

PROSPECTUS

Up to \$50,000,000



Common Stock

We have entered into a sales agreement with TD Securities (USA) LLC (“TD Cowen”) relating to shares of our common stock, par value \$0.001 per share, offered by this prospectus. In accordance with the terms of the sales agreement, we may offer and sell shares of our common stock having an aggregate offering price of up to \$50,000,000 from time to time through TD Cowen acting as our agent. In no event will the actual number of shares of common stock offered and sold pursuant to the sales agreement exceed the number of shares that we have available and authorized for issuance under our amended and restated certificate of incorporation (the “Certificate of Incorporation”), as the same may be amended or amended and restated from time to time.

Our common stock is listed on The NASDAQ Global Market under the symbol “BDSX”. On November 11, 2024, the last reported sale price of our common stock on The NASDAQ Global Market was \$1.41 per share.

Sales of our common stock, if any, under this prospectus will be made in sales deemed to be “at the market offerings” as defined in Rule 415 promulgated under the Securities Act of 1933, as amended (the “Securities Act”). TD Cowen is not required to sell any specific amount of securities, but will act as our sales agent using commercially reasonable efforts consistent with its normal trading and sales practices, on mutually agreed terms between TD Cowen and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

The compensation to TD Cowen for sales of common stock sold pursuant to the sales agreement will be an amount up to 3% of the gross proceeds of any shares of common stock sold under the sales agreement. In connection with the sale of the common stock on our behalf, TD Cowen will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation of TD Cowen will be deemed to be underwriting commissions or discounts. See “Plan of Distribution” beginning on page S-21 for additional information regarding the compensation to be paid to TD Cowen. We have also agreed to provide indemnification and contribution to TD Cowen with respect to certain liabilities, including liabilities under the Securities Act or the Securities Exchange Act of 1934, as amended (the “Exchange Act”).

We are an “emerging growth company” and a “smaller reporting company” under federal securities laws and as such, have elected to comply with reduced public company reporting requirements for this prospectus and the documents incorporated by reference herein and may elect to comply with reduced public company reporting requirements in future filings. See “Summary—Implications of Being an Emerging Growth Company and Smaller Reporting Company.”

Our business and an investment in our common stock involve significant risks. These risks are described under the caption “[Risk Factors](#)” beginning on page S-7 of this prospectus and in the documents incorporated by reference into this prospectus.

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

TD Cowen

November 12, 2024

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ABOUT THIS PROSPECTUS

This prospectus is part of a shelf registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the “SEC”). Under the shelf registration process, we may offer shares of our common stock having an aggregate offering price of up to \$50,000,000 from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of the offering.

We provide information to you about this offering of shares of our common stock in two separate documents that are bound together: (1) this sales agreement prospectus, which describes the specific details regarding this offering; and (2) the accompanying base prospectus, which provides general information, some of which may not apply to this offering. Generally, when we refer to this “prospectus,” we are referring to both documents combined. If information in this sales agreement prospectus is inconsistent with the accompanying base prospectus, you should rely on this prospectus. However, if any statement in one of these documents is inconsistent with a statement in another document having a later date—for example, a document incorporated by reference in this prospectus—the statement in the document having the later date modifies or supersedes the earlier statement as our business, financial condition, results of operations and prospects may have changed since the earlier dates.

We have not, and TD Cowen has not, authorized any other person to provide you with any information other than that contained in, or incorporated by reference into, this prospectus and in any free writing prospectus that we may authorize for use in connection with this offering. We and TD Cowen take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are not, and TD Cowen is not, making an offer to sell or soliciting an offer to buy our securities in any jurisdiction in which an offer or solicitation is not authorized or in which the person making that offer or solicitation is not qualified to do so or to anyone to whom it is unlawful to make an offer or solicitation. You should assume that the information appearing in this prospectus, the documents incorporated by reference into this prospectus, and in any free writing prospectus that we may authorize for use in connection with this offering, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus, the documents incorporated by reference into this prospectus, and any free writing prospectus that we may authorize for use in connection with this offering, in their entirety before making an investment decision. You should also read and consider the information in the documents to which we have referred you in the sections of this prospectus entitled “Where You Can Find More Information” and “Incorporation of Certain Information By Reference.”

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

In this prospectus, the terms “Biodesix,” “Company,” “we,” “us,” “our” and similar terms refer to Biodesix, Inc., a Delaware corporation, and its subsidiaries unless the context otherwise requires.

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

INDUSTRY AND MARKET DATA

The data included in this prospectus and the documents incorporated by reference herein contains estimates, projections and other information concerning our industry and our business, including estimated market size, projected growth rates and the incidence of certain medical conditions. Unless otherwise expressly stated, we obtained this industry, business, market, medical and other information from reports, research surveys, studies and similar data prepared by third parties, industry, medical and general publications, government data and similar sources. In some cases, we do not expressly refer to the sources from which this information is derived. In that regard, when we refer to one or more sources of this type of information in any paragraph, you should assume that other information of this type appearing in the same paragraph is derived from the same sources, unless otherwise expressly stated or the context otherwise requires.

This industry, business, market, medical and other information involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. Third-party industry and general publications, research, surveys and studies generally state that the information contained therein has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. While we believe that each of these studies and publications is reliable, we have not independently verified any of the data from third-party sources. Although we are responsible for all of the disclosure contained in this prospectus and the documents incorporated by reference herein and we believe the market position, market opportunity, market size and medical information included in this prospectus and the documents incorporated by reference herein is reliable, such information is inherently imprecise. Data regarding the industries in which we compete and our market position and market share within these industries are inherently imprecise and are subject to significant business, economic and competitive uncertainties beyond our control, but we believe that they generally indicate size, position and market share within these industries. We believe these estimates to be accurate as of the date of this prospectus or as of the date of the documents incorporated by reference herein. However, this information may prove to be inaccurate because of the method by which we obtained some of the data for the estimates or because this information cannot always be verified with complete certainty due to the limits on the availability and reliability of raw data, the voluntary nature of the data gathering process and other limitations and uncertainties. As a result, you should be aware that market, ranking and other similar industry data included in this prospectus and the documents incorporated by reference herein, and estimates and beliefs based on that data, may not be reliable and are subject to change based on various factors, including those discussed under “Risk Factors” and “Special Note Regarding Forward-Looking Statements.”

