

PROSPECTUS



bioAffinity Technologies, Inc.

**1,047,694 Shares of Common Stock
874,067 Pre-Funded Warrants to Purchase Shares of Common Stock
Up to 874,067 Shares of Common Stock Underlying the Pre-Funded Warrants**

We are offering 1,047,694 shares of our Common Stock, \$0.007 par value per share (the “Common Stock”). The public offering price for each share of Common Stock is \$2.50.

We are also offering to each purchaser whose purchase of shares of our Common Stock in this offering would otherwise result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or, at the election of the purchaser, 9.99%) of the outstanding shares of Common Stock immediately following the consummation of this offering, the opportunity to purchase, if the purchaser so chooses, Pre-Funded Warrants to purchase shares of Common Stock, or the Pre-Funded Warrants, in lieu of shares of Common Stock. Each Pre-Funded Warrant will be exercisable for one share of our Common Stock and will be immediately exercisable and will expire when exercised in full. The purchase price of each Pre-Funded Warrant will equal the price per share of Common Stock being sold to the public, minus \$0.007, and the exercise price of each Pre-Funded Warrant will be \$0.007 per share. We are also registering the shares of Common Stock issuable upon exercise of the Pre-Funded Warrants pursuant to this prospectus.

This offering will terminate on October 31, 2025, unless we decide to terminate the offering (which we may do at any time in our discretion) prior to that date. We will have one closing for all the securities purchased in this offering. The public offering price per share (or Pre-Funded Warrant) will be fixed for the duration of this offering.

Our Common Stock is listed on the Nasdaq Capital Market under the symbol “BIAF.” We have not applied, and do not intend to apply, to list the Pre-Funded Warrants on the Nasdaq Capital Market. On September 26, 2025, the closing price of our Common Stock on the Nasdaq Capital Market was \$5.29 per share. The trading price of our Common Stock has been, and may continue to be, subject to wide price fluctuations in response to various factors, many of which are beyond our control, including those described in “Risk Factors.”

On February 7, 2025, we received written notice from the Listing Qualifications Department of The Nasdaq Stock Market LLC (“Nasdaq”) notifying us that for the preceding 30 consecutive business days (December 23, 2024, through February 6, 2025), our Common Stock did not maintain a minimum closing bid price of \$1.00 (“Minimum Bid Price Requirement”) per share as required by Nasdaq Listing Rule 5550(a)(2). Therefore, in accordance with Nasdaq Listing Rule 5810(c)(3)(A), we were provided 180 calendar days, or until August 6, 2025, to regain compliance with the rule.

On May 27, 2025 we received written notice from the Staff stating that we were not in compliance with Nasdaq Listing Rule 5550(b)(1) (the “Continued Listing Equity Requirement”) because our stockholders’ equity of \$1,439,404 as of March 31, 2025, as reported in the Company’s Quarterly Report on Form 10-Q filed with the SEC on May 15, 2025, was below the minimum requirement of \$2,500,000. Pursuant to Nasdaq’s Listing Rules, we had 45 calendar days to submit a plan to regain compliance (a “Compliance Plan”) with the Continued Listing Equity Requirement. On July 14, 2025, the Company submitted its plan to regain compliance with the Continued Listing Equity Requirement.

On August 7, 2025, we received written notice from the Listing Qualifications Staff of Nasdaq that we had not regained compliance with the Minimum Bid Price Requirement by August 6, 2025 and were not eligible for a second 180-day compliance period as we did not comply with the minimum stockholders’ equity requirement for initial listing on the Nasdaq Capital Market. As a result, unless we request an appeal to a hearings panel (the “Panel”) by August 14, 2025, our securities will be scheduled for delisting from The Nasdaq Capital Market and will be suspended at the opening of business on August 18, 2025.

We submitted an appeal to Nasdaq on August 14, 2025, which will stay the delisting and suspension of the Company’s securities pending the decision of the Panel. On August 14, 2025, we received written notice from Nasdaq that our hearing has been scheduled for September 11, 2025. At the hearing, the Company presented its views and its plans to regain compliance with the Minimum Bid Price Requirement and the Continued Listing Equity Requirement to the Panel. On September 18, 2025, Nasdaq granted us an extension until October 2, 2025 to demonstrate compliance with the Minimum Bid Price Requirement and Continued Listing Equity Requirement. There can be no assurance that the Company will be able to evidence compliance with the Minimum Bid Price Rule, the Continued Listing Equity Requirement or any other applicable requirements for continued listing on The Nasdaq Capital Market prior to the hearing.

We have engaged WallachBeth Capital LLC (the “Placement Agent”), to act as our exclusive Placement Agent in connection with this offering. The Placement Agent has agreed to use its reasonable best efforts to arrange for the sale of the securities offered by this prospectus. The Placement Agent is not purchasing or selling any of the securities we are offering, and the Placement Agent is not required to arrange the purchase or sale of any specific number or dollar amount of securities. We have agreed to pay to the Placement Agent the fees set forth in the table below, which assumes that we sell all of the securities offered by this prospectus. Since we will deliver the securities to be issued in this offering upon our receipt of investor funds, there is no arrangement for funds to be received in escrow, trust or similar arrangement. There is no minimum offering requirement as a condition of closing of this offering. Because there is no minimum offering amount required as a condition to closing this offering, we may sell fewer than all of the securities offered hereby, which may significantly reduce the amount of proceeds received by us, and investors in this offering will not receive a refund in the event that we do not sell an amount of securities sufficient to pursue our business goals described in this prospectus. In addition, because there is no escrow account and no minimum offering amount, investors could be in a position where they have invested in our company, but we are unable to fulfill all of our contemplated objectives due to a lack of interest in this offering. Further, any proceeds from the sale of securities offered by us will be available for our immediate use, despite uncertainty about whether we would be able to use such funds to effectively implement our business plan. See the section entitled “Risk Factors” for more information. We will bear all costs associated with the offering. See “Plan of Distribution” beginning on page 27 of this prospectus for more information regarding these arrangements.

On September 17, 2025, we filed with the Secretary of State of the State of Delaware a certificate of amendment to our certificate of incorporation to effect a one-for-thirty (1-for-30) reverse split of our issued and outstanding shares of Common Stock. The Reverse Stock Split became effective as of 4:01 p.m. Eastern Time on September 18, 2025, and our Common Stock began trading on a split-adjusted basis when Nasdaq opened on September 19, 2025. All share and per share information in this prospectus (other than in the historical financial statements incorporated herein by reference) has been adjusted to reflect the reverse stock split.

Investing in our securities involves a high degree of risk. See “Risk Factors” beginning on page 9 of this prospectus for a discussion of information that should be considered in connection with an investment in our securities. Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	Per Share		Per Pre-Funded Warrant		Total
Public offering price	\$	2.50	\$	2.493	\$ 4,798,284.03
Placement Agent fees ⁽¹⁾	\$	0.20	\$	0.199	\$ 383,862.72
Proceeds to us, before expenses ⁽²⁾	\$	2.30	\$	2.294	\$ 4,414,421.31

- (1) We have agreed to pay the Placement Agent a cash fee equal to 8.0% of the aggregate gross proceeds raised in this offering. We have also agreed to pay the Placement Agent for its legal fees and expenses and other out-of-pocket expenses in an amount up to \$120,000. We refer you to “Plan of Distribution” on page 27 of this prospectus for additional information regarding Placement Agent compensation.
- (2) Because there is no minimum number of securities or amount of proceeds required as a condition to closing in this offering, the actual public offering amount, Placement Agent fees, and proceeds to us, if any, are not presently determinable and may be substantially less than the total maximum offering amounts set forth above. For more information, see “Plan of Distribution.”

The delivery to purchasers of the shares of Common Stock and Pre-Funded Warrants in this offering is expected to be made on or about September 30, 2025, subject to satisfaction of certain customary closing conditions.

WallachBeth Capital LLC

The date of this prospectus is September 29, 2025.

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this prospectus, including the documents incorporated by reference herein and therein, may contain “forward-looking statements” within the meaning of the federal securities laws. Our forward-looking statements include, but are not limited to, statements about us and our industry, as well as statements regarding our or our management team’s expectations, hopes, beliefs, intentions or strategies regarding the future. Additionally, any statements that refer to projections, forecasts or other characterizations of future events or circumstances, including any underlying assumptions, are forward-looking statements. We intend the forward-looking statements to be covered by the safe harbor provisions of the federal securities laws. Words such as “may,” “should,” “could,” “would,” “predicts,” “potential,” “continue,” “expects,” “anticipates,” “future,” “intends,” “plans,” “believes,” “estimates,” and similar expressions, as well as statements in future tense, may identify forward-looking statements, but the absence of these words does not mean that a statement is not forward-looking.

Forward-looking statements should not be read as a guarantee of future performance or results and may not be accurate indications of when such performance or results will be achieved. Forward-looking statements are based on information we have when those statements are made or management’s good faith belief as of that time with respect to future events, and are subject to significant risks and uncertainties that could cause actual performance or results to differ materially from those expressed in or suggested by the forward-looking statements. Important factors that could cause such differences include, but are not limited to:

- our projected financial position and estimated cash burn rate;
- our estimates regarding expenses, future revenues, and capital requirements;
- the success, cost, and timing of our clinical trials;
- our ability to obtain funding for our operations necessary to complete further development and commercialization of our diagnostic tests or therapeutic product candidates;
- our dependence on third parties in the conduct of our clinical trials;
- our ability to obtain the necessary regulatory approvals to market and commercialize our diagnostic tests or therapeutic product candidates;
- the potential that the results of our pre-clinical and clinical trials indicate our current diagnostic tests or any future diagnostic tests or therapeutic product candidates we may seek to develop are unsafe or ineffective;
- the results of market research conducted by us or others;
- our ability to obtain and maintain intellectual property protection for our diagnostic and therapeutic inventions or future diagnostic and therapeutic inventions to expand our product offerings;
- our ability to protect our intellectual property (“IP”) rights and the potential for us to incur substantial costs from lawsuits to enforce or protect our IP rights;
- the possibility that a third party may claim we or our third-party licensors have infringed, misappropriated, or otherwise violated their IP rights and that we may incur substantial costs and be required to devote substantial time defending against such claims;
- our reliance on third parties;
- the success of competing therapies, diagnostic tests, and therapeutic products that are or will become available;
- our ability to expand our organization to accommodate potential growth and to retain and attract key personnel;

- our potential to incur substantial costs resulting from product liability lawsuits against us and the potential for such lawsuits to cause us to limit the commercialization of our diagnostic tests and therapeutic product candidates;
- market acceptance of our diagnostic tests and therapeutic product candidates, the size and growth of the potential markets for our current diagnostic tests and therapeutic product candidates, and any future diagnostic tests and therapeutic product candidates we may seek to develop, and our ability to serve those markets;
- the successful development of our commercialization capabilities, including sales and marketing capabilities;
- compliance with government regulations, including environmental, health, and safety regulations and liabilities thereunder;
- the impact of a health epidemic on our business, our clinical trials, our research programs, healthcare systems, or the global economy as a whole;
- general instability of economic and political conditions in the United States (“U.S.”), including inflationary pressures, increased interest rates, economic slowdown or recession, and escalating geopolitical tensions;
- our anticipated uses of net proceeds from our financings;
- the increased expenses associated with being a public company; and
- other factors discussed elsewhere in this prospectus.

Many of the foregoing risks and uncertainties, as well as risks and uncertainties that are currently unknown to us, are or may be exacerbated by factors such as the ongoing conflict between Ukraine and Russia, escalating tensions between China and Taiwan, the war in the Middle East, increasing economic uncertainty and inflationary pressures, and any consequent worsening of the global business and economic environment. New factors emerge from time to time, and it is not possible for us to predict all such factors. Should one or more of the risks or uncertainties described in this prospectus or any other filing with the SEC occur, or should the assumptions underlying the forward-looking statements we make herein and therein prove incorrect, our actual results and plans could differ materially from those expressed in any forward-looking statements. We undertake no obligation to update publicly any forward-looking statements, whether as a result of new information, future events, or otherwise, except as required by law.

You should read this prospectus, the documents incorporated by reference herein, and the documents that we reference within it with the understanding that our actual future results, performance, and events and circumstances may be materially different from what we expect.

Website and Social Media Disclosure

We use our websites (www.bioaffinitytech.com, ir.bioaffinitytech.com, www.cypathlung.com and www.Precisionpath.us/) to share Company information. Information contained on or that can be accessed through our websites is not, however, incorporated by reference in this prospectus. Investors should not consider any such information to be part of this prospectus.

