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

**AMENDMENT NO. 1
TO
FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

BIODESIX, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

20-3986492
(I.R.S. Employer
Identification Number)

Biodesix, Inc.
2970 Wilderness Place, Suite 100
Boulder, Colorado 80301
(303) 417-0500

(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

Scott Hutton
President and Chief Executive Officer
Biodesix, Inc.
2970 Wilderness Place, Suite 100
Boulder, Colorado 80301
(303) 417-0500

(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

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Approximate date of commencement of proposed sale to the public: From time to time after this registration statement becomes effective.

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

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

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

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

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

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

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

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input checked="" type="checkbox"/>

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

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

EXPLANATORY NOTE

This registration statement contains two prospectuses:

- a base prospectus which covers the offering, issuance and sale by the Registrant of up to a maximum aggregate offering price of \$250,000,000 of the Registrant's common stock, preferred stock, warrants, rights to purchase common stock, preferred stock and units; and
- a sales agreement prospectus covering the offering, issuance and sale by the Registrant of up to a maximum aggregate offering price of \$50,000,000 of shares of the Registrant's common stock that may be offered, issued and sold from time to time under a sales agreement, dated November 15, 2021, with Cowen and Company, LLC.

The base prospectus immediately follows this explanatory note. The specific terms of any securities to be offered pursuant to the base prospectus will be specified in a prospectus supplement to the base prospectus. The sales agreement prospectus immediately follows the base prospectus. The common stock that may be offered, issued and sold by the Registrant under the sales agreement prospectus is included in the \$250,000,000 of securities that may be offered, issued and sold by the Registrant under the base prospectus. Upon termination of the sales agreement with Cowen and Company, LLC, any portion of the \$50,000,000 included in the sales agreement prospectus that is not sold pursuant to such sales agreement will be available for sale in other offerings pursuant to the base prospectus and a corresponding prospectus supplement related to any such other offering.

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

Subject to Completion, Dated November 24, 2021

PROSPECTUS



\$250,000,000

BIODESIX, INC.

Common Stock

Preferred Stock

Warrants

Rights to Purchase Common Stock, Preferred Stock or Units

Units

We may offer and sell from time to time our shares of common stock, shares of preferred stock, warrants, rights to purchase common stock, preferred stock or units, as well as units that include any of these securities. We may sell any combination of these securities in one or more offerings with an aggregate offering price of up to \$250,000,000.

This prospectus provides a general description of the securities we may offer. Each time we offer securities pursuant to this prospectus, we will provide a prospectus supplement containing specific terms of the particular offering together with this prospectus. You should read this prospectus and the applicable prospectus supplement carefully before you invest in any securities. The prospectus supplement also may add, update or change information contained in this prospectus.

This prospectus may not be used to offer and sell securities unless accompanied by the applicable prospectus supplement.

Our common stock is listed on the Nasdaq Global Market under the symbol "BDSX." On November 23, 2021, the last reported sale price of our common stock was \$6.29.

We may sell the securities directly or to or through underwriters or dealers, and also to other purchasers or through agents. The names of any underwriters or agents that are included in a sale of securities to you, and any applicable commissions or discounts, will be stated in an accompanying prospectus supplement. In addition, the underwriters, if any, may over-allot a portion of the securities.

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."

Investing in our securities involves significant risks. We strongly recommend that you read carefully the risks we describe in this prospectus and in any accompanying prospectus supplement, as well as the risk factors that are incorporated by reference into this prospectus from our filings made with the Securities and Exchange Commission. See "[Risk Factors](#)" on page 2 of 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.

The date of this prospectus is _____, 2021

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, (the “SEC”), using a “shelf” registration process. Under this shelf registration process, we may offer and sell from time to time any combination of the securities described in this prospectus in one or more offerings in amounts, at prices and on terms that we determine at the time of the offering, with an aggregate offering price of up to \$250,000,000. This prospectus provides you with a general description of the securities we may offer.

Each time we offer securities, we will provide a prospectus supplement that describes the terms of the relevant offering. The prospectus supplement also may add, update or change information contained in this prospectus. Before making an investment decision, you should read carefully both this prospectus and any prospectus supplement together with the documents incorporated by reference into this prospectus as described below under the heading “Information Incorporated by Reference.”