PROSPECTUS SUMMARY

This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in the securities covered by this prospectus. For a more complete understanding of Biodesix and this offering, we encourage you to read and consider carefully the more detailed information in this prospectus, including the information incorporated by reference in this prospectus and the information included in any free writing prospectus that we have authorized for use in connection with this offering, including the information referred to under the heading “Risk Factors” in this prospectus beginning on page S-7 and the risk factors described in our Annual Report on Form 10-K for the year ended December 31, 2023 and our Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2024, June 30, 2024 and September 30, 2024. You should also read our audited consolidated financial statements and related notes included in our Annual Report on Form 10-K for the year ended December 31, 2023 and our unaudited consolidated financial statements and related notes included in our Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2024, June 30, 2024 and September 30, 2024. Such annual and quarterly reports are incorporated by reference in this prospectus. See “Incorporation of Certain Information by Reference.”

Overview

Biodesix, Inc. (“Biodesix”, “we,” “us,” “our” or the “Company”) is a leading diagnostic solutions company with a focus in lung disease. By combining a multi-omic approach with a holistic view of the patient’s disease state, we believe our testing solutions provide physicians with greater insights to help personalize their patients’ care and meaningfully improve disease detection, evaluation, and treatment. Our unique approach to precision medicine provides timely and actionable clinical information, which we believe helps improve overall patient outcomes and lowers the overall healthcare cost by reducing the use of ineffective and unnecessary treatments and procedures. In addition to our diagnostic tests, we provide biopharmaceutical companies with services that include diagnostic research, clinical trial testing, and the discovery, development, and commercialization of companion diagnostics. We also recognize revenue from other services, including amounts derived from licensing our technologies.

Our core belief is that no single technology will answer all clinical questions that we encounter. Therefore, we employ multiple technologies, including genomics, transcriptomics, proteomics, radiomics, and artificial intelligence (“AI”) enabled informatics, to discover innovative diagnostic tests for potential clinical use. Our multi-omic approach is designed to enable us to discover diagnostic tests that answer critical clinical questions faced by physicians, researchers, and biopharmaceutical companies.

We have commercialized five diagnostic tests which are currently on market and we perform more than 30 assays for clinical and research use as part of our laboratory services that have been used by over 65 biopharmaceutical customers and academic partners.

Blood-Based Lung Tests

We have five diagnostic blood-based lung cancer tests across the lung cancer continuum of care.

Diagnosis

- Nodify CDT[®] and Nodify XL2[®] tests, together marketed as our Nodify Lung[®] Nodule Risk Assessment testing, assess a suspicious lung nodule’s risk of lung cancer to help identify the most

appropriate treatment pathway. The Nodify CDT and XL2 tests have an established average turnaround time of one and five business days, respectively, from receipt of the blood sample, providing physicians with timely results to guide diagnostic planning. The Nodify CDT test is a blood-based test that detects the presence of seven autoantibodies associated with the presence of tumors. Elevated levels of the autoantibodies in patients with lung nodules indicate an increased risk of lung cancer to help identify patients that may benefit from timely intervention. The Nodify XL2 test is a blood-based proteomic test that evaluates the likelihood that a lung nodule is benign to help identify patients that may benefit from surveillance imaging. We believe we are the only company to offer two commercial blood-based tests to help physicians reclassify risk of malignancy in patients with suspicious lung nodules.

Treatment & Monitoring

- GeneStrat® ddPCR, GeneStratNGS® and VeriStrat® tests, marketed as part of our IQLung™ testing strategy, are used following diagnosis of lung cancer to detect the presence of mutations in the tumor and the state of the patient’s immune system to help guide treatment decisions. The GeneStrat ddPCR tumor genomic profiling test and the VeriStrat immune profiling test have an established average turnaround time of two business days from receipt of the blood sample, and the GeneStrat NGS test has an established average turnaround time of three business days from receipt of the blood sample, providing physicians with timely results to facilitate rapid treatment decisions. The GeneStrat ddPCR test evaluates the presence of actionable mutations in lung cancer. The test is covered independent of stage and can be used multiple times per patient to monitor changes in mutation status. The GeneStrat NGS test is a broad 52 gene panel, including guideline recommended mutations that help identify advanced stage patients eligible for targeted therapy or clinical trial enrollment. The VeriStrat test is a blood-based proteomic test that provides a personalized view of each patient’s immune response to their lung cancer.

Implications of Being an Emerging Growth Company and Smaller Reporting Company

We are an “emerging growth company” within the meaning of the Jumpstart Our Business Startups Act (the “JOBS Act”). As an emerging growth company, we may take advantage of certain exemptions from various public company reporting requirements, including the requirement that our internal control over financial reporting be audited by our independent registered public accounting firm pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, certain requirements related to the disclosure of executive compensation in our periodic reports and proxy statements, the requirement that we hold a nonbinding advisory vote on executive compensation and any golden parachute payments, and we have taken advantage of the ability to provide reduced disclosure of financial information in this prospectus, such as being permitted to include only two years of audited financial information and two years of selected financial information in addition to any required unaudited interim financial statements, with correspondingly reduced “Management’s Discussion and Analysis of Financial Condition and Results of Operations” disclosure. We may take advantage of these exemptions until we are no longer an emerging growth company. Section 107 of the JOBS Act provides that an “emerging growth company” can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933, as amended (the “Securities Act”), for complying with new or revised accounting standards. In other words, an “emerging growth company” can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies.

We have elected to take advantage of the extended transition period to comply with new or revised accounting standards and to adopt certain of the reduced disclosure requirements available to emerging growth companies. 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 emerging growth

companies, which may make comparison of our financials to those of other public companies more difficult. Additionally, because we have taken advantage of certain reduced reporting requirements, the information contained herein may be different from the information you receive from other public companies in which you hold stock.

We will remain an emerging growth company until the earliest to occur of (i) the last day of the fiscal year in which we have more than \$1.24 billion in annual revenue; (ii) the date we qualify as a “large accelerated filer,” with at least \$700 million of equity securities held by non-affiliates; (iii) the date on which we have issued, in any three-year period, more than \$1.0 billion in non-convertible debt securities; and (iv) until December 31, 2025 (the last day of the fiscal year ending after the fifth anniversary of the completion of our initial public offering).

Additionally, we are a “smaller reporting company” as defined in Item 10(f)(1) of Regulation S-K. Smaller reporting companies may take advantage of certain reduced disclosure obligations, including, among other things, providing only two years of audited financial statements. We will remain a smaller reporting company until the last day of the fiscal year in which (i) the market value of our common stock held by non-affiliates exceeds \$250 million as of the end of that year’s second fiscal quarter, or (ii) our annual revenues exceeded \$100 million during such completed fiscal year and the market value of our common stock held by non-affiliates exceeds \$700 million as of the end of that year’s second fiscal quarter. To the extent we take advantage of such reduced disclosure obligations, it may also make comparison of our financial statements with other public companies difficult or impossible.