PROSPECTUS SUMMARY

This summary provides an overview of information appearing elsewhere in this prospectus and highlights the key aspects of this Offering. This summary does not contain all of the information you should consider prior to investing in our Common Stock or Warrants. You should read this entire prospectus carefully, including the sections titled “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our consolidated financial statements and related notes appearing at the end of this prospectus, before making any investment decision. Our fiscal year ends on December 31. Unless the context otherwise requires, references to “bioAffinity,” the “Company,” “we,” “us,” and “our” in this prospectus refer to bioAffinity Technologies, Inc. and our consolidated subsidiaries.

Company Overview

bioAffinity Technologies, Inc. (the “Company,” “bioAffinity,” “we,” or “our”) develops noninvasive diagnostics to detect early-stage lung cancer and other diseases of the lung using flow cytometry and automated analysis developed by machine learning, a form of artificial intelligence (“AI”). Our diagnostic platform analyzes cell populations that are indicative of a specific disease and uses AI to standardize sample data analysis and patient test results. state.

Our first diagnostic test, CyPath[®] Lung, addresses the need for noninvasive detection of early-stage lung cancer. Lung cancer is the leading cause of cancer-related deaths worldwide. Physicians order CyPath[®] Lung to assist in their decision-making in the diagnosis of patients who are at high risk for lung cancer. The CyPath[®] Lung test enables physicians to more confidently identify patients who will likely benefit from timely intervention and more invasive follow-up procedures including biopsy and those who are likely without lung cancer and should continue screening in accordance with guidelines. CyPath[®] Lung has been shown to detect lung cancer at Stage 1A, its earliest stage, and has the potential to increase overall diagnostic accuracy of lung cancer, which could lead to increased survival, fewer unnecessary invasive procedures, reduced patient anxiety, and lower medical costs.

Commercial laboratory services, including CyPath[®] Lung, are performed at our wholly owned subsidiary Precision Pathology Laboratory Services (“PPLS”) which we acquired by purchasing the assets of Village Oaks Pathology Services, P.A., a Texas professional association d/b/a Precision Pathology Services, that included the CAP-accredited and CLIA-certified commercial laboratory it owned. We own and operate the clinical anatomic and clinical pathology laboratory. CyPath[®] Lung is offered for sale to physicians by PPLS.

We continue to advance development of our flow cytometry+AI platform for companion diagnostic tests targeted at chronic obstructive pulmonary disease (“COPD”) and asthma. Diagnostics under development are designed to detect specific receptors in sputum that determine the effectiveness of new and emerging therapies for asthma and COPD that have proven to effectively treat some but not all patients.

Through our wholly owned subsidiary, OncoSelect[®] Therapeutics, LLC, we have conducted research that has led to discoveries and advancement of novel cancer therapeutic approaches that specifically and selectively target cancer cells. We continue to advance research and development for use of this technology for topical treatment of squamous cell skin cancer. We expect to present our findings at conferences and publish our research in peer-reviewed journals in the near future. We intend to seek strategic partners to develop our therapeutic discoveries which could result in broad-spectrum cancer treatments in the future.

Recent Developments

On August 12, 2025, Roberto Rios, CPA and John J. Oppenheimer, M.D. were appointed to our board of directors.

On August 14, 2025, we completed a private placement with certain institutional and accredited investors for gross proceeds of approximately \$1.2 million, before deducting Placement Agent fees and other estimated expenses payable by us. The offering consisted of 990 shares of our newly designated Series B Convertible Preferred Stock, with a par value \$0.001 per share and stated value of \$1,000 per share initially convertible into 143,476 shares of our Common Stock at an initial conversion price of \$6.90 per share and (ii) warrants to purchase up to 223,824 shares of our Common Stock at an exercise price of \$10.52 per share of Common Stock (the “August 2025 Warrants”).

On August 14, 2025, we also completed a warrant inducement transaction with the holder of a warrant, pursuant to which such holder exercised for cash a total of 36,666 warrants originally issued in August 2024 and October 2024, at the reduced exercise price of \$6.90 per share, for aggregate gross proceeds of approximately \$253,000. In connection with the immediate exercise of the August 2024 and October 2024 Warrants, we issued unregistered common warrants to purchase an aggregate of up to 36,666 shares of Common Stock at an exercise price of \$10.52 per share, which warrants are not exercisable until our stockholder approve such exercise.

On September 2, 2025, we entered into agreements with the holders of our August 2025 Warrants and the warrants issued in our May 2025 public offering (the “May 2025 Warrants”) pursuant to which the Floor Price (as such term is defined in each of the August 2025 Warrants and the May 2025 Warrants) was increased, effective as of August 12, 2025, from \$3.00 to \$4.50 per share.

On September 17, 2025, we filed with the Secretary of State of the State of Delaware a certificate of amendment to our certificate of incorporation to effect a one-for-thirty (1-for-30) reverse split of our issued and outstanding shares of Common Stock. The Reverse Stock Split became effective as of 4:01 p.m. Eastern Time on September 18, 2025, and our Common Stock began trading on a split-adjusted basis when Nasdaq opened on September 19, 2025. All share and per share information in this prospectus (other than in the historical financial statements incorporated herein by reference) has been adjusted to reflect the reverse stock split.

Corporate Information

We were incorporated in the State of Delaware on March 26, 2014. Our principal executive office is located at 3300 Nacogdoches Road, Suite 216, San Antonio, Texas 78217, and our telephone number at that address is (210) 698-5334. Our website address is <https://www.bioaffinitytech.com/>. Information contained on or that can be accessed through our website is not incorporated by reference into this prospectus. Investors should not consider any such information to be part of this prospectus.

Implications of Being an Emerging Growth Company and a Smaller Reporting Company

We qualify as an “emerging growth company” (an “EGC”) as defined in the Jumpstart Our Business Startups Act of 2012 (the “JOBS Act”). As an EGC, for up to five years, we may elect to take advantage of certain specified exemptions from reporting and other regulatory requirements that are otherwise generally applicable to public companies. For example, these exemptions would allow us to:

- present two, rather than three, years of audited financial statements with correspondingly reduced disclosure in the “Management’s Discussion and Analysis of Financial Condition and Results of Operations” section (the “MD&A”) of this prospectus;
- defer the auditor attestation requirement on the effectiveness of our system of internal control over financial reporting;
- make reduced disclosures about our executive compensation arrangements; and
- forego the adoption of new or revised financial accounting standards until they would be applicable to private companies.

Certain of these reduced reporting requirements and exemptions were already available to us due to the fact that we also qualify as a “smaller reporting company” under SEC rules. For instance, smaller reporting companies are not required to obtain an auditor attestation and report regarding internal control over financial reporting, to provide a compensation discussion and analysis, or to provide a pay-for-performance graph or CEO pay ratio disclosure, and they may present two, rather than three, years of audited financial statements and related MD&A disclosure.

We may take advantage of these exemptions until such time that we are no longer an EGC. We will continue to remain an EGC until the earliest of the following: (i) the last day of the fiscal year following the fifth anniversary of our initial public offering; (ii) the last day of the fiscal year in which our total annual gross revenue is equal to or more than \$1.235 billion; (iii) the date on which we have issued more than \$1 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer, as defined in the Securities Exchange Act of 1934, as amended (the “Exchange Act”).

We are also a “smaller reporting company” as defined in the Exchange Act and have elected to take advantage of certain of the scaled disclosures available to smaller reporting companies. To the extent that we continue to qualify as a “smaller reporting company” as such term is defined in Rule 12b-2 under the Exchange Act, after we cease to qualify as an EGC, certain of the exemptions available to us as an EGC may continue to be available to us as a “smaller reporting company,” including exemption from compliance with the auditor attestation requirements pursuant to the Sarbanes-Oxley Act of 2002 (“SOX”) and reduced disclosure about our executive compensation arrangements. We will continue to be a “smaller reporting company” until we have \$250 million or more in public float (based on our Common Stock) measured as of the last business day of our most recently completed second fiscal quarter or, in the event we have no public float (based on our Common Stock) or a public float (based on our Common Stock) that is less than \$700 million, annual revenues of \$100 million or more during the most recently completed fiscal year.

We may choose to take advantage of some, but not all, of the available exemptions. We have taken advantage of certain reduced reporting obligations in this prospectus. Accordingly, the information contained herein may be different than the information you receive from other public companies in which you hold stock. In addition, the JOBS Act provides that an EGC may take advantage of an extended transition period for complying with new or revised accounting standards, delaying the adoption of these accounting standards until they would apply to private companies. We have elected to avail ourselves of the extended transition period for complying with new or revised financial accounting standards. As a result of the accounting standards election, we will not be subject to the same implementation timing for new or revised accounting standards as other public companies that are not EGCs which may make comparison of our financials to those of other public companies more difficult.

Summary of Risk Factors

Like any emerging growth company, we face significant risk factors that may impede our plans for successful commercialization of our diagnostic and therapeutic products. These risks are discussed in detail under the “Risk Factors” discussion beginning on page 9 of this prospectus.

The following summarizes the principal factors that make an investment in our Company speculative or risky, all of which are more fully described in the section below titled “Risk Factors.” This summary should be read in conjunction with the section below titled “Risk Factors” and should not be relied upon as an exhaustive summary of the material risks facing our business. The following factors could result in harm to our business, reputation, revenue, financial results, and prospects, among other impacts:

Risks Related to Our Financial Position

- Our business plan relies upon our ability to obtain additional sources of capital and financing.
- We must raise additional capital to fund our operations in order to continue as a going concern.
- Our limited operating history makes it difficult to evaluate our business and future prospects.
- We are unable to precisely estimate when we will begin to generate significant profit from PPLS.
- We have limited experience operating a laboratory.

Risks Related to our Diagnostic Product

- Delays or difficulties in the enrollment of patients could delay or prevent regulatory approvals.
- Clinical trials are expensive, time-consuming, and may not be successful.

Risks Related to Our Diagnostic Tests

- If our tests do not perform as expected, our operating results, reputation, and business will suffer.
- We may experience difficulties that delay or prevent our development, introduction, or marketing of enhanced or new tests.
- Clinical testing of a particular diagnostic test or therapeutic product candidate may not yield successful results.
- Even if our diagnostic tests or therapeutic products receive marketing approval, we may not be successful in commercializing them.
- We are currently dependent upon PPLS to offer and perform CyPath® Lung.
- If we cannot convince physicians of the benefits of our diagnostic tests or therapeutic products, market acceptance could be delayed.
- We face substantial competition.
- Our success depends upon our ability to retain key executives and attract and retain qualified personnel.
- Our lack of operating experience may make it difficult to manage our growth.
- We will depend on third parties to manufacture and market our diagnostic tests and to design trial protocols and monitor clinical trials.
- We are exposed to product liability and pre-clinical and clinical liability risks.
- Our failure to comply with privacy and security regulations could result in liability or reputational harm.
- Our ability to obtain adequate reimbursement for our diagnostic tests may impact our revenues.
- Our employees, consultants, partners, and vendors may engage in misconduct or other improper activities.
- Failure to comply with healthcare laws and regulations could result in substantial penalties.
- We face intense competition in the biotechnology and pharmaceutical industries.
- The market for our proposed tests and products is competitive and rapidly changing.
- Healthcare cost containment initiatives and the growth of managed care may limit our returns.
- Disruption of internal information technology systems will adversely affect our business.
- Declining general economic or business conditions may have a negative impact on our business.
- Global climate change and related regulations could negatively affect our business.

Risks Related to the Operation of a CAP/CLIA Laboratory

- PPLS' operations depend upon the relationship of certain of our pathologists with existing customers.
- PPLS may be unable to maintain equipment or generate revenue when its equipment is not operational.
- If our sole laboratory facility becomes damaged or inoperable, loses its accreditation, or is required to vacate the facility, PPLS' ability to sell its products or provide diagnostic assays and pursue its research and development efforts may be jeopardized.
- Disruption in the commercial courier delivery services used by PPLS to transport sputum samples could harm its business.
- Security breaches, data loss, and other disruptions could compromise sensitive information of PPLS' business.
- If PPLS uses hazardous chemicals in a manner that causes injury, PPLS could be liable for damages.
- If PPLS is unable to successfully scale its operations to support demand, its business could suffer.
- PPLS must dedicate substantial time and resources to its complex billing process to be paid.
- Delays of third-party billing and collection providers and an in-house billing function to transmit claims to payors could have an adverse effect on PPLS.

Risks Related to Intellectual Property Rights

- If we fail to comply with our obligations imposed by any intellectual property licenses with third parties that we may need in the future, we could lose rights that are important to our business.
- We may need to obtain licenses of third-party technology that may not be available to us or available to us on reasonable terms.
- Our competitive position depends on protection of our intellectual property. Diagnostic tests and therapeutic products we develop could be subject to infringement claims.
- We may become involved in lawsuits to protect or enforce our intellectual property.
- If we are unable to protect our trade secrets, our business and competitive position could be harmed.
- Changes in patent law could impair our ability to protect our tests and product candidates.
- Our patent protection could be reduced or eliminated for non-compliance with governmental requirements.
- Patent terms may be inadequate to protect our diagnostic tests or therapeutic product candidates.
- Issued patents could be found invalid or unenforceable.
- If we do not obtain patent term extension, our business may be harmed.
- We enjoy only limited geographical protection with respect to certain patents.
- If our trademarks and trade names are not adequately protected, we may not be able to build name recognition.