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

You should read both this prospectus and any accompanying prospectus supplement together with the additional information incorporated by reference. See “Where You Can Find More Information” and “Information Incorporated by Reference.” We have not authorized anyone to provide you with different information. You should not assume that the information in this prospectus or any supplement to this prospectus is accurate at any date other than the date indicated on the cover page of these documents or the filing date of any document incorporated by reference, regardless of its time of delivery. We are not making an offer to sell the securities in any jurisdiction where the offer or sale is not permitted.

We may sell our securities to or through underwriters, dealers or agents, directly to purchasers or through a combination of any of these methods of sale, as designated from time to time. We and our agents reserve the sole right to accept or reject in whole or in part any proposed purchase of our securities. An applicable prospectus supplement, which we will provide each time we offer the securities, will set forth the names of any underwriters, dealers or agents involved in the sale of our securities, and any related fee, commission or discount arrangements. See “Plan of Distribution.”

This summary highlights selected information from this prospectus and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, the applicable prospectus supplement and any related free writing prospectus, including the risks of investing in our securities discussed under the heading “Risk Factors” contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus. You should also carefully read the information incorporated by reference into this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part.

The terms “Biodesix,” the “Company,” “our,” “us” and “we,” as used in this prospectus, refer to Biodesix, Inc., unless we state otherwise or the context indicates otherwise.

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the specific risks discussed or incorporated by reference into the applicable prospectus supplement, together with all the other information contained in the prospectus or incorporated by reference into this prospectus and the applicable prospectus supplement. 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, 2020 and in our Quarterly Reports on Form 10-Q for the periods ended March 31, June 30 and September 30, 2021, 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 or by a prospectus supplement relating to a particular offering of our securities. The occurrence of 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.

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:

- the impact of a pandemic, epidemic, or outbreak of an infectious disease in the United States or worldwide, including the continuing spread of COVID-19 (including notable and severe mutations of the virus) may have a material adverse effect on our operations, our ability to generate revenues and income, and our ability to maintain compliance with our debt covenants and, under certain circumstances, remain a going concern;
- our inability to achieve or sustain profitability;
- 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;
- the demand for our COVID-19 and antibody testing program and our ability to meet such demand;
- 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;

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- natural or man-made disasters and other similar events, including the COVID-19 pandemic, 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 and warehousing providers;
- 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”.

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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.

BIODESIX, INC.

Company Overview

Biodesix is a data-driven diagnostic solutions company leveraging state of the art technologies with its proprietary artificial intelligence platform to discover, develop, and commercialize solutions for clinical unmet needs, with a primary focus in lung disease. In addition to diagnostic tests, the Company provides biopharmaceutical companies with services that include diagnostic research, clinical trial testing, and the discovery, development, and commercialization of companion diagnostics.

The Company performs its blood-based diagnostic tests in its laboratory facilities, which are located in Boulder, Colorado and De Soto, Kansas. In May 2020, the Federal Drug Administration (FDA) granted Emergency Use Authorization (EUA) of the Bio-Rad SARS-CoV-2 Droplet Digital™ polymerase chain reaction (ddPCR) test to detect Coronavirus Disease 2019 (COVID-19) infection. In April 2020, the FDA authorized the Platelia SARS-CoV-2 Total Ab test to detect COVID-19 antibodies. Medical products that are granted an EUA are only permitted to commercialize their products under the terms and conditions provided in the authorization. The FDA may revoke an EUA where it is determined that the underlying health emergency no longer exists or warrants such authorization, if the conditions for the issuance of the EUA are no longer met, or if other circumstances make revocation appropriate to protect the public health or safety.

Blood-Based Lung Tests

The Company offers four blood-based lung cancer tests across the lung cancer continuum of care:

- *Nodify XL2*® and *Nodify CDT*™ tests, marketed as our Nodify Lung® Nodule Risk Assessment testing strategy, assess the risk of lung cancer to help identify the most appropriate treatment pathway. 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.
- *GeneStrat*® and *VeriStrat*® tests, marketed as our Biodesix Lung Reflex® testing strategy, are used following diagnosis of lung cancer to measure the presence of mutations in the tumor and the state of the patient's immune system to establish the patient's prognosis and help guide treatment decisions. The GeneStrat targeted tumor profiling test and the VeriStrat immune profiling test have a 36-hour average turnaround time, providing physicians with timely results to facilitate treatment decisions.