Corporate Information

We were incorporated in Delaware in 2005 as Elston Technologies, Inc. Our principal executive offices are located at 919 West Dillon Rd., Louisville, Colorado 80027, and our telephone number is (303) 417-0500. On June 20, 2006, we changed our name to Biodesix, Inc.

Our website address is www.biodesix.com. Information contained on, or accessible from, or hyperlinked to, our website is not incorporated by reference into this prospectus, and you should not consider information on our website to be part of this prospectus, or in deciding whether to purchase our common stock.

Our filings with the SEC are posted on our website at www.biodesix.com. Other than the specifically incorporated SEC filings, the information found on or accessible through our website is not part of this or any other report we file with or furnish to the SEC. The public can also obtain copies of these filings by accessing the SEC’s website at <http://www.sec.gov>.

THE OFFERING

Common stock offered by us	Shares having an aggregate offering price of up to \$50,000,000. In no event will the actual number of shares of common stock offered and sold pursuant to the sales agreement exceed the number of shares that we have available and authorized for issuance under our Certificate of Incorporation, as the same may be amended or amended and restated from time to time.
Common stock to be outstanding after this offering	Up to 35,460,992 shares, assuming the sale of \$50,000,000 of shares at a sales price of \$1.41 per share, which was the last reported sale price on The NASDAQ Global Market on November 11, 2024. The actual number of shares issued and outstanding will vary depending on the sales price under this offering.
Manner of offering	“At-the-market” offering that may be made from time to time through our sales agent, TD Cowen. See “Plan of Distribution” on page S-21 of this prospectus.
Use of proceeds	Our management will retain broad discretion regarding the allocation and use of the net proceeds from this offering. We currently intend to use the net proceeds from this offering, if any, for general corporate purposes, including for (1) commercial expansion of sales, marketing, reimbursement, customer support and business development, (2) supporting our product pipeline and research and development and (3) funding the expansion of technology integration efforts and automation. See “Use of Proceeds” on page S-13 of this prospectus.
NASDAQ Global Market symbol	“BDSX”
Risk factors	Investing in our securities involves a high degree of risk. See “Risk Factors” beginning on page S-7 of this prospectus and the other information included in, or incorporated by reference into, this prospectus for a discussion of certain factors that you should carefully consider before deciding to invest in shares of our common stock.

The number of shares of common stock shown above to be outstanding immediately following this offering is based on 145,465,941 shares outstanding as of September 30, 2024 and excludes:

- 8,814,249 shares of common stock reserved for future issuance under our 2020 Equity Incentive Plan (the “2020 Incentive Plan”); and
- 175,275 shares of common stock reserved for issuance pursuant to future awards under our 2020 Employee Stock Purchase Plan (“ESPP”).

Unless we specifically state otherwise, this prospectus reflects and assumes no exercise of outstanding options, warrants or restricted stock units (“RSUs”).

RISK FACTORS

Investing in our securities common stock involves a high degree of risk. You should consider and read carefully all of the risks and uncertainties described below, as well as all the other information contained in the prospectus or incorporated by reference into this prospectus. You should also consider the risks, uncertainties and assumptions discussed under the caption "Risk Factors" included in our Annual Report on Form 10-K for the year ended December 31, 2023 and in our Quarterly Reports on Form 10-Q for the periods ended March 31, June 30 and September 30, 2024, and in subsequent filings, which are incorporated by reference into this prospectus. These risk factors may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future. The risks described below are not the only ones facing us. The occurrence of any of the following risks or additional risks and uncertainties not presently known to us or that we currently believe to be immaterial could materially and adversely affect our business, financial condition and results of operations. In such case, the trading price of our common stock could decline, and you may lose all or part of your investment. This prospectus also contains forward-looking statements and estimates that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of specific factors, including the risks and uncertainties described below.

Risks Related to This Offering

We have broad discretion in the use of the net proceeds from this offering.

Our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways with which you may not agree. Accordingly, you will be relying on the judgment of our management with regard to the use of the net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that the net proceeds will be invested or otherwise used in a way that does not yield a favorable, or any, return for the Company.

Investors in this offering will experience immediate and substantial dilution in the net tangible book value per share of the common stock they purchase.

Since the price per share of our common stock being offered is higher than the net tangible book value per share of our common stock, you will suffer substantial dilution in the net tangible book value of the common stock you purchase in this offering. See the section entitled "Dilution" in this prospectus for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering. In addition, we have a significant number of options outstanding. If the holders of these options exercise such options, you may incur further dilution.

Our stockholders may experience significant dilution as a result of future equity offerings and exercise of outstanding options.

In order to raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock. We cannot assure you that we will be able to sell shares or other securities in any other offering at a price per share that is equal to or greater than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock or other securities convertible into or exchangeable for our common stock in future transactions may be higher or lower than the price per share in this offering.

In addition, we have a number of securities allowing the purchase of our common stock. As of October 25, 2024, 8,812,895 shares of common stock were reserved for future issuance under the 2020 Incentive Plan and 175,275 shares of common stock were reserved for future issuance under the ESPP. As of that date, there were

also options to purchase 4,269,783 shares of our common stock outstanding and 3,379,412 restricted stock units outstanding. The exercise of outstanding options having an exercise price per share that is less than the offering price per share in this offering will increase dilution to investors in this offering.

We are an emerging growth company and, as such, we have incurred significant losses since inception and have yet to generate positive cash flows from operations. Our ability to meet our obligations as they come due may be impacted by our ability to remain compliant with financial covenants in our Perceptive Term Loan Facility and may result in our inability to continue as a going concern. Any such impacts could have a material and adverse effect on the price of our common stock.

Our financial statements as of and for the period ended December 31, 2023 were prepared on the assumption that we would continue as a going concern. These financial statements did not include any adjustments that might result from the outcome of this uncertainty. As of September 30, 2024, we maintained cash and cash equivalents of \$31.4 million and we have \$40.0 million in principal balance outstanding on our senior secured delayed draw term loan facility with Perceptive Advisors LLC (the “Perceptive Term Loan Facility”). We have incurred significant losses since inception and, as a result, we have funded our operations to date primarily through the sale of common stock in both underwritten public offerings and private placements, the issuance of notes payable, and from our two primary revenue sources: (i) diagnostic testing, which includes lung diagnostic testing and (ii) providing biopharmaceutical companies with development and testing services and licensing our technology. Our ability to meet our obligations as they come due may be impacted by our ability to remain compliant with financial covenants in the Perceptive Term Loan Facility or to obtain waivers or amendments that impact the related covenants.