Risks Related to Government Regulations

- Failure to comply with laws pertaining to LDTs or in vitro devices (“IVDs”) could adversely affect our business.
- Third-party licensors of our future therapeutic products may be unable to obtain regulatory approval.
- Failure to obtain regulatory approval in foreign jurisdictions would prevent our product candidates from being marketed in those jurisdictions that deny approval.
- We may never obtain approval or commercialize such products outside of the U.S.
- The impact of changes to healthcare policy and future healthcare reform legislation is unknown.

Risks Related to Ownership of Our Common Stock and Pre-Funded Warrants

- Our failure to meet the listing requirements of The Nasdaq Capital Market could result in a de-listing of our Common Stock.
- We do not expect to pay dividends in the foreseeable future.
- Our Common Stock market price may never exceed the exercise price of our outstanding warrants.
- Holders of our warrants have no rights as stockholders until they exercise their warrants.
- The provisions of our outstanding warrants could limit a warrant holder’s ability to choose the judicial forum for disputes.
- The financial and operational projections that we may make from time to time are subject to inherent risks.
- Our stock price has fluctuated in the past, has recently been volatile, and may be volatile in the future.
- Our Common Stock has often been thinly traded.
- An investment in our Company may involve tax implications.
- Our ability to use our net operating loss carryforwards and certain other tax attributes may be limited.
- Our Board can designate classes of Preferred Stock without stockholder approval.
- Provisions in our corporate charter documents and under Delaware law could make an acquisition of the Company more difficult.
- Provisions in our Charter and Amended and Restated (“A&R”) Bylaws could make a merger, tender offer, or proxy contest difficult.
- Certain provisions of Delaware’s General Corporation Law (“DGCL”) may have anti-takeover effects.
- Our Charter designates Delaware state or federal courts as the exclusive forum for disputes.
- Provisions in our Charter and A&R Bylaws may discourage stockholders from bringing a lawsuit against our directors and officers.
- Our management collectively owns a substantial percentage of our Common Stock.
- If analysts publish unfavorable research, or none at all, about our business, our stock price and trading volume could decline.
- Any inability to report and file our financial results accurately and timely could harm our business.

Risks Related to the Offering

- This is a best efforts offering, no minimum amount of securities is required to be sold, and we may not raise the amount of capital we believe is required for our business plans, including our near-term business plans.
- Our Common Stock could be subject to extreme volatility.
- Future sales and issuances of our securities could result in additional dilution of the percentage ownership of our stockholders and could cause our share price to fall.
- Nasdaq Capital Market may subsequently delist our Common Stock if we fail to comply with ongoing listing standards.

ABOUT THIS OFFERING

Common Stock offered by us:	1,047,694 shares of our Common Stock.
Pre-funded warrants offered by us:	<p>We are also offering to those purchasers whose purchase of the Common Stock in this offering would result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or at the election of the purchaser, 9.99%) of our outstanding Common Stock immediately following the consummation of this offering, 874,067 Pre-Funded Warrants, in lieu of the Common Stock that would otherwise result in ownership in excess of 4.99% (or 9.99%, as applicable) of our outstanding Common Stock.</p> <p>The purchase price of each Pre-Funded Warrant equals \$2.493 (the price per share of Common Stock being sold to the public in this offering, minus \$0.007), and the exercise price of each Pre-Funded Warrant will be \$0.007 per share.</p> <p>Each Pre-Funded Warrant will be immediately exercisable and may be exercised at any time until exercised in full. See “Description of Securities.” You should also read the form of Pre-Funded Warrant, which is filed as an exhibit to the registration statement of which this prospectus forms a part. We are also registering 874,067 shares of Common Stock issuable upon exercise of the Pre-Funded Warrants pursuant to this prospectus.</p>
Common Stock outstanding before the offering	1,854,785 shares of Common Stock.
Common Stock to be outstanding after the offering⁽¹⁾	3,100,402 shares of Common Stock (3,776,546 shares of Common Stock assuming all the Pre-funded Warrants are exercised).
Use of proceeds:	We estimate that the net proceeds to us from this offering will be approximately \$4.1 million. We intend to use the net proceeds of this offering for working capital and general corporate purposes. See “Use of Proceeds” on page 13.
Risk factors:	An investment in the securities offered under this prospectus is highly speculative and involves substantial risk. Please carefully consider the “Risk Factors” section on page 9, and other information in this prospectus for a discussion of risks. Additional risks and uncertainties not presently known to us or that we currently deem to be immaterial may also impair our business and operations
Nasdaq Capital Market Trading Symbol:	Our Common Stock is listed on the Nasdaq Capital Market under the symbol “BIAF.” Our tradeable warrants are listed on the Nasdaq Capital Market under the symbol “BIAFW.” We do not intend to apply for the listing of the Pre-Funded Warrants on any national securities exchange or other trading market. Without an active trading market, the liquidity of the Pre-Funded Warrants will be limited.

(1)The number of shares of Common Stock to be outstanding immediately after this offering is based on 1,854,785 shares of Common Stock outstanding as of September 29, 2025, and excludes, as of such date:

- 103,694 shares of Common Stock issuable upon the conversion of 715.5 shares of Series B Convertible Preferred Stock at an initial conversion price of \$6.90 per share;
- 1,355,273 shares of Common Stock issuable upon the exercise of outstanding warrants with a weighted average exercise price equal to \$29.09 per share;
- 9,054 shares of Common Stock issuable upon the exercise of stock options issued under our equity incentive plans with a weighted average exercise price equal to \$211.57 per share; and
- 41,908 shares of our Common Stock that are reserved for equity awards that may be granted under our 2024 Equity Incentive Plan.

RISK FACTORS

Any investment in our securities involves a high degree of risk. Before deciding whether to purchase our Common Stock, investors should carefully consider the risks described below. Our business, financial condition, operating results and prospects are subject to the following material risks. Additional risks and uncertainties not presently foreseeable to us may also impair our business operations. If any of the following risks actually occurs, our business, financial condition or operating results could be materially adversely affected. In such case, the trading price of our Common Stock could decline, and our stockholders may lose all or part of their investment in the shares of our Common Stock. If any of these risks actually occur, our business, financial condition, results of operations or cash flow could be adversely effected. This could cause the trading price of our Common Stock to decline, resulting in a loss of all or part of your investment. The risks and uncertainties described below are not the only ones facing us. Additional risks and uncertainties not presently known to us, or that we currently see as immaterial, may also harm our business. Please also read carefully the section above entitled "Special Note Regarding Forward-Looking Statements" and all of the other information contained or incorporated by reference in this prospectus.

Risks Relating to this Offering

This is a best efforts offering, no minimum amount of securities is required to be sold, and we may not raise the amount of capital we believe is required for our business plans, including our near-term business plans.

The Placement Agent has agreed to use its reasonable best efforts to solicit offers to purchase the securities in this offering. The Placement Agent has no obligation to buy any of the securities from us or to arrange for the purchase or sale of any specific number or dollar amount of the securities. There is no required minimum number of securities that must be sold as a condition to completion of this offering. Because there is no minimum offering amount required as a condition to the closing of this offering, the actual offering amount, Placement Agent fees and proceeds to us are not presently determinable and may be substantially less than the maximum amounts set forth herein. We may sell fewer than all of the securities offered hereby, which may significantly reduce the amount of proceeds received by us, and investors in this offering will not receive a refund in the event that we do not sell an amount of securities sufficient to support our continued operations, including our near-term continued operations. Thus, we may not raise the amount of capital we believe is required for our operations in the short-term and may need to raise additional funds to complete such short-term operations. Such additional fundraises may not be available or available on terms acceptable to us.

We are selling a substantial number of shares of our Common Stock in this offering, which could cause the price of our Common Stock to decline.

In this offering, we are offering up to 1,921,761 shares of Common Stock (assuming all the of Pre-Funded Warrants are exercised). The existence of the potential additional shares of our Common Stock in the public market, or the perception that such additional shares may be in the market, could adversely affect the price of our Common Stock. We cannot predict the effect, if any, that market sales of those shares of Common Stock or the availability of those shares of Common Stock for sale will have on the market price of our Common Stock.

There is no public market for the Pre-Funded Warrants being sold in this offering.

There is no established public trading market for the Pre-Funded Warrants being sold in this offering. We will not list the Pre-Funded Warrants on any securities exchange or nationally recognized trading system, including Nasdaq. Therefore, we do not expect a market to ever develop for the Pre-Funded Warrants. Without an active market, the liquidity of the pre-funded warrants will be limited.

The Pre-Funded Warrants are speculative in nature.

The Pre-Funded Warrants do not confer any rights of Common Stock ownership on their respective holders, such as voting rights or the right to receive dividends, but rather merely represent the right to acquire shares of Common Stock at a fixed price. Commencing on the date of issuance, holders of the Pre-Funded Warrants may exercise their right to acquire the Common Stock and pay the stated exercise price per share.

Holders of our Pre-Funded Warrants will have no rights as a Common Stockholder until such holders exercise their Pre-Funded Warrants and acquire our Common Stock, except as otherwise provided in the Pre-Funded Warrants.

Until holders of the Pre-Funded Warrants acquire shares of our Common Stock upon exercise thereof, holders of the Pre-Funded Warrants will have no rights with respect to the shares of our Common Stock, except as otherwise provided in the Pre-Funded Warrants. Upon exercise of the Pre-Funded Warrants, such holders will be entitled to exercise the rights of a Common Stockholder only as to matters for which the record date occurs after the exercise date.

Purchasers who purchase our securities in this offering pursuant to a securities purchase agreement may have rights not available to purchasers that purchase without the benefit of a securities purchase agreement.

In addition to rights and remedies available to all purchasers in this offering under federal securities and state law, the purchasers that enter into a securities purchase agreement will also be able to bring claims of breach of contract against us. The ability to pursue a claim for breach of contract provides those investors with the means to enforce the covenants uniquely available to them under the securities purchase agreement including: (i) timely delivery of shares; (ii) agreement to not enter into variable rate financings for one year from closing, subject to an exception; (iii) agreement to not enter into any financings for 30 days from closing, subject to certain exceptions; and (iv) indemnification for breach of contract.

Our Common Stock could be subject to extreme volatility.

The trading price of our Common Stock may be affected by a number of factors, including events described in the risk factors set forth herein and in our other reports filed with the SEC from time to time, as well as our operating results, financial condition and other events or factors. In addition to the uncertainties relating to future operating performance and the profitability of operations, factors such as variations in interim financial results or various and unpredictable factors, many of which are beyond our control, may have a negative effect on the market price of our Common Stock. In recent years, broad stock market indices, in general, and smaller capitalization companies, in particular, have experienced substantial price fluctuations. In a volatile market, we may experience wide fluctuations in the market price of our Common Stock and wide bid-ask spreads. These fluctuations may have a negative effect on the market price of our Common Stock. In addition, the securities market has, from time to time, experienced significant price and volume fluctuations that are not related to the operating performance of particular companies. These market fluctuations may have a material adverse effect on the market price of our Common Stock.

Market and economic conditions may negatively impact our business, financial condition and share price.

Concerns over inflation, energy costs, geopolitical issues, the U.S. mortgage market and a declining real estate market, unstable global credit markets and financial conditions, recessionary pressures and volatile oil prices have led to periods of significant economic instability, diminished liquidity and credit availability, declines in consumer confidence and discretionary spending, diminished expectations for the global economy and expectations of slower global economic growth going forward, increased unemployment rates, and increased credit defaults in recent years. Our general business strategy may be adversely affected by any such economic downturns, volatile business environments and continued unstable or unpredictable economic and market conditions. If these conditions continue to deteriorate or do not improve, it may make any necessary debt or equity financing more difficult to complete, more costly, and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on our growth strategy, financial performance, and share price and could require us to delay or abandon development or commercialization plans.

You will experience immediate and substantial dilution as a result of this offering and may experience additional dilution in the future.

If you purchase shares of Common Stock in this offering, the value of your shares based on our actual book value will immediately be less than the price you paid. This reduction in the value of your equity is known as dilution. This dilution occurs in large part because our existing stockholders paid less than the public offering price when they acquired their shares of Common Stock. Based upon the issuance and sale of shares of Common Stock by us in this offering at the public offering price of \$2.50 per share, you will incur immediate dilution of \$1.31 in the net tangible book value per share of Common Stock. If outstanding options to purchase our common shares are exercised, investors will experience additional dilution. For more information, see “Dilution.”

Future sales and issuances of our securities could result in additional dilution of the percentage ownership of our stockholders and could cause our share price to fall.

