC.

/s/ Raymond Vennare
Raymond Vennare
Chief Executive Officer

POWER OF ATTORNEY

Each person whose signature appears below hereby constitutes and appoints Raymond Vennare and Josh Blacher, and each of them, as his true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, and any and all additional registration statements pursuant to Rule 462(b) of the Securities Act of 1933, as amended, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent or his substitutes or substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed below by the following persons in the capacities and on the dates indicated:

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Raymond Vennare</u> Raymond Vennare	Chief Executive Officer (Principal Executive Officer) and Director	August 15, 2024
<u>/s/ Josh Blacher</u> Josh Blacher	Interim Chief Financial Officer (Principal Financial and Accounting Officer)	August 15, 2024
<u>/s/ Gregory S. St. Clair, Sr.</u> Gregory S. St. Clair, Sr.	Director	August 15, 2024
<u>/s/ Dan Hadley</u> Dan Hadley	Director	August 15, 2024
<u>/s/ Chuck Nuzum</u> Chuck Nuzum	Director	August 15, 2024
<u>/s/ Nancy Chung-Welch</u> Nancy Chung-Welch	Director	August 15, 2024
<u>/s/ Matthew Hawryluk</u> Matthew Hawryluk	Director	August 15, 2024
<u>/s/ Veena Rao</u> Veena Rao	Director	August 15, 2024



DLA Piper LLP (US)
3203 Hanover Street
Suite 100
Palo Alto, CA 94304-1123
www.dlapiper.com

T 650.833.2000
F 650.833.2001

August 15, 2024

Predictive Oncology Inc.
91 43rd Street, Suite 110
Pittsburgh, PA 15201

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to Predictive Oncology Inc., a Delaware corporation (the "Company"), in connection with the registration for resale from time to time by the selling stockholders named in the Registration Statement (as defined below) of an aggregate of 1,983,302 shares of the Company's common stock, par value \$0.01 per share (the "Shares") held by certain selling stockholders. The Shares are included in a registration statement on Form S-3 under the Securities Act of 1933, as amended (the "Act") filed with the Securities and Exchange Commission (the "SEC") on August 15, 2024 (the "Registration Statement").

In connection with our representation of the Company, and as a basis for the opinion expressed herein, we have reviewed originals or copies, certified or otherwise identified to our satisfaction, of the following documents (collectively, the "Documents"):

- (a) the Registration Statement, including the Prospectus;
 - (b) the Certificate of Incorporation of the Company, together with all amendments and supplements thereto filed through the date hereof (the "Charter"), as certified as of a recent date by the Secretary of State of the State of Delaware (the "SOS"), and by the Secretary of the Company to be in effect on the date hereof;
 - (c) the Second Amendment and Restated Bylaws of the Company, as amended and restated to the date hereof (the "Bylaws"), as certified by the Secretary of the Company to be in effect on the date hereof;
 - (d) resolutions adopted by the Board of Directors of the Company (the "Board") on August 15, 2024, relating to, among other matters, the authorization of the filing of the Registration Statement (in the form attached to the Secretary's Certificate);
 - (e) a good standing certificate for the Company, dated as of August 14, 2024, issued by the SOS; and
 - (f) a certificate executed by the Secretary of the Company (the "Secretary's Certificate"), dated as of the date hereof, as to certain factual matters therein.
-



Predictive Oncology Inc.
August 15, 2024
Page 2

In examining the Documents, we have assumed, without independent investigation, the genuineness and validity of all signatures, the legal capacity of all individuals who have executed any of the aforesaid documents, the authenticity of all documents submitted to us as originals, and the conformity with originals of all documents submitted to us as copies (and the authenticity of the originals of such copies), the absence of other agreements or understandings among the parties that would modify the terms of the proposed transactions or the respective rights or obligations of the parties thereunder and the accuracy and completeness of all public records reviewed by us. In making our examination of documents executed by parties other than the Company, we have assumed that such parties had the power and authority (corporate, trust, partnership or other) to enter into and perform all obligations thereunder, and we have also assumed the due authorization by all requisite action (corporate, trust, partnership or other) and the valid execution and delivery by such parties of such documents and the validity, binding effect and enforceability thereof with respect to such parties. As to any facts material to this opinion, we have relied solely upon the Secretary's Certificate.

Subject to the foregoing and the other matters set forth herein, it is our opinion that, as of the date hereof, the issue and sale of the Shares have been duly authorized by all necessary corporate action of the Company, and the Shares are validly issued, fully paid and non-assessable, and have been duly authorized by all necessary corporate action of the Company.