Our ability to maintain our financial covenants under our Perceptive Term Loan Facility during the next twelve months is, in part, dependent upon executing our current operating plan. If we do not execute our current operating plan and maintain our financial covenants, this could result in an Event of Default (as defined in the Perceptive Term Loan Facility), causing an acceleration and repayment of the outstanding balances. The Perceptive Term Loan Facility requires the Company to meet certain Minimum Net Revenue threshold amounts agreed to between the Company and Perceptive as of the last day of each fiscal quarter, which commenced with the fiscal quarter ending March 31, 2023. We have taken steps to improve our liquidity through raising debt and equity capital and have also undertaken several proactive measures including, among other things, the reduction of planned capital expenditures and certain operating expenses. If we do not execute our current operating plan, we may need to consider further measures to reduce our operating expenses. These measures would limit or reduce our operations and could include a hiring freeze, reductions in our workforce, reduction in cash compensation, deferring capital expenditures, and reducing other operating costs.

If we do not execute our current operating plan we may need to continue to raise additional funds from external sources, such as through the issuance of debt or equity securities. We may also raise additional capital to restructure our existing debt or for general working capital purposes, or both. If we raise additional capital through debt financing, we may be subject to covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we do raise additional capital through equity offerings, the ownership interest of our existing stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect our existing stockholders’ rights. There can be no assurance that additional capital will be available to us or, if available, will be available in sufficient amounts or on terms acceptable to us or on a timely basis.

We expect to continue to incur operating losses in the near term while we make investments to support our anticipated growth. Our ability to maintain our financial covenants is, in part, dependent upon executing our current operating plan and, along with the items noted above, raises substantial doubt about the Company’s ability to continue as a going concern. The reaction of investors to the inclusion of a going concern statement in this report, and our potential inability to continue as a going concern, could materially adversely affect the price of our common stock.

It is not possible to predict the aggregate proceeds resulting from sales made under the sales agreement.

Subject to certain limitations in the sales agreement and compliance with applicable law, we have the discretion to deliver a placement notice to TD Cowen at any time throughout the term of the sales agreement. The number of shares that are sold through TD Cowen after delivering a placement notice will fluctuate based on a number of factors, including the market price of our common stock during the sales period, any limits we may set with TD Cowen in any applicable placement notice and the demand for our common stock. Because the price per share of each share sold pursuant to the sales agreement will fluctuate over time, it is not currently possible to predict the aggregate proceeds to be raised in connection with sales under the sales agreement.

The common stock offered hereby will be sold in “at-the-market offerings” and investors who buy shares at different times will likely pay different prices.

Investors who purchase shares in this offering at different times will likely pay different prices, and accordingly may experience different levels of dilution and different outcomes in their investment results. We will have discretion, subject to market demand, to vary the timing, prices and number of shares sold in this offering. In addition, subject to the final determination by our Board of Directors or any restrictions we may place in any applicable placement notice, there is no minimum or maximum sales price for shares to be sold in this offering. Investors may experience a decline in the value of the shares they purchase in this offering as a result of sales made at prices lower than the prices they paid.

The price of our common stock may be volatile and fluctuate substantially, which could result in substantial losses for purchasers of our common stock in this offering.

Our stock price has been and is likely to continue to be volatile. The stock market in general and the market for pharmaceutical and biotechnology companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, our stockholders may not be able to sell our common stock at or above the price they paid for it. The market price for our common stock may be influenced by many factors, including:

- volume and customer mix for our Nodify XL2, Nodify CDT, GeneStrat ddPCR, GeneStrat NGS, and VeriStrat testing;
- the introduction of new diagnostic tests or enhancements to such tests by us or others in our industry;
- disputes or other developments with respect to our or others’ intellectual property rights;
- our ability to develop, obtain regulatory clearance or approval or certification for, and market new and enhanced diagnostic tests on a timely basis;
- product liability claims or other litigation;
- quarterly variations in our results of operations or those of others in our industry;
- media exposure of our diagnostic tests or of those of others in our industry;
- changes in governmental regulations or in the status of our regulatory approvals or applications;
- changes in earnings estimates or recommendations by securities analysts;
- general market conditions and other factors, including factors unrelated to our operating performance or the operating performance of our competitors; and
- the other factors described in the “Risk Factors” sections of our Form 10-K for the year ended December 31, 2023 and in our Quarterly Reports on Form 10-Q for the periods ended March 31, June 30 and September 30, 2024, and in subsequent filings, which are incorporated by reference into this prospectus.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus includes and incorporates by reference “forward-looking statements” within the meaning of the U.S. Private Securities Litigation Reform Act of 1995 and releases issued by the SEC and within the meaning of Section 27A of the Securities Act, and Section 21E of the Exchange Act. All statements other than statements of historical fact are “forward-looking statements” for purposes of this prospectus. In some cases, you can identify forward-looking statements by terminology such as “may,” “could,” “will,” “would,” “should,” “expect,” “plan,” “anticipate,” “believe,” “estimate,” “intend,” “predict,” “seek,” “contemplate,” “project,” “continue,” “potential,” “ongoing,” “goal,” or the negative of these terms or other comparable terminology. These forward-looking statements include, but are not limited to, statements about:

- our inability to achieve or sustain profitability;
- our unaudited financial statements include a statement that there is a substantial doubt about our ability to continue as a going concern, and a continuation of negative financial trends could result in our inability to continue as a going concern;
- our ability to attain significant market acceptance among payers, providers, clinics, patients, and biopharmaceutical companies for our diagnostic tests;
- difficulties managing our growth, which could disrupt our operations;
- failure to retain sales and marketing personnel, and failure to increase our sales and marketing capabilities or develop broad awareness of our diagnostic tests to generate revenue growth;
- failure to maintain our current relationships, or enter into new relationships, with biopharmaceutical companies;
- significant fluctuation in our operating results, causing our operating results to fall below expectations or any guidance we provide;
- product performance and reliability to maintain and grow our business;
- third-party suppliers, including courier services, contract manufacturers and single source suppliers; making us vulnerable to supply problems and price fluctuations;
- the impact of a pandemic, epidemic, or outbreak of an infectious disease in the United States (U.S.) or worldwide, including the COVID-19 pandemic on our business;
- natural or man-made disasters and other similar events negatively impacting our business, financial condition, and results of operations;
- failure to offer high-quality support for our diagnostic tests, which may adversely affect our relationships with providers and negatively impact our reputation among patients and providers;
- our inability to continue to innovate and improve our diagnostic tests and services we offer;
- security or data privacy breaches or other unauthorized or improper access;
- significant disruptions in our information technology systems;
- the incurrence of substantial liabilities and limiting or halting the marketing and sale of our diagnostic tests due to product liability lawsuits;
- our inability to compete successfully with competition from many sources, including larger companies;
- performance issues, service interruptions or price increases by our shipping carriers;
- cost-containment efforts of our customers, purchasing groups and integrated delivery networks having a material adverse effect on our sales and profitability;
- potential effects of litigation and other proceedings;

- general economic and financial market conditions;
- our ability to attract and retain key personnel;
- current and future debt financing placing restrictions on our operating and financial flexibility;
- our need to raise additional capital to fund our existing operations, develop our platform, commercialize new diagnostic tests, or expand our operations;
- the acquisition of other businesses, which could require significant management attention;
- the uncertainty of the insurance coverage and reimbursement status of newly approved diagnostic tests;
- future healthcare reform measures that could hinder or prevent the commercial success of our diagnostic tests;
- compliance with anti-corruption, anti-bribery, anti-money laundering and similar laws;
- compliance with healthcare fraud and abuse laws;
- our ability to develop, receive regulatory clearance or approval or certification for, and introduce new diagnostic tests or enhancements to existing diagnostic tests that will be accepted by the market in a timely manner;
- failure to comply with ongoing FDA or other domestic and foreign regulatory authority requirements, or unanticipated problems with our diagnostic tests, causing them to be subject to restrictions or withdrawal from the market;
- future product recalls;
- legal proceedings initiated by third parties alleging that we are infringing, misappropriating, or otherwise violating their intellectual property rights, the outcome of which would be uncertain;
- the volatility of the trading price of our common stock;
- inaccurate estimates or judgments relating to our critical accounting policies, which could cause our operating results to fall below the expectations of securities analysts and investors; and
- other risks, uncertainties and factors, including those set forth under “Risk Factors”.

These statements relate to future events or to our future financial performance and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. In evaluating such forward-looking statements, you should specifically consider various factors that may cause actual results to differ materially from current expectations, including the risks outlined under the heading “Risk Factors” contained in this prospectus and any related free writing prospectus, and in any other documents incorporated herein or therein. Any forward-looking statement in this prospectus reflects our current view with respect to future events and is subject to these and other risks, uncertainties and assumptions relating to our operations, results of operations, industry and future growth. Given these uncertainties, you should not place undue reliance on these forward-looking statements. Except as required by law, we assume no obligation to update or revise these forward-looking statements for any reason, even if new information becomes available in the future.

This prospectus and the documents incorporated by reference, may also contain estimates, projections and other information concerning our industry and our business, including estimated market size, projected growth rates and the incidence of certain medical conditions. Information that is based on estimates, forecasts, projections or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances reflected in this information. Unless otherwise expressly stated, we obtained this industry, business, market, medical and other information from reports, research surveys,

studies and similar data prepared by third parties, industry, medical and general publications, government data and similar sources. In some cases, we do not expressly refer to the sources from which this information is derived. In that regard, when we refer to one or more sources of this type of information in any paragraph, you should assume that other information of this type appearing in the same paragraph is derived from the same sources, unless otherwise expressly stated or the context otherwise requires.

USE OF PROCEEDS

We may issue and sell shares of our common stock having an aggregate sales proceeds of up to \$50,000,000 from time to time. The amount of proceeds from this offering will depend upon the number of shares of our common stock sold and the market price at which they are sold. There can be no assurance that we will be able to sell any shares under, or fully utilize, the sales agreement with TD Cowen as a source of financing.

We will retain broad discretion over the use of the net proceeds from the sale of the securities offered hereby. We currently intend to use the net proceeds from this offering, if any, for general corporate purposes, including for (1) commercial expansion of sales, marketing, reimbursement, customer support and business development, (2) supporting our product pipeline and research and development and (3) funding the expansion of technology integration efforts and automation. The amount and timing of these expenditures will depend on a number of factors, such as the timing, scope, progress and results of our commercial expansion and research and development efforts.

As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds to us from this offering, if any. As a result, our management will have broad discretion regarding the timing and application of the net proceeds from this offering. Pending the application of the net proceeds, we intend to invest the net proceeds in short-term, investment grade, interest-bearing securities.

DILUTION

If you invest in our common stock, you will experience dilution to the extent of the difference between the price per share you pay in this offering and the net tangible book value per share of our common stock immediately after this offering. Our net tangible book value as of September 30, 2024 was approximately \$27,857,000, or \$0.19 per share of our common stock. Net tangible book value per share as of September 30, 2024 is equal to our total tangible assets minus total liabilities, all divided by the number of shares of common stock outstanding as of September 30, 2024.

After giving effect to the sale of \$50,000,000 of shares of our common stock in this offering at an assumed offering price of \$1.41 per share, the last reported sale price of our common stock on The NASDAQ Global Market on November 11, 2024, and after deducting estimated offering commissions and expenses payable by us, our as adjusted net tangible book value would have been approximately \$76,186,000, or \$0.42 per share of common stock, as of September 30, 2024. This represents an immediate increase in net tangible book value of approximately \$0.23 per share to existing stockholders and an immediate dilution of approximately \$0.99 per share to investors in this offering. The following table illustrates this calculation on a per share basis.

Assumed public offering price per share		\$	1.41
Net tangible book value per share as of September 30, 2024	\$	0.19	
Increase in net tangible book value per share attributable to this offering	\$	0.23	
As adjusted net tangible book value per share as of September 30, 2024, after giving effect to this offering		\$	0.42
Dilution per share to new investors purchasing shares in this offering		\$	0.99

The table above assumes for illustrative purposes that an aggregate of 35,460,992 shares of our common stock are sold at a price of \$1.41 per share, the last reported sale price of our common stock on The NASDAQ Global Market on November 11, 2024, for aggregate gross proceeds of \$50,000,000. The shares sold in this offering, if any, will be sold from time to time at various prices. An increase of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$1.41 per share shown in the table above, assuming \$50,000,000 of shares of our common stock is sold at that price, would increase our adjusted net tangible book value per share after the offering to \$0.46 per share and would increase the dilution in net tangible book value per share to new investors in this offering to \$1.95 per share, after deducting commissions and estimated aggregate offering expenses payable by us. A decrease of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$1.41 per share shown in the table above, assuming \$50,000,000 of shares of our common stock is sold at that price, would decrease our adjusted net tangible book value per share after the offering to \$0.28 per share and would decrease the dilution in net tangible book value per share to new investors in this offering to \$0.13 per share, after deducting commissions and estimated aggregate offering expenses payable by us. This information is supplied for illustrative purposes only.