We expect that significant additional capital will be needed in the future to continue our planned operations, including research and development, increased marketing, hiring new personnel, commercializing our products, and continuing activities as an operating public company. To the extent we raise additional capital by issuing equity securities, our stockholders may experience substantial dilution. We may sell Common Stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. If we sell Common Stock, convertible securities or other equity securities in more than one transaction, investors may be materially diluted by subsequent sales. Such sales may also result in material dilution to our existing stockholders, and new investors could gain rights superior to our existing stockholders.

We may be at risk of securities class action litigation.

We may be at risk of securities class action litigation. In the past, biotechnology and pharmaceutical companies have experienced significant stock price volatility, particularly when associated with binary events such as clinical trials and product approvals. If we face such litigation, it could result in substantial costs and a diversion of management’s attention and resources, which could harm our business and result in a decline in the market price of our Common Stock.

Financial reporting obligations of being a public company in the United States are expensive and time-consuming, and our management will be required to devote substantial time to compliance matters.

As a publicly traded company we incur significant legal, accounting and other expenses. The obligations of being a public company in the United States require significant expenditures and places significant demands on our management and other personnel, including costs resulting from public company reporting obligations under the Exchange Act and the rules and regulations regarding corporate governance practices, including those under the Sarbanes-Oxley Act of 2002, as amended, and the Dodd-Frank Wall Street Reform and Consumer Protection Act. These rules require the establishment and maintenance of effective disclosure and financial controls and procedures, internal control over financial reporting and changes in corporate governance practices, among many other complex rules that are often difficult to implement, monitor and maintain compliance with. Our management and other personnel will need to devote a substantial amount of time to ensure that we comply with all of these requirements and to keep pace with new regulations; otherwise, we may fall out of compliance and risk becoming subject to litigation among other potential problems.

Failure to maintain effective internal control over our financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act could cause our financial reports to be inaccurate.

We are required pursuant to Section 404 of the Sarbanes-Oxley Act (“Section 404”) to maintain internal control over financial reporting and to assess and report on the effectiveness of those controls. This assessment includes disclosure of any material weaknesses identified by our management in our internal control over financial reporting. Although we prepare our financial statements in accordance with accounting principles generally accepted in the United States, our internal accounting controls may not meet all standards applicable to companies with publicly traded securities. If we fail to implement any required improvements to our disclosure controls and procedures, we may be obligated to report control deficiencies, and our independent registered public accounting firm may not be able to certify the effectiveness of our internal controls over financial reporting. In either case, we could become subject to regulatory sanction or investigation. Further, these outcomes could damage investor confidence in the accuracy and reliability of our financial statements.

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a-15(f) of the Exchange Act. Our internal control system is designed to provide reasonable assurance regarding the preparation and fair presentation of financial statements for external purposes in accordance with GAAP. All internal control systems, no matter how well designed, have inherent limitations and can provide only reasonable assurance that the objectives of the internal control system are met.

Under the supervision and with the participation of our management, we conducted an evaluation of the effectiveness of our internal control over financial reporting, based on criteria established by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”) in its 2013 Internal Control-Integrated Framework. Based on our evaluation, we concluded that our internal control over financial reporting was effective as of December 31, 2024. If we are not able to maintain effective internal control over financial reporting, our financial statements, including related disclosures, may be inaccurate, which could have a material adverse effect on our business.

The Nasdaq Capital Market may subsequently delist our Common Stock if we fail to comply with ongoing listing standards.

On February 7, 2025, we received written notice from the Listing Qualifications Department of The Nasdaq Stock Market LLC (“Nasdaq”) notifying us that for the preceding 30 consecutive business days (December 23, 2024, through February 6, 2025), our Common Stock did not maintain a minimum closing bid price of \$1.00 (“Minimum Bid Price Requirement”) per share as required by Nasdaq Listing Rule 5550(a)(2). Therefore, in accordance with Nasdaq Listing Rule 5810(c)(3)(A), we were provided 180 calendar days, or until August 6, 2025, to regain compliance with the rule.

On May 27, 2025 we received written notice from the Staff stating that we were not in compliance with Nasdaq Listing Rule 5550(b)(1) (the “Continued Listing Equity Requirement”) because our stockholders’ equity of \$1,439,404 as of March 31, 2025, as reported in the Company’s Quarterly Report on Form 10-Q filed with the SEC on May 15, 2025, was below the minimum requirement of \$2,500,000. Pursuant to Nasdaq’s Listing Rules, we had 45 calendar days to submit a plan to regain compliance (a “Compliance Plan”) with the Continued Listing Equity Requirement. On July 14, 2025, the Company submitted its plan to regain compliance with the Continued Listing Equity Requirement.

On August 7, 2025, we received written notice from the Listing Qualifications Staff of Nasdaq that we had not regained compliance with the Minimum Bid Price Requirement by August 6, 2025 and were not eligible for a second 180-day compliance period as we did not comply with the minimum stockholders’ equity requirement for initial listing on the Nasdaq Capital Market. As a result, unless we request an appeal to a hearings panel (the “Panel”) by August 14, 2025, our securities will be scheduled for delisting from The Nasdaq Capital Market and will be suspended at the opening of business on August 18, 2025.

We submitted an appeal to Nasdaq on August 14, 2025, which will stay the delisting and suspension of the Company’s securities pending the decision of the Panel. On August 14, 2025, we received written notice from Nasdaq that our hearing has been scheduled for September 11, 2025. At the hearing, the Company presented its views and its plans to regain compliance with the Minimum Bid Price Requirement and the Continued Listing Equity Requirement to the Panel. On September 18, 2025, Nasdaq granted us an extension until October 2, 2025 to demonstrate compliance with the Minimum Bid Price Requirement and Continued Listing Equity Requirement. There can be no assurance that the Company will be able to evidence compliance with the Minimum Bid Price Rule, the Continued Listing Equity Requirement or any other applicable requirements for continued listing on The Nasdaq Capital Market prior to the hearing.

On September 17, 2025, we filed with the Secretary of State of the State of Delaware a certificate of amendment to our certificate of incorporation to effect a one-for-thirty (1-for-30) reverse split of our issued and outstanding shares of Common Stock. The Reverse Stock Split became effective as of 4:01 p.m. Eastern Time on September 18, 2025, and our Common Stock began trading on a split-adjusted basis when Nasdaq opened on September 19, 2025. All share and per share information in this prospectus (other than in the historical financial statements incorporated herein by reference) has been adjusted to reflect the reverse stock split.

If we are delisted from Nasdaq, but obtain a substitute listing for our Common Stock, it will likely be on a market with less liquidity, and therefore experience potentially more price volatility than experienced on Nasdaq. Stockholders may not be able to sell their shares of Common Stock on any such substitute market in the quantities, at the times, or at the prices that could potentially be available on a more liquid trading market. As a result of these factors, if our Common Stock is delisted from Nasdaq, the value and liquidity of our Common Stock, warrants and pre-funded warrants would likely be significantly adversely affected. A delisting of our Common Stock from Nasdaq could also adversely affect our ability to obtain financing for our operations and/or result in a loss of confidence by investors, employees and/or business partners.

USE OF PROCEEDS

We estimate that the net proceeds from sale of shares of Common Stock (or Pre-Funded Warrants in lieu thereof) offered by us in this offering will be approximately \$4.1 million, after deducting the Placement Agent fees and estimated offering expenses payable by us.

We intend to use the net proceeds of this offering for working capital and other general corporate purposes.

This expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions. Pending our application of the net proceeds from this offering, we intend to invest the net proceeds in a variety of capital preservation investments, including short-term, investment grade, interest bearing instruments and U.S. government securities.

CAPITALIZATION

The following table sets forth our capitalization:

- on an actual basis as of June 30, 2025;
- on a pro forma basis to give effect to: (i) an aggregate of 21,666 shares of Common Stock that we issued on October 21, 2024 upon the exercise of warrants, at the reduced exercise price of \$6.90 per share, and our receipt of approximately \$149,500 in proceeds upon such exercise, (ii) an aggregate of 15,000 shares of Common Stock that we issued on August 5, 2024, upon the exercise of warrants, at the reduced exercise price of \$6.90 per share, and our receipt of approximately \$103,500 in proceeds upon such exercise, (iii) an aggregate of 114,672 shares of Common Stock were sold under the Company's ATM Agreement, and our receipt of approximately \$1.2 million in proceeds upon the sale, (iv) an aggregate of 990 shares of Series B Convertible Preferred Stock were issued on August 13, 2025, and our receipt of approximately \$990,000 in proceeds upon issuance, (v) an aggregate of 673,661 shares of Common Stock that we issued in May 7, 2025 upon the exercise of warrants at a price of \$4.50, and our receipt of approximately \$3.0 million, (vi) an aggregate of 39,782 shares of Common Stock that we issued on August 13, 2025, upon the conversion of 274.5 shares of Series B Convertible Preferred Stock, (vii) an aggregate of 105,260 shares of Common Stock that we issued in May 7, 2025, upon the exercise of warrants through a cashless transaction;
- on a pro forma, as adjusted basis to give effect to the pro forma adjustments and issuance and sale by us of 1,047,694 shares of Common Stock and 874,067 Pre-Funded Warrants at public offering prices of \$2.50 per share and \$2.493 per Pre-Funded Warrant (assuming full exercise of the Pre-Funded Warrants) and the receipt of \$4.1 million in aggregate net proceeds after deducting the Placement Agent fees and estimated offering costs payable by us.

	As of June 30, 2025		
	Actual	Pro Forma	Pro Forma, As Adjusted (1)
Cash and cash equivalents	\$ 802,835	7,833,529	\$ 11,953,069
Stockholders' equity:			
Preferred stock, par value \$0.001 per share; 20,000,000 shares authorized; no shares issued and outstanding at June 30, 2025, 750 shares issued and outstanding pro forma, and 750 shares issued and outstanding pro forma, as adjusted	—	1	1
Common Stock, par value \$0.007 per share; 100,000,000 shares authorized; 948,651 issued and outstanding at June 30, 2025, 1,854,785 shares issued and outstanding pro forma, and 3,776,546 shares issued and outstanding pro forma, as adjusted	6,641	12,983	26,435
Additional paid-in capital	58,222,765	63,449,334	67,555,422
Accumulated deficit	(60,365,514)	(60,365,514)	(60,365,514)
Total stockholders' equity (deficit)	\$ (2,136,108)	3,096,804	\$ 7,216,344
Total capitalization	\$ (2,136,108)	3,096,804	\$ 7,216,344

(1) The number of shares of Common Stock to be outstanding immediately after this offering is based on 948,651 shares of Common Stock outstanding as of June 30, 2025, and excludes, as of such date:

- 939,680 shares of Common Stock issuable upon the exercise of outstanding warrants with a weighted average exercise price equal to \$41.60 per share;
- 9,530 shares of Common Stock issuable upon the exercise of stock options issued under our equity incentive plans with a weighted average exercise price equal to \$207.30 per share; and
- 41,908 shares of our Common Stock that are reserved for equity awards that may be granted under our 2024 Equity Incentive Plan.

DILUTION

If you purchase securities in the offering, you will experience immediate dilution to the extent of the difference between the effective public offering price per share of \$2.50 per share of Common Stock (and Common Stock underlying the Pre-Funded Warrants) and our as-adjusted net tangible book value per share immediately after the offering. Net tangible book value per share is equal to the amount of our total tangible assets, less total liabilities, divided by the number of outstanding shares of our Common Stock. As of June 30, 2025, our net tangible book value was approximately \$(4.3) million, or approximately \$(4.52) per share.

Our pro forma net tangible book value as of June 30, 2025, was approximately \$(1.8) million or \$(1.30) per share of Common Stock, based upon 1,375,102 shares of Common Stock outstanding as of September 18, 2025. Pro forma net tangible book value represents net tangible book value adjusted to take into account the issuance, subsequent to June 30, 2025, of: (i) an aggregate of 21,666 shares of Common Stock that we issued on October 21, 2024, upon the exercise of warrants, at the reduced exercise price of \$6.90 per share, and our receipt of approximately \$149,500 in proceeds upon such exercise and (ii) an aggregate of 15,000 shares of Common Stock that we issued on August 5, 2024, upon the exercise of warrants, at the reduced exercise price of \$6.90 per share, and our receipt of approximately \$103,500 in proceeds upon such exercise, (iii) an aggregate of 114,672 shares of Common Stock were sold under the Company's ATM Agreement, and our receipt of approximately \$1.3 million in proceeds upon the sale, and (iv) an aggregate of 990 shares of Series B Convertible Preferred Stock were issued on August 13, 2025, and our receipt of approximately \$990,000 in proceeds upon issuance and (v) an aggregate of 673,661 shares of Common Stock that we issued upon the exercise of warrants, at the reduced exercise price of \$4.50 per share, and our receipt of approximately \$3.0 million in proceeds upon such exercise, (vi) an aggregate of 39,782 shares of Common Stock that we issued on August 13, 2025, upon the conversion of 274.5 shares of Series B Convertible Preferred Stock, (vii) an aggregate of 105,260 shares of Common Stock that we issued in May 7, 2025, upon the exercise of warrants through a cashless transaction.