COVID-19 Tests

We operate and have commercialized the Biodesix WorkSafe™ testing program, under which the Company offers three SARS-CoV-2 tests:

- *Bio-Rad SARS-CoV-2 ddPCR* test, which is authorized by the FDA to be performed by Clinical Laboratory Institute Amendments (CLIA) authorized laboratories that perform high complexity tests. The ddPCR test is designed to detect the presence of infection by the SARS-CoV-2 virus.
- *Platelia SARS-CoV-2 Total Ab* test, which is an antibody test, authorized by the FDA, intended for detecting a B-cell immune response to SARS-CoV-2, indicating recent or prior infection.
- *cPass*™ SARS-CoV-2 *Neutralization Antibody* test, which is the first blood-based surrogate neutralizing antibody test with FDA EUA and uses ELISA technology to qualitatively detect circulating neutralizing antibodies to the receptor binding domain (RBD) in the spike protein of SARS-CoV-2 that are produced in response to vaccination or a previous SARS-CoV-2 infection. This test was commercially introduced during the second quarter 2021 in partnership with GenScript Biotech Corporation.

These tests under the Biodesix WorkSafe™ testing program are utilized by healthcare providers, including hospitals and nursing homes, and are also offered to businesses and educational systems to assist in their back-to-work or back-to-school strategies, a crucial element of restarting economic activity.

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In developing the Company's products, the Company has built or gained access to unique biorepositories, proprietary technology, and bioinformatics methods that it believes are important to the development of new targeted therapies, determining clinical trial eligibility and guiding treatment selection.

All of the Company's testing services are made available through its clinical laboratories.

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 (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 this prospectus and 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 \$1.07 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) 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.

For certain risks related to our status as an emerging growth company, see "Risk Factors—Risks Related to our Common Stock and this Offering—We are an "emerging growth company" and a "smaller reporting

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company,” and the reduced disclosure requirements applicable to emerging growth companies and smaller reporting companies may make our common stock less attractive to investors.”

Corporate Information

We were incorporated in Delaware in 2005 as Elston Technologies, Inc. Our principal executive offices are located at 2970 Wilderness Place, Suite 100, Boulder, Colorado 80301, 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 securities.

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>.

USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds from the sale of the securities offered hereby. Except as described in any prospectus supplement or any related free writing prospectus that we may authorize to be provided to you, we currently intend to use the net proceeds from the sale of the securities offered hereby for general corporate purposes, including working capital, operating expenses and capital expenditures. We may also use a portion of the net proceeds to acquire or invest in businesses and products that are complementary to our own, although we have no current plans, commitments or agreements with respect to any acquisitions as of the date of this prospectus. We will set forth in the applicable prospectus supplement or free writing prospectus our intended use for the net proceeds received from the sale of any securities sold pursuant to the prospectus supplement or free writing prospectus. We intend to invest the net proceeds to us from the sale of securities offered hereby that are not used as described above in short-term, investment-grade, interest-bearing instruments.

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 November 12, 2021, we had outstanding 27,020,576 shares of common stock.

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. 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 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; and
- 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
- do 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 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

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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

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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.

DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of shares of our common stock or shares of our preferred stock. The following description sets forth certain general terms and provisions of the warrants that we may offer pursuant to this prospectus. The particular terms of the warrants and the extent, if any, to which the general terms and provisions may apply to the warrants so offered will be described in the applicable prospectus supplement.

Warrants may be issued independently or together with other securities and may be attached to or separate from any offered securities. Each series of warrants will be issued under a separate warrant agreement to be entered into between us and a bank or trust company, as warrant agent. The warrant agent will act solely as our agent in connection with the warrants and will not have any obligation or relationship of agency or trust for or with any holders or beneficial owners of warrants.

A copy of the forms of the warrant agreement and the warrant certificate relating to any particular issue of warrants will be filed with the SEC each time we issue warrants, and you should read those documents for provisions that may be important to you. For more information on how you can obtain copies of the forms of the warrant agreement and the related warrant certificate, see “Where You Can Find More Information.”

Stock Warrants

The prospectus supplement relating to a particular issue of warrants to issue shares of our common stock or shares of our preferred stock will describe the terms of the common share warrants and preferred share warrants, including the following:

- the title of the warrants;
- the offering price for the warrants, if any;
- the aggregate number of the warrants;
- the designation and terms of the shares of common stock or shares of preferred stock that may be purchased upon exercise of the warrants;
- the terms for changes or adjustments to the exercise price of the warrants;
- if applicable, the designation and terms of the securities that the warrants are issued with and the number of warrants issued with each security;
- if applicable, the date from and after which the warrants and any securities issued with the warrants will be separately transferable;
- the number of shares of common stock or shares of preferred stock that may be purchased upon exercise of a warrant and the price at which the shares may be purchased upon exercise;
- the dates on which the right to exercise the warrants commence and expire;
- if applicable, the minimum or maximum amount of the warrants that may be exercised at any one time;
- the currency or currency units in which the offering price, if any, and the exercise price are payable;
- if applicable, a discussion of material U.S. Federal income tax considerations;
- anti-dilution provisions of the warrants, if any;
- redemption or call provisions, if any, applicable to the warrants;
- any additional terms of the warrants, including terms, procedures and limitations relating to the exchange and exercise of the warrants; and
- any other information we think is important about the warrants.