The number of shares of common stock shown above to be outstanding immediately following this offering is based on 145,465,941 shares outstanding as of September 30, 2024 and excludes:

- 8,814,249 shares of common stock reserved for future issuance under the 2020 Incentive Plan; and
- 175,275 shares of common stock reserved for issuance pursuant to future awards under the ESPP.

Unless we specifically state otherwise, this prospectus reflects and assumes no exercise of outstanding options, warrants or RSUs.

The above illustration of dilution per share to investors participating in this offering assumes no exercise of outstanding options to purchase our common stock. The exercise of outstanding options having an exercise price per share that is less than the offering price per share in this offering will increase dilution to investors in this offering.

DESCRIPTION OF CAPITAL STOCK

The following description is a general summary of the terms of the shares of common stock or shares of preferred stock that we may issue. The description below and in any prospectus supplement does not include all of the terms of the shares of common stock or shares of preferred stock and should be read together with our Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws, copies of which have been filed previously with the SEC. For more information on how you can obtain copies of our Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws, see “Where You Can Find More Information.”

General

Our charter authorizes to issue up to 200,000,000 shares of common stock, \$0.001 par value per share, and 5,000,000 shares of preferred stock, \$0.001 par value per share. The following summary sets forth some of the general terms of our common stock. Because this is a summary, it does not contain all of the information that may be important to you. For a more detailed description of our common stock, you should read our amended and restated certificate of incorporation and the amended and restated bylaws, each of which is an exhibit to our Annual Report on Form 10-K to which this summary is also an exhibit, and the applicable provisions of the Delaware General Corporation Law (the “DGCL”).

Common stock

As of October 25, 2024, we had 145,467,295 shares of common stock outstanding.

Voting Rights

Each holder of common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders, including the election of directors. Under our amended and restated certificate of incorporation and amended and restated bylaws, our stockholders do not have cumulative voting rights. Because of this, the holders of a majority of the shares of common stock entitled to vote in any election of directors can elect all of the directors standing for election.

Dividends Rights

Subject to preferences that may apply to any then-outstanding preferred stock, the holders of common stock are entitled to receive ratably those dividends, if any, as may be declared from time to time by the Board of Directors out of legally available funds. We do not anticipate paying any cash dividends in the foreseeable future.

Liquidation Rights

In the event of our liquidation, dissolution or winding up, holders of common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then-outstanding shares of preferred stock.

Preemptive or Similar Rights

Holders of common stock have no preemptive, conversion or subscription rights and there are no redemption or sinking fund provisions applicable to the common stock. The rights, preferences and privileges of the holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate in the future.

Preferred stock

Our Board of Directors may, without further action by our stockholders, fix the rights, preferences, privileges and restrictions of up to an aggregate of 5,000,000 shares of preferred stock in one or more series and authorize their issuance. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences and the number of shares constituting any series or the designation of such series, any or all of which may be greater than the rights of common stock. Any issuance of preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders would receive dividend payments and payments on liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deterring or preventing a change of control or other corporate action.

On April 5, 2024, the Company entered into securities purchase agreements for the issuance and sale by the Company of an aggregate of 760,857 shares of Series A Non-Voting Convertible Preferred Stock, par value \$0.001 per share (the “Preferred Stock”). Following the receipt of stockholder approval at the 2024 annual meeting of stockholders the Preferred Stock automatically converted into shares of common stock. Currently, no shares of preferred stock are outstanding. We have no present plan to issue any shares of preferred stock.

Registration rights

We are party to the Eleventh Amended and Restated Investor Rights Agreement (the “IRA”) which provides that certain holders of shares of common stock have the right to demand that we file a registration statement for their shares of our common stock or request that their shares of our common stock be covered by a registration statement that we are otherwise filing, including, in each case, shares of our common stock that were issued upon conversion of convertible preferred stock. These shares are referred to as registrable securities. The holders of these registrable securities possess registration rights pursuant to the terms of the IRA and are described in additional detail below. We, along with certain of our stockholders, are parties to the IRA. We entered into the IRA in connection with the issuance of Series H Preferred Stock in October 2018. The following summary discusses certain material provisions of the IRA and is qualified by the full text of the agreement, which is filed as an exhibit to the registration statement of which this prospectus is a part.

The registration of shares of common stock pursuant to the exercise of registration rights described below would enable the holders to trade these shares without restriction under the Securities Act when the applicable registration statement is declared effective. We will pay the registration expenses (other than underwriting discounts, selling commissions and stock transfer taxes) of the shares registered pursuant to the piggyback and Form S-3 registrations described below.

Generally, in an underwritten offering, if we determine in good faith in consultation with the underwriters, we have the right, subject to specified conditions, to limit the number of shares the holders may include. The piggyback and Form S-3 registration rights described below will terminate on the date five years following the closing of our initial public offering.

Form S-3 registration rights

The holders of at least 10% of the registrable securities then outstanding are entitled to certain registration rights on Form S-3. The holders of these shares can request that we register all or a portion of their shares on Form S-3 if we are eligible to file a registration statement on Form S-3 and the aggregate price to the public of the shares offered is in excess of \$5.0 million. We are required to effect no more than two Form S-3 registration statements that are declared or ordered effective in any 12-month period. We may postpone the filing of a registration statement for up to 120 days not more than once in a 12-month period if in the good faith judgment of our Board of Directors such registration would be seriously detrimental to us.

Piggyback registration rights

The holders of registrable securities are entitled to certain piggyback registration rights.

If we register any of our securities for public sale, either for our own account or for the account of other security holders, we will also have to register all registrable securities that the holders of such securities request in writing be registered. This piggyback registration right does not apply to a registration relating to any of our stock plans, stock purchase or similar plan, a transaction under Rule 145 of the Securities Act or a registration related to stock issued upon conversion of debt securities. We, based on consultation with the underwriters of any underwritten offering will have the right to limit the number of shares registered by these holders if the underwriters determine that including all registrable securities will jeopardize the success of the offering.