Dilution represents the difference between the amount per share paid by purchasers in this offering and the pro forma as adjusted net tangible book value per share of Common Stock after the offering. After giving effect to the issuance and sale of 1,921,761 shares of Common Stock (or Pre-Funded Warrants in lieu thereof) in this offering at the public offering price of \$2.50 per share, and after deducting estimated underwriting discounts and commissions and estimated offering expenses, our pro forma as adjusted net tangible book value as of June 30, 2025, would have been \$1.19 per share. This represents an immediate increase in net tangible book value of \$0.99 per share to existing stockholders and an immediate dilution in net tangible book value of \$1.31 per share to purchasers of Common Stock in this offering, based on the public offering price of \$2.50 per share. The following table illustrates this per share dilution:

Public offering price per share of Common Stock	\$	2.50
Historical net tangible book value per share as of June 30, 2025	\$	(4.52)
Pro forma net tangible book value per share	\$	0.20
Increase in pro forma net tangible book value per share attributable to this offering	\$	0.99
Pro forma as adjusted net tangible book value per share after giving effective to this offering	\$	1.19
Dilution per share to the new investor in this offering	\$	1.31

The number of shares of Common Stock to be outstanding immediately after this offering is based on 948,651 shares of Common Stock outstanding as of June 30, 2025, and excludes, as of such date:

- 939,680 shares of Common Stock issuable upon the exercise of outstanding warrants with a weighted average exercise price equal to \$41.60 per share;
- 9,530 shares of Common Stock issuable upon the exercise of stock options issued under our equity incentive plans with a weighted average exercise price equal to \$207.30 per share; and
- 41,908 shares of our Common Stock that are reserved for equity awards that may be granted under our 2024 Equity Incentive Plan.

DESCRIPTION OF SECURITIES

Authorized Capital Stock

We are currently authorized to issue up to 350,000,000 shares of Common Stock, par value \$0.007 per share, and 20,000,000 shares of Preferred Stock, par value \$0.001 per share. As permitted by the Company's Charter, the Company has designated (i) 5,400,000 shares of Preferred Stock as "Series A Convertible Preferred Stock," par value \$0.001 per share (the "Series A Preferred Stock"), of which no shares are outstanding, and (ii) 990 shares of Preferred Stock as "Series B Convertible Preferred Stock," par value \$0.001 per share (the "Series B Preferred Stock"), of which 715.5 shares are outstanding.

Common Stock

Voting Rights

Holders of our Common Stock are entitled to cast one vote for each share held of record on all matters presented to the stockholders. Holders of our Common Stock have no cumulative voting rights.

Dividend Rights

The Board is not obligated to declare a dividend, has never declared or paid cash dividends on its Common Stock, and does not anticipate paying dividends on our Common Stock for the foreseeable future.

Rights upon Liquidation

In the event of our liquidation, dissolution, or winding up, either voluntary or involuntary, subject to the rights and preferences that may apply to any shares of Preferred Stock outstanding at the time, the assets or surplus funds legally available for distribution to our stockholders would be distributable ratably among the Common Stockholders based on the number of shares of Common Stock held by each such holder, subject to prior satisfaction of all outstanding debt and liabilities.

No Preemptive or Similar Rights

Holders of our Common Stock are not entitled to preemptive rights to subscribe to additional shares if issued. Our Common Stock is not subject to any redemption or sinking-fund provisions. All outstanding shares of our Common Stock are fully paid and non-assessable.

Series A Preferred Stock

Voting Rights

Holders of the shares of Series A Preferred Stock have the right to one vote for each share of Common Stock into which such Series A Preferred Stock could then be converted. In addition, for so long as 30% of the shares of Series A Preferred Stock remain outstanding, the Series A Preferred Stockholders, voting together as a single class, may exercise the Series A Director Designation Right, pursuant to which they are entitled to elect one director of the Company as the Series A Representative. Any Series A Representative elected by the holders of Series A Preferred Stock may be removed from office only by the Series A Preferred Stockholders, and any vacancy of a Series A Representative may be filled only by the holders of the Series A Preferred Stock. If at any time fewer than 30% of the shares of Series A Preferred Stock remain outstanding, then the director position previously held by the Series A Representative will be elected by all of the holders of Preferred Stock and Common Stock acting together.

Dividend Rights

Holders of shares of the Series A Preferred Stock are entitled to receive dividends, in preference to any declaration or payment of a dividend to holders of the Common Stock, of 8% per share per annum when, as and if declared by the Board. Such dividends are not cumulative. See “Description of Securities-Dividend Policy” below.

Rights Upon Liquidation

In the event of any liquidation, dissolution or similar event, the holders of shares of Series A Preferred Stock are entitled to receive in preference to any distribution of any of the assets of the Company to the holders of the Common Stock, \$231.00 per share (subsequent to the reverse-stock-split calculation). Unless otherwise decided by holders of a majority of the Preferred Stock outstanding, a liquidation includes a sale of substantially all of the assets of the Company and a merger, unless such merger is solely for the purpose of changing the Company’s state of incorporation or a majority of the voting power of the surviving entity will be owned by persons who were stockholders of the Company prior to the merger. Holders of shares of Preferred Stock will not participate with the holders of Common Stock in the distribution of the remainder of the Company’s assets.

Conversion Rights

Shares of Series A Preferred Stock are convertible, at the option of the holder thereof, into shares of Common Stock at any time. Shares of Series A Preferred Stock are automatically converted into shares of Common Stock following the closing of an underwritten initial public offering of our Common Stock in which at least \$10,000,000 in shares of Common Stock are sold at a price of \$90.00 per share or more or such other date as agreed to by a holders of the majority of the outstanding shares of Series A Preferred Stock. The holders of a more than a majority of our outstanding shares of Series A Preferred Stock executed a written consent such that all of the issued and outstanding shares of Series A Preferred Stock automatically converted into fully paid and nonassessable shares of Common Stock immediately prior to the closing of the initial public offering at the then-effective conversion rate of the Series A Preferred Stock. The conversion rate of Series A Preferred Stock into Common Stock is initially 1 for 7 (as adjusted for the 1-for-7 reverse stock split) but is subject to further adjustment in the event of a stock split, stock dividend or similar event.

Following the automatic conversion of the Series A Preferred Stock shares into Common Stock immediately prior to the closing of our initial public offering, the Company does not intend to issue any further shares of Series A Preferred Stock. Furthermore, the Series A Director Designation Right ceased to exist because no shares of Series A Preferred Stock are outstanding. The director who served as the Series A Representative, Gary Rubin, continues to serve as a director until his earlier resignation or removal or until his successor is duly elected and qualified. The number of Board seats for election by the holders of the Common Stock was expanded by one so that the director position that the holders of the Series A Preferred Stock were previously entitled to elect will be subject to election the holders of the Common Stock following the conversion of the Series A Preferred Stock into Common Stock.

Series B Preferred Stock

Voting Rights

Except as otherwise required by law, holders of Series B Preferred Stock shall not be entitled to any voting rights.

Dividends Rights

The holders of Series B Preferred Stock shall be entitled to receive dividends on shares of Series B Preferred Stock equal (on an as-if-converted-to-Common-Stock basis) to and in the same form as dividends actually paid on shares of the Common Stock when, as and if such dividends are paid on shares of the Common Stock.

Conversion

The Series B Preferred Stock will be convertible into shares of Common Stock at an initial conversion price of \$6.90 per share (the “Conversion Price”). Each share of Series B Preferred Stock shall be convertible into such number of shares of Common Stock that results from dividing the Stated Value by the Conversion Price.

Limitations on Conversion

Holders of Series B Preferred Stock are prohibited from converting shares of Series B Preferred Stock into shares of Common Stock if, as a result of such conversion, such holder, together with its affiliates, would beneficially own in excess of 4.99% of the total number of shares of Common Stock issued and outstanding immediately after giving effect to such conversion.

Compliance with Rules of Principal Market

The Company will be prohibited from issuing any shares of Common Stock upon conversion of the Series B Preferred Stock if after giving effect to such issuance, the aggregate number of Conversion Shares issued under this Agreement would exceed 19.99% of the aggregate number of shares of Common Stock issued and outstanding as of the execution date of the Purchase Agreement until such time as the Company obtains stockholder approval of such issuances (the “Preferred Stockholder Approval”).

Adjustment Upon Issuance of Common Stock

If and whenever on or after the date on which the Company obtains the Preferred Stockholder Approval, the Company is deemed to have issued or sold any shares of Common Stock for a consideration per share less than the Conversion Price, the Conversion Price will be reduced to such new issuance price subject to a floor price of \$3.00.

Warrants

As of September 29, 2025, we have outstanding warrants to purchase an aggregate of 1,355,277 shares of Common Stock, with a weighted average exercise price equal to \$29.09 per share, which includes Tradeable Warrants and Non-Tradeable Warrants that we issued in connection with our initial public offering to purchase an aggregate of 143,523 shares of Common Stock, all of which have an exercise price of \$91.875 per share.

Stock Options

As of September 29, 2025, we had outstanding options to purchase an aggregate of 9,054 shares of Common Stock, with a weighted average exercise price equal to \$211.57 per share.

Exchange Listing

Our Common Stock and the Tradeable Warrants trade on The Nasdaq Capital Market under the symbols “BIAF” and “BIAFW,” respectively.

Dividend Policy

We have never declared or paid cash dividends on our capital stock. We currently intend to retain all available funds and any future earnings for use in the operation and expansion of our business. We do not anticipate paying any cash dividends in the foreseeable future, and it is unlikely that investors will derive any current income from ownership of our stock.

Anti-Takeover Effects of Delaware Law and Provisions of Our Charter and A&R Bylaws

Certain provisions of the Delaware General Corporation Law (“DGCL”) and of our Charter and our A&R Bylaws could have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions, which are summarized below, are expected to discourage certain types of coercive takeover practices and inadequate takeover bids and, as a consequence, they might also inhibit temporary fluctuations in the market price of our Common Stock that often result from actual or rumored hostile takeover attempts. These provisions are also designed in part to encourage anyone seeking to acquire control of us to first negotiate with our Board. These provisions might also have the effect of preventing changes in our Board or management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders might otherwise deem to be in their best interests. However, we believe that the advantages gained by protecting our ability to negotiate with any unsolicited and potentially unfriendly acquirer outweigh the disadvantages of discouraging such proposals, including those priced above the then-current market value of our Common Stock, because, among other reasons, the negotiation of such proposals could improve their terms.

Delaware Anti-Takeover Statute

We are subject to the provisions of Section 203 of the DGCL. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions:

- before the stockholder became interested, the corporation’s 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 voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances, but not the outstanding voting stock owned by the interested stockholder; or
- at or after the time the stockholder became interested, the business combination was approved by the corporation’s Board of Directors and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines a “business combination” to include mergers, asset sales and other transactions resulting in financial benefit to a stockholder, and an “interested stockholder” as a person who, together with affiliates and associates, owns, or within three years did own, 15% or more of the corporation’s outstanding voting stock. These provisions may have the effect of delaying, deferring or preventing changes in control of our Company.

Provisions of Our Charter and A&R Bylaws

Our Charter and A&R Bylaws include a number of provisions that may have the effect of delaying, deferring, or discouraging another party from acquiring control of us and encouraging persons considering unsolicited tender offers or other unilateral takeover proposals to negotiate with our Board rather than pursue non-negotiated takeover attempts. These provisions will include the items described below.

Director Vacancies

Our A&R Bylaws authorize the Board to fill vacant directorships and provide that the number of directors constituting our Board may be set by resolution of the incumbent directors.

Special Meetings of Stockholders

Our A&R Bylaws provide that special meetings of our stockholders may only be called pursuant to a resolution approved by the Board. The only business that may be conducted at a special meeting of our stockholders is the matter or matters set forth in the notice of such special meeting.

Prohibition of Stockholder Action by Written Consent

Our Charter and A&R Bylaws prohibit stockholder action by written consent, thereby requiring all stockholder actions to be taken at a meeting of our stockholders.