Exercise of Warrants

Each warrant will entitle the holder of the warrant to purchase at the exercise price set forth in the applicable prospectus supplement the number of shares of common stock or shares of preferred stock. Unless we otherwise specify in the applicable prospectus supplement, holders may exercise warrants at any time up to the close of business on the expiration date set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants are void. Holders may exercise warrants as set forth in the prospectus supplement relating to the warrants being offered.

Until a holder exercises the warrants to purchase our shares of common stock or shares of preferred stock, the holder will not have any rights as a holder of our shares of common stock or shares of preferred stock, as the case may be, by virtue of ownership of warrants.

Enforceability of Rights by Holders of Warrants

Each warrant agent will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder of any warrant. A single bank or trust company may act as warrant agent for more than one issue of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action its right to exercise, and receive the securities purchasable upon exercise of, its warrants.

DESCRIPTION OF RIGHTS

The following is a general description of the terms of the rights we may issue from time to time unless we provide otherwise in the applicable prospectus supplement. Particular terms of any rights we offer will be described in the prospectus supplement relating to such rights.

General

We may issue rights to purchase common stock, preferred stock or units. Rights may be issued independently or together with other securities and may or may not be transferable by the person purchasing or receiving the rights. In connection with any rights offering to our stockholders, we may enter into a standby underwriting, backstop or other arrangement with one or more underwriters or other persons pursuant to which such underwriters or other persons would purchase any offered securities remaining unsubscribed for after such rights offering. In connection with a rights offering to our stockholders, we would distribute certificates evidencing the rights and a prospectus supplement to our stockholders on or about the record date that we set for receiving rights in such rights offering.

The applicable prospectus supplement will describe the following terms of any rights we may issue, including some or all of the following:

- the title and aggregate number of the rights;
- the subscription price or a formula for the determination of the subscription price for the rights and the currency or currencies in which the subscription price may be payable;
- if applicable, the designation and terms of the securities with which the rights are issued and the number of rights issued with each such security or each principal amount of such security;
- the number or a formula for the determination of the number of the rights issued to each stockholder;
- the extent to which the rights are transferable;
- in the case of rights to purchase common stock or preferred stock, the type of stock and number of shares of stock purchasable upon exercise of one right;
- the date on which the right to exercise the rights will commence, and the date on which the rights will expire (subject to any extension);
- if applicable, the minimum or maximum amount of the rights that may be exercised at any one time;
- the extent to which such rights include an over-subscription privilege with respect to unsubscribed securities;
- if applicable, the procedures for adjusting the subscription price and number of shares of common stock or preferred stock purchasable upon the exercise of each right upon the occurrence of certain events, including stock splits, reverse stock splits, combinations, subdivisions or reclassifications of common stock or preferred stock;
- the effect on the rights of any merger, consolidation, sale or other disposition of our business;
- the terms of any rights to redeem or call the rights;
- information with respect to book-entry procedures, if any;
- the terms of the securities issuable upon exercise of the rights;
- if applicable, the material terms of any standby underwriting, backstop or other purchase arrangement that we may enter into in connection with the rights offering;
- if applicable, a discussion of material U.S. Federal income tax considerations; and

- any other terms of the rights, including terms, procedures and limitations relating to the exchange and exercise of the rights.

Exercise of Rights

Each right will entitle the holder to purchase for cash or other consideration such shares of stock or principal amount of securities at the subscription price as shall in each case be set forth in, or be determinable as set forth in, the prospectus supplement relating to the rights offered thereby. Rights may be exercised as set forth in the applicable prospectus supplement beginning on the date specified therein and continuing until the close of business on the expiration date set forth in the prospectus supplement relating to the rights offered thereby. After the close of business on the expiration date, unexercised rights will become void.