In addition, the foregoing opinion is further qualified as follows:

- (a) The foregoing opinion is rendered as of the date hereof. We assume no obligation to update such opinion to reflect any facts or circumstances that may hereafter come to our attention or changes in the law which may hereafter occur.
- (b) We do not express any opinion herein concerning any law other than the Delaware General Corporation Law and the New York Business Corporation Law (including the statutory provisions, all applicable provisions of the Delaware Constitution and the New York Constitution and the reported judicial decisions interpreting the foregoing). This opinion concerns only the effect of such laws (exclusive of the principles of conflict of laws) as currently in effect. As to matters of such laws, we have based our opinion solely upon our examination of such laws and the rules and regulations of the authorities administering such laws, all as reported in standard, unofficial compilations. The opinion expressed herein is subject to the effect of judicial decisions which may permit the introduction of parol evidence to modify the terms or the interpretation of agreements.
- (c) We express no opinion as to compliance with the securities (or "blue sky"), broker licensing, real estate syndication or mortgage lending laws of any jurisdiction.
- (d) The opinion stated herein relating to the validity and binding nature of obligations of the Company is subject to (i) the effect of any applicable bankruptcy, insolvency (including, without limitation, all laws relating to fraudulent transfers), reorganization, moratorium or similar laws affecting creditors' rights generally and (ii) the effect of general principles of equity (regardless of whether considered in a proceeding in equity or at law).
- (e) This opinion is limited to the matters set forth herein, and no other opinion should be inferred beyond the matters expressly stated.



Predictive Oncology Inc.
August 15, 2024
Page 3

In rendering the foregoing opinion, we have assumed that the Company will comply with all applicable notice requirements regarding uncertificated shares provided in the General Corporation Law of the State of Delaware.

We hereby consent to the filing of this opinion with the SEC as Exhibit 5.1 to the Registration Statement and to the reference to our firm under the heading "Legal Matters" in the Registration Statement. In giving our consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the SEC thereunder.

Very truly yours,

/s/ DLA Piper LLP (US)

DLA PIPER LLP (US)

Consent of Independent Registered Public Accounting Firm

We hereby consent to the incorporation by reference in the Prospectus constituting a part of this Registration Statement of our report dated March 28, 2024, relating to the consolidated financial statements of Predictive Oncology Inc. (the Company) appearing in the Company's Annual Report on Form 10-K for the year ended December 31, 2023. Our report contains an explanatory paragraph regarding the Company's ability to continue as a going concern.

We also consent to the reference to us under the caption "Experts" in the Prospectus.

/s/BDO USA, P.C.

Minneapolis, Minnesota

August 15, 2024

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-3 of Predictive Oncology Inc. of our report dated March 21, 2023, relating to the consolidated financial statements of Predictive Oncology Inc., appearing in the Annual Report on Form 10-K for the year ended December 31, 2022. We also consent to the reference to us under the heading “Experts” in this Registration Statement.

/s/ Baker Tilly US, LLP

Minneapolis, Minnesota

August 15, 2024

CALCULATION OF FILING FEE TABLE

Form S-3
(Form Type)

Predictive Oncology Inc.
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered Securities

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered ⁽¹⁾	Proposed Maximum Offering Price Per Unit ⁽²⁾	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Fees to Be Paid	Equity	Common Stock, \$0.01 par value per share	457(c)	1,983,302 ⁽³⁾	\$0.99	\$1,963,468.98	0.00014760	\$289.81
	Total Offering Amounts					\$1,963,468.98		\$289.81
	Total Fees Previously Paid							-
	Total Fee Offsets							-
	Net Fee Due							\$289.81

- (1) Pursuant to Rule 416(a) under the Securities Act of 1933, as amended (the "Securities Act"), this registration statement also covers any additional securities that may be offered or issued in connection with any stock dividend, stock split, recapitalization or similar transaction.
- (2) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(c) under the Securities Act, based on the average of the high and low reported trading prices of the registrant's common stock as reported on the Nasdaq on April 13, 2024, a date within five business days prior to August 15, 2024.
- (3) Consists of 1,983,302 shares of the Registrant's Common Stock, par value \$0.01 per share ("Common Stock"), issuable upon (a) conversion of 985,117 shares of Registrant's Series A Warrants, (b) conversion of 985,117 shares of the Registrant's Series B Warrants and (c) conversion of 67,068 shares of the Registrant's Placement Agent Warrants.