Advance Notice Requirements

Our A&R Bylaws establish advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted upon at stockholder meetings. To be timely, a stockholder's notice will need to be received by the Company secretary at our principal executive offices (i) not later than the close of business on the 90th day nor earlier than the close of business on the 120th day prior to the anniversary date of the immediately preceding annual meeting of stockholders (if such meeting is to be held on a day which is not more than 30 days in advance of the anniversary of the previous year's annual meeting or not later than 60 days after the anniversary of the previous year's annual meeting), or (ii) with respect to any other annual meeting of stockholders, including in the event that no annual meeting was held in the previous year, not earlier than the close of business on the 120th day prior to the annual meeting and not later than the close of business on the later of: (1) the 90th day prior to the annual meeting and (2) the close of business on the tenth day following the first date that the date of such meeting was disclosed in a press release reported by the Dow Jones News Services, The Associated Press, or a comparable national news service or in a document filed by the Company with the SEC pursuant to the Exchange Act. Our A&R Bylaws also specify certain requirements as to the form and content of a stockholders' meeting. These provisions may preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our annual meeting of stockholders.

Amendment to Charter and A&R Bylaws

As required by the DGCL, any amendment of our Charter must first be approved by a majority of our Board, and if required by law or our Charter, must thereafter be approved by a majority of the outstanding shares entitled to vote on the amendment, and a majority of the outstanding shares of each class entitled to vote thereon as a class. Our A&R Bylaws provide for amendment of the A&R Bylaws by a majority of our Board or by a majority of the outstanding shares entitled to vote on the amendment.

Exclusive Forum

Both our Charter and our A&R Bylaws contain exclusive forum provisions that provide that unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for any stockholder to bring (i) any derivative action or proceeding brought on behalf of the Company, (ii) any action asserting a claim of breach of fiduciary duty owed by any current or former director, officer, employee or agent of the Company to the Company or the Company's stockholders, (iii) any action asserting a claim arising pursuant to the DGCL, our Charter or A&R Bylaws (as either may be amended or restated) or as to which the DGCL confers jurisdiction on the Court of Chancery of the State of Delaware, or (iv) any action asserting a claim governed by the internal affairs doctrine of the State of Delaware. These provisions expressly do not apply to claims arising under the Exchange Act, or for any other federal securities laws which provide for exclusive federal jurisdiction. However, these exclusive forum provisions provide that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States of America will be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. Therefore, this provision could apply to a suit that falls within one or more of the categories enumerated in the exclusive forum provision and that asserts claims under the Securities Act, inasmuch as Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. There is uncertainty as to whether a court would enforce such an exclusive forum provision with respect to claims under the Securities Act. Stockholders cannot waive compliance with the federal securities laws and the rules and regulations thereunder. Any person or entity purchasing or otherwise acquiring or holding any interest in shares of our capital stock shall be deemed to have notice of and consented to the exclusive forum provisions in our Charter and A&R Bylaws. These exclusive forum provisions may limit a stockholder's ability to bring a claim in a judicial forum of its choosing for disputes with us or our directors, officers, employees, or agents, which may discourage lawsuits against us and our directors, officers, employees, and agents.

Limitations on Liability and Indemnification of Officers and Directors

Our Charter and our A&R Bylaws provide indemnification for our directors and officers to the fullest extent permitted by the DGCL. In addition, as permitted by Delaware law, our Charter includes provisions that eliminate the personal liability of our directors for monetary damages resulting from breaches of certain fiduciary duties as a director. The effect of these provisions is to restrict our rights and the rights of our stockholders in derivative suits to recover monetary damages against a director or officer for breach of fiduciary duties as a director or officer, subject to certain exceptions in which case the director or officer would be personally liable. An officer may not be exculpated for any action brought by or in the right of the corporation. A director may not be exculpated for improper distributions to stockholders. Further, pursuant to Delaware law a director or officer may not be exculpated for:

- any breach of his or her duty of loyalty to us or our stockholders;
- acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law; and
- any transaction from which the director or officer derived an improper personal benefit.

These limitations of liability do not apply to liabilities arising under the federal or state securities laws and do not affect the availability of equitable remedies such as injunctive relief or rescission.

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

At present, there is no pending litigation or proceeding involving any of our directors or officers as to which indemnification is required or permitted, and we are not aware of any threatened litigation or proceeding that may result in a claim for indemnification.

MATERIAL UNITED STATES FEDERAL INCOME TAX CONSIDERATIONS

The following is a summary of the material U.S. federal income tax considerations applicable to a U.S. Holder (as defined below) arising from and relating to the acquisition, ownership and disposition of Common Stock or pre-funded warrants acquired pursuant to this offering, the exercise, disposition, and lapse of, and the acquisition, ownership, and disposition of Common Stock received upon exercise of the Pre-Funded Warrants (the “warrant shares”).

This summary is for general information purposes only and does not purport to be a complete analysis or listing of all potential U.S. federal income tax considerations that may apply to a U.S. Holder as a result of the acquisition of Common Stock or Pre-Funded Warrants pursuant to this offering. In addition, this summary does not take into account the individual facts and circumstances of any particular U.S. Holder that may affect the U.S. federal income tax consequences to such U.S. Holder, including specific tax consequences to a U.S. Holder under an applicable tax treaty. Accordingly, this summary is not intended to be, and should not be construed as, legal or U.S. federal income tax advice with respect to any particular U.S. Holder. This summary does not address the U.S. federal net investment income, U.S. federal alternative minimum, U.S. federal estate and gift, U.S. state and local, and non-U.S. tax consequences to U.S. Holders of the acquisition, ownership, and disposition of Common Stock, Pre-Funded Warrants and Warrant Shares. This summary also does not discuss the potential effects, whether adverse or beneficial, of any proposed legislation that, if enacted, could be applied on a retroactive or prospective basis. In addition, except as specifically set forth below, this summary does not discuss applicable tax reporting requirements. Each U.S. Holder should consult its own tax advisor regarding the U.S. federal, U.S. federal net investment income, U.S. federal alternative minimum, U.S. federal estate and gift, U.S. state and local, and non-U.S. tax consequences relating to the acquisition, ownership and disposition of Common Stock, Pre-Funded Warrants and Warrant Shares.

No ruling from the Internal Revenue Service (the “IRS”) has been requested, or will be obtained, regarding the U.S. federal income tax considerations applicable to U.S. Holders as discussed in this summary. This summary is not binding on the IRS, and the IRS is not precluded from taking a position that is different from, and contrary to, the positions taken in this summary. In addition, because the authorities on which this summary is based are subject to various interpretations, the IRS and the U.S. courts could disagree with one or more of the positions taken in this summary.

Scope of this Summary

Authorities

This summary is based on the Code, Treasury Regulations (whether final, temporary, or proposed) promulgated under the Code, published rulings of the IRS, published administrative positions of the IRS and U.S. court decisions, that are in effect and available, as of the date of this document. Any of the authorities on which this summary is based could be changed in a material and adverse manner at any time, and any such change could be applied retroactively. This summary does not discuss the potential effects, whether adverse or beneficial, of any proposed legislation that, if enacted, could be applied on a retroactive or prospective basis.

U.S. Holder

For purposes of this summary, the term “U.S. Holder” means a beneficial owner of Common Stock, Pre-Funded Warrants, or Warrant Shares acquired pursuant to this offering that is for U.S. federal income tax purposes:

- a citizen or individual resident of the Common United States;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) organized under the laws of the Common United States, any state thereof or the District of Columbia;
- an estate whose income is subject to U.S. federal income taxation regardless of its source; or
- a trust that (1) is subject to the primary supervision of a court within the Common United States and the control of one or more U.S. persons for all substantial decisions or (2) has a valid election in effect under applicable Treasury Regulations to be treated as a U.S. person.

Transactions Not Addressed

This summary does not address the tax consequences of transactions effected prior or subsequent to, or concurrently with, any purchase of Common Stock or Pre-Funded Warrants pursuant to this Prospectus (whether or not any such transactions are undertaken in connection with the purchase Common Stock or Pre-Funded Warrants pursuant to this Prospectus).

U.S. Holders Subject to Special U.S. Federal Income Tax Rules Not Addressed

This summary does not address the U.S. federal income tax considerations applicable to U.S. Holders that are subject to special provisions under the Code, including U.S. Holders that: (a) are tax-exempt organizations, qualified retirement plans, individual retirement accounts, or other tax-deferred accounts; (b) are financial institutions, underwriters, insurance companies, real estate investment trusts, or regulated investment companies; (c) are brokers or dealers in securities or currencies or U.S. Holders that are traders in securities that elect to apply a mark-to-market accounting method; (d) have a “functional currency” other than the U.S. dollar; (e) own Common Stock, Pre-Funded Warrants, or Warrant Shares as part of a straddle, hedging transaction, conversion transaction, constructive sale, or other integrated transaction; (f) acquired Common Units, Pre-Funded Units, Common Stock, Pre-Funded Warrants, Warrants or Warrant Shares in connection with the exercise of employee stock options or otherwise as compensation for services; (g) hold Common Stock, Pre-Funded Warrants or Warrant Shares other than as a capital asset within the meaning of Section 1221 of the Code (generally, property held for investment purposes); (h) are partnerships and other pass-through entities (and investors in such partnerships and entities); (i) are S corporations (and shareholders thereof); (j) are subject to special tax accounting rules; (k) own, have owned or will own (directly, indirectly, or by attribution) 10% or more of the total combined voting power or value of our outstanding shares; (l) are U.S. expatriates or former long-term residents of the U.S.; (m) are subject to taxing jurisdictions other than, or in addition to, the Common United States; or (n) are subject to the alternative minimum tax. U.S. Holders that are subject to special provisions under the Code, including U.S. Holders described immediately above, should consult their own tax advisors regarding the U.S. federal, U.S. federal net investment income, U.S. federal alternative minimum, U.S. federal estate and gift, U.S. state and local, and non-U.S. tax consequences relating to the acquisition, ownership and disposition of Common Stock, Pre-Funded Warrants or Warrant Shares.

If an entity or arrangement that is classified as a partnership for U.S. federal income tax purposes holds Common Stock, Pre-Funded Warrants, or Warrant Shares, the U.S. federal income tax consequences to such entity or arrangement and the owners of such entity or arrangement generally will depend on the activities of such entity or arrangement and the status of such owners. This summary does not address the tax consequences to any such entity or arrangement or owner. Owners of entities or arrangements that are classified as partnerships for U.S. federal income tax purposes should consult their own tax advisor regarding the U.S. federal income tax consequences arising from and relating to the acquisition, ownership, and disposition of Common Stock, Pre-Funded Warrants, or Warrant Shares.

U.S. Federal Income Tax Consequences of the Acquisition of Common Stock or Pre-Funded Warrants

For U.S. federal income tax purposes, the acquisition by a U.S. Holder hereunder will be treated as the acquisition of one share of Common Stock. The purchase price for each share of Common Stock will establish a U.S. Holder's initial tax basis for U.S. federal income tax purposes in the share of Common Stock purchased pursuant to this prospectus.

For this purpose, we will allocate \$2.50 of the purchase price for the share of Common Stock

For U.S. federal income tax purposes, the acquisition by a U.S. Holder of a Pre-Funded Warrant will be treated as the acquisition of one Pre-Funded Warrant. The purchase price for each Pre-Funded Warrant will establish a U.S. Holder's initial tax basis for U.S. federal income tax purposes in the Pre-Funded Warrant.

For this purpose, we will allocate \$2.493 of the purchase price for the Pre-Funded Warrant. However, the IRS will not be bound by such allocation of the purchase price for the Pre-Funded Warrant, and therefore, the IRS or a U.S. court may not respect the allocation set forth above. Each U.S. Holder should consult its own tax advisor regarding the allocation of the purchase price for the Pre-Funded Warrants.

Treatment of Pre-Funded Warrants

Although it is not entirely free from doubt, we believe that a Pre-Funded Warrant should be treated as a separate class of our Common Shares for U.S. federal income tax purposes and a U.S. Holder of Pre-Funded Warrants should generally be taxed in the same manner as a holder of Common Stock except as described below. Accordingly, no gain or loss should be recognized upon the exercise of a Pre-Funded Warrant and, upon exercise, the holding period of a Pre-Funded Warrant should carry over to the Common Stock received. Similarly, the tax basis of the Pre-Funded Warrant should carry over to the Common Stock received upon exercise, increased by the exercise price of \$0.007 per share. However, such characterization is not binding on the IRS, and the IRS may treat the Pre-Funded Warrants as warrants to acquire Common Shares. If so, the amount and character of a U.S. Holder's gain with respect to an investment in Pre-Funded Warrants could change, and a U.S. Holder may not be entitled to make the "QEF Election" or "Mark-to-Market Election" described below with respect to the Pre-Funded Warrants to mitigate PFIC consequences in the event that the Company is classified as a PFIC. Accordingly, each U.S. Holder should consult its own tax advisor regarding the risks associated with the acquisition of a Pre-Funded Warrant pursuant to this offering (including potential alternative characterizations). The balance of this discussion generally assumes that the characterization described above is respected for U.S. federal income tax purposes.