Upon receipt of payment and a subscription certificate properly completed and duly executed at the corporate trust office of the subscription agent or any other office indicated in the prospectus supplement, we will, as soon as practicable, forward the securities purchasable upon such exercise. If less than all of the rights represented by such subscription certificate are exercised, a new subscription certificate will be issued for the remaining rights. If we so indicate in the applicable prospectus supplement, holders of the rights may surrender securities as all or part of the exercise price for rights.

We may determine to offer any unsubscribed offered securities directly to stockholders, persons other than stockholders, to or through agents, underwriters or dealers or through a combination of such methods, including pursuant to standby underwriting, backstop or other arrangements, as set forth in the applicable prospectus supplement.

Prior to exercising their rights, holders of rights will not have any of the rights of holders of the securities purchasable upon subscription, including, in the case of rights to purchase common stock or preferred stock, the right to receive dividends, if any, or payments upon our liquidation, dissolution or winding up or to exercise any voting rights.

DESCRIPTION OF UNITS

We may issue units comprising one or more securities described in this prospectus in any combination. The following description sets forth certain general terms and provisions of the units that we may offer pursuant to this prospectus. The particular terms of the units and the extent, if any, to which the general terms and provisions may apply to the units so offered will be described in the applicable prospectus supplement.

Each unit will be issued so that the holder of the unit also is the holder of each security included in the unit. Thus, the unit will have the rights and obligations of a holder of each included security. Units will be issued pursuant to the terms of a unit agreement, which may provide that the securities included in the unit may not be held or transferred separately at any time or at any time before a specified date. A copy of the forms of the unit agreement and the unit certificate relating to any particular issue of units will be filed with the SEC each time we issue units, and you should read those documents for provisions that may be important to you. For more information on how you can obtain copies of the forms of the unit agreement and the related unit certificate, see “Where You Can Find More Information.”

The prospectus supplement relating to any particular issuance of units will describe the terms of those units, including, to the extent applicable, the following:

- the designation and terms of the units and the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provision for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units; and
- whether the units will be issued in fully registered or global form.

PLAN OF DISTRIBUTION

We may sell the securities offered by this prospectus in any one or more of the following ways from time to time:

- to or through one or more underwriters, brokers or dealers;
- through agents to investors or the public;
- in short or long transactions;
- through put or call option transactions relating to our common stock;
- directly to agents or other purchasers;
- in “at the market offerings” within the meaning of Rule 415(a)(4) of the Securities Act of 1933, as amended, or the Securities Act, to or through a market maker or into an existing trading market, on an exchange or otherwise;
- through a combination of any such methods of sale; or
- through any other method described in the applicable prospectus supplement.

In addition, we may issue the securities as a dividend or distribution or in a subscription rights offering to our existing securityholders. This prospectus may be used in connection with any offering of our securities through any of these methods or other methods described in the applicable prospectus supplement.

We may directly solicit offers to purchase securities, or agents may be designated to solicit such offers. We will, in the prospectus supplement relating to such offering, name any agent that could be viewed as an underwriter under the Securities Act, and describe any commissions that we must pay. Any such agent will be acting on a best efforts basis for the period of its appointment or, if indicated in the applicable prospectus supplement, on a firm commitment basis.

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

- at a fixed price, or prices, which may be changed from time to time;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

The applicable prospectus supplement will set forth the terms of the offering and the method of distribution and will identify any firms acting as underwriters, dealers or agents in connection with the offering, including:

- the terms of the offering;
- the names of any underwriters, dealers or agents;
- the name or names of any managing underwriter or underwriters;
- the purchase price of the securities and the proceeds to us from the sale;
- any over-allotment options under which the underwriters may purchase additional shares of common stock from us;
- any underwriting discounts, concessions, commissions or agency fees and other items constituting compensation to underwriters, dealers or agents;
- any delayed delivery arrangements;

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- any public offering price;
- any discounts or concessions allowed or re-allowed or paid by underwriters or dealers to other dealers; or
- any securities exchange or market on which the common stock offered in the prospectus supplement may be listed.

If we use underwriters for a sale of securities, the underwriters will acquire the securities for their own account for resale to the public, either on a firm commitment basis or a best efforts basis. The underwriters may resell the securities in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. Underwriters may offer the securities to the public either through underwriting syndicates represented by one or more managing underwriters or directly by one or more firms acting as underwriters. If an underwriter or underwriters are used in the sale of securities hereunder, an underwriting agreement will be executed with the underwriter or underwriters at the time an agreement for sale is reached. Unless we inform you otherwise in the applicable prospectus supplement, the obligations of the underwriters to purchase the securities will be subject to certain conditions. We may change from time to time any public offering price and any discounts or concessions the underwriters allow or pay to dealers.