Expenses of registration

Pursuant to the IRA, we are required to pay all registration expenses, including all registration and filing fees, printing expenses, fees and disbursements of our counsel and reasonable fees and disbursements not to exceed \$75,000 of one counsel representing all Holders, as defined in the IRA, participating in the offering, blue sky fees and expenses and the expense of any special audits incident to or required by any such registration, other than any underwriting discounts and selling commissions attributable to the sale of registrable securities, as defined in the IRA.

The IRA contains customary cross-indemnification provisions, pursuant to which we are obligated to indemnify Holders, as defined in the IRA, beneficially owning registrable securities covered by a registration statement in the event of material misstatements or omissions in the registration statement attributable to us, and each Holder, as defined in the IRA, is obligated to indemnify us for material misstatements or omissions in the registration statement attributable to them.

Certificate of Incorporation and Bylaws

Our amended and restated certificate of incorporation and amended and restated bylaws:

- permit our Board of Directors to issue up to 5,000,000 shares of preferred stock, with any rights, preferences and privileges as they may designate, including the right to approve an acquisition or other change of control;
- provide that the authorized number of directors may be changed only by resolution of our Board of Directors;
- provide that our Board of Directors will be classified into three classes of directors;
- provide that, subject to the rights of any series of preferred stock to elect directors, directors may only be removed for cause, which removal may be effected, subject to any limitation imposed by law, by the holders of at least 66 2/3% of the voting power of all of our then-outstanding shares of the capital stock entitled to vote generally at an election of directors;
- provide that all vacancies, including newly created directorships, may, except as otherwise required by law, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and not be taken by written consent or electronic transmission;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide advance notice in writing, and also specify requirements as to the form and content of a stockholder's notice;
- provide that special meetings of our stockholders may be called only by the chairman of our Board of Directors, our chief executive officer or by our Board of Directors pursuant to a resolution adopted by a majority of the total number of authorized directors; and

- not provide for cumulative voting rights, therefore allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose.

The amendment of any of these provisions would require approval by the holders of at least 66 2/3% of the voting power of all of our then-outstanding capital stock entitled to vote generally in the election of directors, voting together as a single class.

The combination of these provisions will make it more difficult for our existing stockholders to replace our Board of Directors as well as for another party to obtain control of us by replacing our Board of Directors. Since our Board of Directors has the power to retain and discharge our officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for our Board of Directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change our control.

These provisions are intended to enhance the likelihood of continued stability in the composition of our Board of Directors and its policies and to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to reduce our vulnerability to hostile takeovers and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of delaying changes in our control or management. As a consequence, these provisions may also inhibit fluctuations in the market price of our stock.

Delaware business combination statute

We are subject to Section 203 of the DGCL. Subject to certain exceptions, Section 203 prevents a publicly held Delaware corporation from engaging in a “business combination” with any “interested stockholder” for three years following the date that the person became an interested stockholder, unless the interested stockholder attained such status with the approval of our Board of Directors or unless the business combination is approved in a prescribed manner. A “business combination” includes, among other things, a merger or consolidation involving us and the “interested stockholder” and the sale of more than 10% of our assets. In general, an “interested stockholder” is any entity or person beneficially owning 15% or more of our outstanding voting stock and any entity or person affiliated with or controlling or controlled by such entity or person.

Amendment of certificate of incorporation and bylaws

DGCL provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation’s certificate of incorporation or bylaws, unless a corporation’s certificate of incorporation or bylaws, as the case may be, requires a greater percentage.

Exclusive forum selection

Our amended and restated certificate of incorporation specifies that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for most legal actions involving actions brought against us by stockholders. Notwithstanding the foregoing, the exclusive forum provision will not apply to any claim to enforce any liability or duty created by the Exchange Act or the Securities Act and for which the federal courts have exclusive jurisdiction. We believe this exclusive forum provision benefits us by providing increased consistency in the application of Delaware law by chancellors particularly experienced in resolving corporate disputes, efficient administration of cases on a more expedited schedule relative to other forums and protection against the burdens of multi-forum litigation. However, the provision may have the effect of discouraging lawsuits against our directors and officers. The enforceability of similar choice of forum provisions in other companies’ certificates of incorporation has been

challenged in legal proceedings, and it is possible that, in connection with any applicable action brought against us, a court could find the choice of forum provisions contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in such action.

Listing on The Nasdaq Global Market

Our common stock is listed on The Nasdaq Global Market under the symbol “BDSX.”

Authorized but unissued shares

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

Transfer agent and registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A. The transfer agent’s address 150 Royall Street, Canton, Massachusetts 02021, and its telephone number is (800) 962-4284.

PLAN OF DISTRIBUTION

We have entered into a sales agreement with TD Securities (USA) LLC (“TD Cowen”) under which we may issue and sell from time to time up to \$50,000,000 of our common stock through TD Cowen as our sales agent. In no event will the actual number of shares of common stock offered and sold pursuant to the sales agreement exceed the number of shares that we have available and authorized for issuance under our Certificate of Incorporation, as the same may be amended or amended and restated from time to time. Sales of our common stock, if any, will be made at market prices by any method that is deemed to be an “at the market” offering as defined in Rule 415 under the Securities Act, including sales made directly on The Nasdaq Global Market or any other trading market for our common stock. If authorized by us in writing, TD Cowen may purchase shares of our common stock as principal. Sales pursuant to the sales agreement may be made through an affiliate of TD Cowen.

TD Cowen will offer our common stock subject to the terms and conditions of the sales agreement on a daily basis or as otherwise agreed upon by us and TD Cowen. We will designate the maximum amount of common stock to be sold through TD Cowen on a daily basis or otherwise determine such maximum amount together with TD Cowen. Subject to the terms and conditions of the sales agreement, TD Cowen will use its commercially reasonable efforts to sell on our behalf all of the shares of common stock requested to be sold by us. We may instruct TD Cowen not to sell common stock if the sales cannot be effected at or above the price designated by us in any such instruction. TD Cowen or we may suspend the offering of our common stock being made through TD Cowen under the sales agreement upon proper notice to the other party. TD Cowen and we each have the right, by giving written notice as specified in the sales agreement, to terminate the sales agreement in each party’s discretion at any time.