Passive Foreign Investment Company Rules

If the Company were to constitute a "passive foreign investment company" within the meaning of Section 1297 of the Code (a "PFIC") for any year during a U.S. Holder's holding period, then certain potentially adverse rules would affect the U.S. federal income tax consequences to a U.S. Holder resulting from the acquisition, ownership and disposition of Common Stock, Pre-Funded Warrants, and Warrant Shares. Based on current business plans and financial expectations, the Company expects that it should not be a PFIC for its current tax year and expects that it should not be a PFIC for the foreseeable future. No opinion of legal counsel or ruling from the IRS concerning the status of the Company as a PFIC has been obtained or is currently planned to be requested. PFIC classification is fundamentally factual in nature, generally cannot be determined until the close of the tax year in question, and is determined annually. Additionally, the analysis depends, in part, on the application of complex U.S. federal income tax rules, which are subject to differing interpretations. Consequently, there can be no assurance that the Company has never been, is not, and will not become a PFIC for any tax year during which U.S. Holders hold Common Stock, Pre-Funded Warrants, and Warrant Shares.

In addition, U.S. Holders of PFICs are required to file an annual report with the IRS containing such information as Treasury Regulations and/or other IRS guidance may require, which filing obligation would generally commence in the first tax year in which the Company is classified as a PFIC and in which such U.S. Holder holds Common Stock, Pre-Funded Warrants, and Warrant Shares. In addition to penalties, a failure to satisfy such reporting requirements may result in an extension of the time period during which the IRS can assess a tax. U.S. Holders should consult their own tax advisors regarding the requirements of filing such information returns under these rules, including the requirement to file an IRS Form 8621 annually.

In general, the Company will be a PFIC if, for a tax year, (i) 75% or more of the gross income of the Company for such tax year is passive income (the “income test”) or (ii) 50% or more of the value of the Company’s assets either produce passive income or are held for the production of passive income (the “asset test”), based on the quarterly average of the fair market value of such assets. “Gross income” generally includes all sales revenues less the cost of goods sold, plus income from investments and from incidental or outside operations or sources, and “passive income” generally includes, for example, dividends, interest, certain rents and royalties, certain gains from the sale of stock and securities, and certain gains from commodities transactions. In addition, for purposes of the PFIC income test and asset test described above, if the Company owns, directly or indirectly, 25% or more of the total value of the outstanding shares of another corporation, the Company will be treated as if it (a) held a proportionate share of the assets of such other corporation and (b) received directly a proportionate share of the income of such other corporation.

Under certain attribution rules, if the Company is a PFIC, U.S. Holders will be deemed to own their proportionate share of any subsidiary of the Company which is also a PFIC (a “Subsidiary PFIC”), and will be subject to U.S. federal income tax on (i) a distribution on the shares of a Subsidiary PFIC or (ii) a disposition of shares of a Subsidiary PFIC, both as if the holder directly held the shares of such Subsidiary PFIC.

If the Company were a PFIC in any tax year and a U.S. Holder held Common Stock, Pre-Funded Warrants and Warrant Shares, such holder generally would be subject to special rules under Section 1291 of the Code with respect to “excess distributions” made by the Company on the Common Stock, Pre-Funded Warrants, and Warrant Shares and with respect to gain from the disposition of Common Stock, Pre-Funded Warrants, and Warrant Shares. An “excess distribution” generally is defined as the excess of distributions with respect to the Common Shares, Pre-Funded Warrants, or Warrant Shares received by a U.S. Holder in any tax year over 125% of the average annual distributions such U.S. Holder has received from the Company during the shorter of the three preceding tax years, or such U.S. Holder’s holding period for the Common Stock, Pre-Funded Warrants, and Warrant Shares, as applicable. Generally, a U.S. Holder would be required to allocate any excess distribution or gain from the disposition of the Common Stock, Pre-Funded Warrants, and Warrant Shares ratably over its holding period for the Common Stock, Pre-Funded Warrants, and Warrant Shares, as applicable. Such amounts allocated to the year of the disposition or excess distribution would be taxed as ordinary income, and amounts allocated to prior tax years would be taxed as ordinary income at the highest tax rate in effect for each such year and an interest charge at a rate applicable to underpayments of tax would apply.

While there are U.S. federal income tax elections that sometimes can be made to mitigate these adverse tax consequences (including, without limitation, the “QEF Election” under Section 1295 of the Code and the “Mark-to-Market Election” under Section 1296 of the Code), such elections are available in limited circumstances and must be made in a timely manner. Under proposed Treasury Regulations, if a U.S. Holder has an option, warrant, or other right to acquire stock of a PFIC (such as the Warrants), such option, warrant or right is considered to be PFIC stock subject to the default rules of Section 1291 of the Code that apply to “excess distributions” and dispositions described above. However, under the proposed Treasury Regulations, for the purposes of the PFIC rules, the holding period for any Warrant Shares acquired upon the exercise of a Warrant will begin on the date a U.S. Holder acquires the Common Units or Pre-Funded Units (and not the date the Warrants are exercised). This will impact the availability, and consequences, of the QEF Election and Mark-to-Market Election with respect to the warrant shares. Thus, a U.S. Holder will have to account for Warrant Shares, Pre-Funded Warrants and Common Stock under the PFIC rules and the applicable elections differently.

U.S. Holders should be aware that, for each tax year, if any, that the Company is a PFIC, the Company does not intend to provide U.S. Holders the information such U.S. Holders require to make a QEF Election with respect to the Company or any Subsidiary PFIC.

Certain additional adverse rules may apply with respect to a U.S. Holder if the Company is a PFIC, regardless of whether the U.S. Holder makes a QEF Election. These rules include special rules that apply to the amount of foreign tax credit that a U.S. Holder may claim on a distribution from a PFIC. Subject to these special rules, foreign taxes paid with respect to any distribution in respect of stock in a PFIC are generally eligible for the foreign tax credit. U.S. Holders should consult with their own tax advisors regarding the potential application of the PFIC rules to the ownership and disposition of Common Stock, Pre-Funded Warrants, or Warrant Shares and the availability of certain U.S. tax elections under the PFIC rules.

General Rules Applicable to U.S. Federal Income Tax Consequences of the Acquisition, Ownership, and Disposition of Common Stock, Pre-Funded Warrants, and Warrant Shares

The following discussion describes the general rules applicable to the ownership and disposition of the Common Stock, Pre-Funded Warrants and Warrant Shares, but is subject in its entirety to the special rules described above under the heading “*Passive Foreign Investment Company Rules*”.

Distributions on Common Stock, Pre-Funded Warrants and Warrant Shares

A U.S. Holder that receives a distribution, including a constructive distribution, with respect to a share of Common Stock, Pre-Funded Warrant or Warrant Share will be required to include the amount of such distribution in gross income as a dividend (without reduction for any Canadian income tax withheld from such distribution) to the extent of our current and accumulated “earnings and profits,” as computed under U.S. federal income tax principles. A dividend generally will be taxed to a U.S. Holder at ordinary income tax rates if we are a PFIC for the tax year of such distribution or the preceding tax year. To the extent that a distribution exceeds our current and accumulated “earnings and profits,” such distribution will be treated first as a tax-free return of capital to the extent of a U.S. Holder’s tax basis in the Common Stock, Pre-Funded Warrants or Warrant Shares and thereafter as gain from the sale or exchange of such Common Stock, Pre-Funded Warrants or Warrant Shares (see “*Sale or Other Taxable Disposition of Common Stock, Pre-Funded Warrants and/or Warrant Shares*” below). However, we may not maintain the calculations of earnings and profits in accordance with U.S. federal income tax principles, and each U.S. Holder may be required to assume that any distribution by us with respect to the Common Stock, Pre-Funded Warrants or Warrant Shares will constitute ordinary dividend income. Dividends received on Common Stock, Pre-Funded Warrants or Warrant Shares generally will not be eligible for the “dividends received deduction” generally applicable to corporations. Subject to applicable limitations and provided we are eligible for the benefits of the Tax Treaty or the Common Stock is readily tradable on a U.S. securities market, dividends paid by us to non-corporate U.S. Holders, including individuals, generally will be eligible for the preferential tax rates applicable to long-term capital gains for dividends, provided certain holding period and other conditions are satisfied, including that we not be classified as a PFIC in the tax year of distribution or in the preceding tax year. The dividend rules are complex, and each U.S. Holder should consult its own tax advisor regarding the application of such rules.

Sale or Other Taxable Disposition of Common Stock, Pre-Funded Warrants and/or Warrant Shares

Upon the sale or other taxable disposition of Common Stock, Pre-Funded Warrants or Warrant Shares, a U.S. Holder generally will recognize capital gain or loss in an amount equal to the difference between (i) the amount of cash plus the fair market value of any property received and (ii) such U.S. Holder’s tax basis in such Common Stock, Pre-Funded Warrants or Warrant Shares sold or otherwise disposed of. Gain or loss recognized on such sale or other taxable disposition generally will be long-term capital gain or loss if, at the time of the sale or other taxable disposition, the Common Stock, Pre-Funded Warrants or Warrant Shares have been held for more than one year. Preferential tax rates may apply to long-term capital gain of a U.S. Holder that is an individual, estate, or trust. There are no preferential tax rates for long-term capital gain of a U.S. Holder that is a corporation. Deductions for capital losses are subject to significant limitations under the Code.

Additional Tax Considerations

Receipt of Foreign Currency

The amount of any distribution paid to a U.S. Holder in foreign currency or on the sale, exchange or other taxable disposition of Common Stock, Pre-Funded Warrants, or Warrant Shares generally will be equal to the U.S. dollar value of such foreign currency based on the exchange rate applicable on the date of receipt (regardless of whether such foreign currency is converted into U.S. dollars at that time). If the foreign currency received is not converted into U.S. dollars on the date of receipt, a U.S. Holder will have a tax basis in the foreign currency equal to its U.S. dollar value on the date of receipt. Any U.S. Holder who receives payment in foreign currency and engages in a subsequent conversion or other disposition of the foreign currency may have a foreign currency exchange gain or loss that would be treated as ordinary income or loss, and generally will be U.S. source income or loss for foreign tax credit purposes. Different rules apply to U.S. Holders who use the accrual method of tax accounting. Each U.S. Holder should consult its own U.S. tax advisor regarding the U.S. federal income tax consequences of receiving, owning, and disposing of foreign currency.

Foreign Tax Credit

Subject to the PFIC rules discussed above, a U.S. Holder that pays (whether directly or through withholding) Canadian income tax with respect to dividends paid on the Common Stock, Pre-Funded Warrants or Warrant Shares generally will be entitled, at the election of such U.S. Holder, to receive either a deduction or a credit for such Canadian income tax paid. Generally, a credit will reduce a U.S. Holder's U.S. federal income tax liability on a dollar-for-dollar basis, whereas a deduction will reduce a U.S. Holder's income subject to U.S. federal income tax. This election is made on a year-by-year basis and applies to all foreign taxes paid or accrued (whether directly or through withholding) by a U.S. Holder during a year. The foreign tax credit rules are complex and involve the application of rules that depend on a U.S. Holder's particular circumstances. Accordingly, each U.S. Holder should consult its own tax advisor regarding the foreign tax credit rules.

Information Reporting; Backup Withholding Tax

Under U.S. federal income tax laws, certain categories of U.S. Holders must file information returns with respect to their investment in, or involvement in, a foreign corporation. For example, U.S. return disclosure obligations (and related penalties) are imposed on U.S. Holders that hold certain specified foreign financial assets in excess of certain threshold amounts. The definition of specified foreign financial assets includes not only financial accounts maintained in foreign financial institutions, but also, unless held in accounts maintained by a financial institution, any stock or security issued by a non-U.S. person. U.S. Holders may be subject to these reporting requirements unless their Common Shares, Pre-Funded Warrants, and Warrant Shares are held in an account at certain financial institutions. Penalties for failure to file certain of these information returns are substantial. U.S. Holders should consult their own tax advisors regarding the requirements of filing information returns, including the requirement to file IRS Form 8938.

Payments made within the U.S., or by a U.S. payor or U.S. middleman, of dividends on, and proceeds arising from the sale or other taxable disposition of the Common Stock, Pre-Funded Warrants, and Warrant Shares generally may be subject to information reporting and backup withholding tax, currently at the rate of 24%, if a U.S. Holder (a) fails to furnish its correct U.S. taxpayer identification number (generally on Form W-9), (b) furnishes an incorrect U.S. taxpayer identification number, (c) is notified by the IRS that such U.S. Holder has previously failed to properly report items subject to backup withholding tax, or (d) fails to certify, under penalty of perjury, that it has furnished its correct U.S. taxpayer identification number and that the IRS has not notified such U.S. Holder that it is subject to backup withholding tax. However, certain exempt persons, such as U.S. Holders that are corporations, generally are excluded from these information reporting and backup withholding tax rules. Any amounts withheld under the U.S. backup withholding tax rules will be allowed as a credit against a U.S. Holder's U.S. federal income tax liability, if any, or will be refunded, if such U.S. Holder furnishes required information to the IRS in a timely manner.

The discussion of reporting requirements set forth above is not intended to constitute a complete description of all reporting requirements that may apply to a U.S. Holder. A failure to satisfy certain reporting requirements may result in an extension of the time period during which the IRS can assess a tax and, under certain circumstances, such an extension may apply to assessments of amounts unrelated to any unsatisfied reporting requirement. Each U.S. Holder should consult its own tax advisors regarding the information reporting and backup withholding rules.

THE ABOVE SUMMARY IS NOT INTENDED TO CONSTITUTE A COMPLETE ANALYSIS OF ALL TAX CONSIDERATIONS APPLICABLE TO U.S. HOLDERS WITH RESPECT TO THE ACQUISITION, OWNERSHIP, AND DISPOSITION OF COMMON STOCK, PRE-FUNDED WARRANTS, AND WARRANT SHARES. U.S. HOLDERS SHOULD CONSULT THEIR OWN TAX ADVISORS AS TO THE TAX CONSIDERATIONS APPLICABLE TO THEM IN LIGHT OF THEIR OWN PARTICULAR CIRCUMSTANCES.

PLAN OF DISTRIBUTION

We have engaged WallachBeth Capital LLC, or the Placement Agent, to act as our exclusive Placement Agent to solicit offers to purchase the shares of our Common Stock and Pre-Funded Warrants offered by this prospectus. The Placement Agent is not purchasing or selling any such securities, nor is it required to arrange for the purchase and sale of any specific number or dollar amount of such securities, other than to use its “reasonable best efforts” to arrange for the sale of such securities by us. Therefore, we may not sell all of the shares of Common Stock and Pre-Funded Warrants being offered. The terms of this offering are subject to market conditions and negotiations between us, the Placement Agent and prospective investors. The Placement Agent will have no authority to bind us by virtue of the engagement letter. This is a best efforts offering, and there is no minimum offering amount required as a condition to the closing of this offering. The Placement Agent may retain sub-agents and selected dealers in connection with this offering.

Investors purchasing securities offered hereby will have the option to execute a securities purchase agreement with us. Investors who do not enter into a securities purchase agreement shall rely solely on this prospectus in connection with the purchase of our securities in this offering. In addition to rights and remedies available to all purchasers in this offering under federal securities and state law, the purchasers which enter into a securities purchase agreement will also be able to bring claims of breach of contract against us. The ability to pursue a claim for breach of contract is material to larger purchasers in this offering as a means to enforce the following covenants uniquely available to them under the securities purchase agreement, including but not limited to: (i) a covenant to not enter into variable rate financings for a period of 6 months following the closing of the offering, subject to an exception; and (ii) a covenant to not enter into any equity financings for 30 days from closing of the offering, subject to certain exceptions.

The nature of the representations, warranties and covenants in the securities purchase agreements shall include, but are not limited to:

- standard issuer representations and warranties on matters such as organization, qualification, authorization, no conflict, no governmental filings required, current in SEC filings, no litigation, labor or other compliance issues, environmental, intellectual property and title matters and compliance with various laws such as the Foreign Corrupt Practices Act; and
- covenants regarding matters such as registration of shares issued and issuable upon exercise of the Pre-Funded Warrants, no integration with other offerings, no shareholder rights plans, use of proceeds, indemnification of purchasers, reservation and listing of Common Stock, and no subsequent equity sales for 30 days.

Delivery of the shares of Common Stock and Pre-Funded Warrants offered hereby is expected to occur on or about September 30, 2025, subject to satisfaction of certain customary closing conditions.

Fees and Expenses

The following table shows the per share price and total cash fees we will pay to the Placement Agent in connection with the sale of the securities pursuant to this prospectus.

	Per Share		Per Pre-Funded Warrant		Total
Public offering price	\$	2.50	\$	2.493	\$ 4,798,284.03
Placement Agent fees	\$	0.20	\$	0.199	\$ 383,862.72
Proceeds before expenses to us	\$	2.30	\$	2.294	\$ 4,414,421.31

We have agreed to pay the Placement Agent a total cash fee equal to 8.0% of the gross proceeds of this offering. We will also reimburse the Placement Agent’s legal fees and expenses in an amount up to \$120,000.

We estimate the total expenses of this offering paid or payable by us, exclusive of the Placement Agent's cash fee and expenses payable by us, will be approximately \$181,000. After deducting the fees and expenses due to the Placement Agent and our estimated expenses in connection with this offering, assuming we sell all of the shares and accompanying warrants offered hereby, we expect the net proceeds from this offering will be approximately \$4.1 million.

Right of First Refusal

We have not granted the Placement Agent a right of first refusal following the closing of this offering to act as our sole book-running manager, sole manager, sole placement agent or sole agent for any further debt financing or refinancing or capital-raising transactions undertaken by us.

Tail

We have also agreed to pay the Placement Agent a tail fee equal to the cash and warrant compensation in this offering, if any investor, who was contacted by the Placement Agent or who was brought over-the-wall during the term of its engagement, provides us with capital in any public or private offering or other financing or capital raising transaction of any kind during the 12-month period following expiration or termination of our engagement of the Placement Agent.

Indemnification

We have agreed to indemnify the Placement Agent against certain liabilities, including liabilities under the Securities Act and liabilities arising from breaches of representations and warranties contained in our engagement letter with the Placement Agent. We have also agreed to contribute to payments the Placement Agent may be required to make in respect of such liabilities.

Lock-Up Agreements

We and each of our officers and directors have agreed with the Placement Agent to be subject to a lock-up period of 60 days following the date of closing of the offering pursuant to this prospectus. This means that, during the applicable lock-up period, we and such persons may not offer for sale, contract to sell, sell, distribute, grant any option, right or warrant to purchase, pledge, hypothecate or otherwise dispose of, directly or indirectly, any of our shares of Common Stock or any securities convertible into, or exercisable or exchangeable for, shares of Common Stock, subject to customary exceptions. The Placement Agent may waive the terms of these lock-up agreements in its sole discretion and without notice. In addition, we have agreed to not issue any securities that are subject to a price reset based on the trading prices of our Common Stock or upon a specified or contingent event in the future or enter into any agreement to issue securities at a future determined price for a period of one year following the closing date of this offering, subject to an exception. The Placement Agent may waive this prohibition in its sole discretion and without notice.

Other Relationships

From time to time, the Placement Agent may provide in the future various advisory, investment and commercial banking and other services to us in the ordinary course of business, for which they have received and may continue to receive customary fees and commissions. However, except as disclosed in this prospectus, we have no present arrangements with the Placement Agent for any further services.

Regulation M Compliance

The Placement Agent may be deemed to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act, and any commissions received by it and any profit realized on the sale of our securities offered hereby by it while acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. The Placement Agent will be required to comply with the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of our securities by the Placement Agent. Under these rules and regulations, the Placement Agent may not (i) engage in any stabilization activity in connection with our securities; and (ii) bid for or purchase any of our securities or attempt to induce any person to purchase any of our securities, other than as permitted under the Exchange Act, until they have completed their participation in the distribution.

Listing and Transfer Agent

Our Common Stock is listed on the Nasdaq Capital Market under the symbols "BIAF." We have not applied, and do not intend to apply, to list the Pre-Funded Warrants on the Nasdaq Capital Market. The transfer agent and registrar for the Company's Common Stock is VStock Transfer, LLC. The transfer agent and registrar's address is 18 Lafayette Place, Woodmere, New York 11598. We will act as the registrar and transfer agent for the Pre-Funded Warrants.

DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITY

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

LEGAL MATTERS

The validity of the issuance of the securities offered hereby will be passed upon for us by Sheppard, Mullin, Richter & Hampton LLP of New York, New York. Sichenzia Ross Ference Carmel LLP is acting as counsel to the Placement Agent.

EXPERTS

The consolidated financial statements of bioAffinity Technologies, Inc. as of and for the years ended December 31, 2024 and 2023, incorporated by reference in this prospectus and registration statement have been audited by WithumSmith+Brown, PC, independent registered public accounting firm, as set forth in their report thereon (which contains an explanatory paragraph describing conditions that raise substantial doubt about bioAffinity Technologies, Inc.'s ability to continue as a going concern as described in Note 1 to the consolidated financial statements) have been incorporated in reliance upon such report given the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus constitutes a part of a registration statement on Form S-1 filed under the Securities Act. As permitted by the SEC's rules, this prospectus and any prospectus supplement, which form a part of the registration statement, do not contain all the information that is included in the registration statement. You will find additional information about us in the registration statement and its exhibits. Any statements made in this prospectus or any prospectus supplement concerning legal documents are not necessarily complete, and you should read the documents that are filed as exhibits to the registration statement or otherwise filed with the SEC for a more complete understanding of the document or matter.

You can read our electronic SEC filings, including such registration statement, on the internet at the SEC's website at www.sec.gov. We are subject to the information reporting requirements of the Exchange Act, and we file reports, proxy statements and other information with the SEC. These reports, proxy statements and other information will be available at the website of the SEC referred to above. We also maintain a website at <https://www.bioaffinitytech.com>, at which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. However, the information contained in or accessible through our website is not part of this prospectus or the registration statement of which this prospectus forms a part, and investors should not rely on such information in making a decision to purchase our securities in this offering.

INCORPORATION OF DOCUMENTS BY REFERENCE

We have filed a registration statement on Form S-1 with the SEC under the Securities Act. This prospectus is part of the registration statement, however the registration statement includes and incorporates by reference additional information and exhibits. The SEC permits us to “incorporate by reference” the information contained in documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents rather than by including them in this prospectus. Information that is incorporated by reference is considered to be part of this prospectus, and you should read it with the same care that you read this prospectus. Information that we file later with the SEC will automatically update and supersede the information that is either contained, or incorporated by reference, in this prospectus, and will be considered to be a part of this prospectus from the date those documents are filed. We have filed with the SEC, and incorporate by reference in this prospectus:

- Current Reports on Form 8-K, filed with the SEC on [January 14, 2025](#), [February 7, 2025](#), [February 27, 2025](#), [April 14, 2025](#), [May 8, 2025](#), [May 19, 2025](#), [May 27, 2025](#), [May 30, 2025](#), [July 25, 2025](#), [August 13, 2025](#), [August 14, 2025](#), [August 18, 2025](#), [September 2, 2025](#), and [September 17, 2025](#);
- Annual Report on [Form 10-K](#) for the year ended December 31, 2024 filed with the SEC on March 31, 2025, as amended by the [Form 10-K/A](#) filed on April 29, 2025;
- Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2025, and June 30, 2025, filed with the SEC on [May 15, 2025](#) and [August 14, 2025](#);
- Proxy Statement on Schedule 14A filed on [June 2, 2025](#); and
- The description of our Common Stock set forth in our registration statement on [Form 8-A](#) (Commission File No. 001-41463) filed with the SEC on August 23, 2022, including any amendments thereto or reports filed for the purposes of updating this description.

In addition, all documents subsequently filed by us pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, prior to the termination of the offering (excluding any information furnished rather than filed) shall be deemed to be incorporated by reference into this prospectus.

Notwithstanding the statements in the preceding paragraphs, no document, report or exhibit (or portion of any of the foregoing) or any other information that we have “furnished” to the SEC pursuant to the Exchange Act shall be incorporated by reference into this prospectus.

We will furnish without charge to you, on written or oral request, a copy of any or all of the documents incorporated by reference in this prospectus, including exhibits to these documents. You should direct any requests for documents to:

BioAffinity Technologies, Inc.
3300 Nacogdoches Road, Suite 216
San Antonio, Texas 78217
(210) 698-5334
Attn: Chief Executive Officer

You also may access these filings on our website at www.bioaffinitytech.com under the heading “Investor Relations—SEC Filings.” We do not incorporate the information on our website into this prospectus or any supplement to this prospectus, and you should not consider any information on, or that can be accessed through, our website as part of this prospectus or any supplement to this prospectus (other than those filings with the SEC that we specifically incorporate by reference into this prospectus or any supplement to this prospectus).

Any statement contained in a document incorporated or deemed to be incorporated by reference in this prospectus will be deemed modified, superseded or replaced for purposes of this prospectus to the extent that a statement contained in this prospectus modifies, supersedes or replaces such statement. Any statement contained herein or in any document incorporated or deemed to be incorporated by reference shall be deemed to be modified or superseded for purposes of the registration statement of which this prospectus forms a part to the extent that a statement contained in any other subsequently filed document which also is or is deemed to be incorporated by reference modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed to constitute a part of the registration statement of which this prospectus forms a part, except as so modified or superseded.



bioAffinity Technologies, Inc.

**1,047,694 Shares of Common Stock
874,067 Pre-Funded Warrants to Purchase Shares of Common Stock
Up to 874,067 Shares of Common Stock Underlying the
Pre-Funded Warrants**

PROSPECTUS

September 29, 2025.