The aggregate compensation payable to TD Cowen as sales agent is up to 3% of the gross sales price of the shares sold through it pursuant to the sales agreement. We have also agreed to reimburse TD Cowen up to \$75,000 of TD Cowen’s actual outside legal expenses incurred by TD Cowen in connection with this offering, plus an additional amount of up to \$15,000 in connection with determining our compliance with the rules and regulations of the Financial Industry Regulatory Authority, Inc. (“FINRA”). We estimate that the total expenses of the offering payable by us, excluding commissions payable to TD Cowen under the sales agreement, will be approximately \$171,000.

The remaining sales proceeds, after deducting any expenses payable by us and any transaction fees imposed by any governmental, regulatory, or self-regulatory organization in connection with the sales, will equal our net proceeds for the sale of such common stock.

TD Cowen will provide written confirmation to us following the close of trading on The Nasdaq Global Market on each day in which common stock is sold through it as sales agent under the sales agreement. Each confirmation will include the number of shares of common stock sold through it as sales agent on that day, the volume weighted average price of the shares sold and the net proceeds to us.

To the extent any sales are made, we will report at least quarterly the number of shares of common stock sold through TD Cowen under the sales agreement, the volume-weighted average price of the shares of common stock sold, and the gross proceeds to us from the sales of common stock.

Settlement for sales of common stock will occur, unless the parties agree otherwise, on the first business day that is also a trading day following the date on which any sales were made in return for payment of the net proceeds to us. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

In connection with the sales of our common stock on our behalf, TD Cowen will be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation paid to TD Cowen will be deemed to be underwriting commissions or discounts. We have agreed in the sales agreement to provide indemnification

and contribution to TD Cowen against certain liabilities, including liabilities under the Securities Act. As sales agent, TD Cowen will not engage in any transactions that stabilizes our common stock.

Our common stock is listed on The Nasdaq Global Market and trades under the symbol “BDSX.” The transfer agent of our common stock is Computershare.

TD Cowen and/or its affiliates have provided, and may in the future provide, various investment banking and other financial services for us for which services they have received and, may in the future receive, customary fees.

In addition, in the ordinary course of its business activities, TD Cowen and its affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. TD Cowen and its affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

LEGAL MATTERS

Certain legal matters in connection with the securities offered hereby will be passed upon for us by Sidley Austin LLP. Partners of Sidley Austin LLP own less than 1% of our outstanding common stock. TD Cowen is being represented in connection with this offering by Davis Polk & Wardwell LLP, New York, New York.

EXPERTS

The financial statements of Biodesix, Inc. as of December 31, 2023 and 2022, and for the years then ended, have been incorporated by reference herein in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-3 under the Securities Act of 1933, as amended (the “Securities Act”), with respect to the securities offered by this prospectus. This prospectus does not contain all of the information set forth in the registration statement, of which it is a part, and its exhibits and schedules in accordance with SEC rules and regulations. For further information with respect to us and the securities being offered by this prospectus, you should read the registration statement, including its exhibits and schedules. Statements contained in this prospectus, including documents that we have incorporated by reference, as to the contents of any contract or other document referred to are not necessarily complete, and, with respect to any contract or other document filed as an exhibit to the registration statement or any other such document, each such statement is qualified in all respects by reference to the corresponding exhibit. You should review the complete contract or other document to evaluate these statements. You may obtain copies of the registration statement and its exhibits via the SEC’s website at <http://www.sec.gov>.

We are subject to the information and periodic reporting requirements of the Exchange Act, and we file annual, quarterly and current reports, proxy statements and other documents with the SEC. The SEC maintains a website that contains reports, proxy and information statements and other information regarding issuers, including us, that file electronically with the SEC. You may obtain documents that we file with the SEC at <http://www.sec.gov>.

We also make these documents available on our website at www.biodesix.com. Our website and the information contained or accessible through our website is not incorporated by reference in this prospectus, and you should not consider it part of this prospectus.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

SEC rules permit us to incorporate information by reference in this prospectus. This means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is considered to be part of this prospectus, except for information superseded by information contained in this prospectus itself or in any subsequently filed incorporated document. This prospectus incorporates by reference the documents set forth below that we have previously filed with the SEC (Commission File No. 001-39659), other than information in such documents that is deemed to be furnished and not filed. These documents contain important information about us and our business and financial condition.

- Annual Report on Form 10-K for the year ended December 31, 2023, filed with the SEC on [March 1, 2024](#);
- Quarterly Reports on Form 10-Q for the periods ended March 31, 2024, June 30, 2024 and September 30, 2024, filed with the SEC on [May 8, 2024](#), [August 7, 2024](#) and [November 1, 2024](#), respectively;
- Current Reports on Form 8-K, filed with the SEC on [April 9, 2024](#) and [May 23, 2024](#);
- the information specifically incorporated by reference into our Annual Report on Form 10-K from our Definitive Proxy Statement on Schedule 14A, filed with the SEC on [April 26, 2024](#); and
- The description of our common stock contained in our Registration Statement on [Form 8-A](#), dated October 26, 2020.

All documents that we file (but not those that we furnish) pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act, after the date of the initial registration statement of which this prospectus is a part and prior to the effectiveness of the registration statement shall be deemed to be incorporated by reference into this prospectus and will automatically update and supersede the information in this prospectus, and any previously filed

documents. All documents that we file (but not those that we furnish) pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act on or after the date of this prospectus and prior to the termination of the offering of any of the securities covered under this prospectus shall be deemed to be incorporated by reference into this prospectus and will automatically update and supersede the information in this prospectus and any previously filed documents.

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

You can obtain any of the filings incorporated by reference into this prospectus through us or from the SEC through the SEC's website at <http://www.sec.gov>. Upon request, we will provide, without charge, a copy of any or all of the reports and documents referred to above which have been incorporated by reference into this prospectus. Prospective investors may obtain documents incorporated by reference in this prospectus by requesting them in writing or by telephone from us at our executive offices at:

Biodesix, Inc.
919 West Dillon Road
Louisville, Colorado 80027
(303) 417-0500

Our reports and documents incorporated by reference herein may also be found in the "Investor Relations" section of our website at www.biodesix.com. The content of our website and any information that is linked to or accessible from our website (other than our filings with the SEC that are incorporated by reference, as set forth under "Incorporation of Certain Information by Reference") is not incorporated by reference into this prospectus and you should not consider it a part of this prospectus.

Up to \$50,000,000



Common Stock

PROSPECTUS

TD Cowen

November 12, 2024