During and after an offering through underwriters, the underwriters may purchase and sell the securities in the open market. These transactions may include over-allotment and stabilizing transactions and purchases to cover syndicate short positions created in connection with the offering. The underwriters may also impose a penalty bid, which means that selling concessions allowed to syndicate members or other broker-dealers for the offered securities sold for their account may be reclaimed by the syndicate if the offered securities are repurchased by the syndicate in stabilizing or covering transactions. These activities may stabilize, maintain or otherwise affect the market price of the offered securities, which may be higher than the price that might otherwise prevail in the open market. If commenced, the underwriters may discontinue these activities at any time.

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

Some or all of the securities that we offer through this prospectus may be new issues of securities with no established trading market. Any underwriters to whom we sell our securities for public offering and sale may make a market in those securities, but they will not be obligated to do so and they may discontinue any market making at any time without notice. Accordingly, we cannot assure you of the liquidity of, or continued trading markets for, any securities that we offer.

If dealers are used for the sale of securities, we, or an underwriter, will sell the securities to them as principals. The dealers may then resell those securities to the public at varying prices determined by the dealers at the time of resale. We will include in the applicable prospectus supplement the names of the dealers and the terms of the transaction.

We may also sell the securities through agents designated from time to time. In the applicable prospectus supplement, we will name any agent involved in the offer or sale of the offered securities, and we will describe any commissions payable to the agent. Unless we inform you otherwise in the applicable prospectus supplement, any agent will agree to use its reasonable best efforts to solicit purchases for the period of its appointment.

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We may sell the securities directly in transactions not involving underwriters, dealers or agents.

We may sell the securities directly to institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act with respect to any sale of those securities. We will describe the terms of any such sales in the prospectus supplement.

Underwriters, dealers and agents that participate in the distribution of the securities may be underwriters as defined in the applicable securities laws and any discounts or commissions they receive from us and any profit on their resale of the securities may be treated as underwriting discounts and commissions under the applicable securities laws. We will identify in the applicable prospectus supplement any underwriters, dealers or agents and will describe their compensation. We may have agreements with the underwriters, dealers and agents to indemnify them against specified civil liabilities, including liabilities under the applicable securities laws.

Underwriters, dealers and agents may engage in transactions with or perform services for us in the ordinary course of their businesses for which they may receive customary fees and reimbursement of expenses.

We may use underwriters with whom we have a material relationship. We will describe the nature of such relationship in the applicable prospectus supplement.

Under the securities laws of some states, the securities offered by this prospectus may be sold in those states only through registered or licensed brokers or dealers.

We may enter into hedging transactions with broker-dealers and the broker-dealers may engage in short sales of the securities in the course of hedging the positions they assume with us, including, without limitation, in connection with distributions of the securities by those broker-dealers. We may enter into option or other transactions with broker-dealers that involve the delivery of the securities offered hereby to the broker-dealers, who may then resell or otherwise transfer those securities. We may also loan or pledge the securities offered hereby to a broker-dealer and the broker-dealer may sell the securities offered hereby so loaned or upon a default may sell or otherwise transfer the pledged securities offered hereby.

LEGAL MATTERS

The validity of the securities being offered hereby will be passed upon for us by Sidley Austin LLP.

EXPERTS

The financial statements of Biodesix, Inc. as of December 31, 2020 and 2019, and for each of the years in the two-year period ended December 31, 2020, have been incorporated by reference herein and in the registration statement in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in 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 and any applicable prospectus supplement. This prospectus and any applicable prospectus supplement do not contain all of the information set forth in the registration statement and its exhibits and schedules in accordance with SEC rules and regulations. For further information with respect to our company and the securities being offered by this prospectus and any applicable prospectus supplement, we refer you to the registration statement, including its exhibits and schedules. Statements contained in this prospectus and any applicable prospectus supplement, 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 file annual, quarterly and current reports, proxy statements and other documents with the SEC under the U.S. Securities Exchange Act of 1934, as amended (the “Exchange Act”). 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 or any prospectus supplement, and you should not consider it part of this prospectus or any prospectus supplement.

INFORMATION INCORPORATED BY REFERENCE

SEC rules permit us to incorporate information by reference in this prospectus and any applicable prospectus supplement. 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 and any applicable prospectus supplement, except for information superseded by information contained in this prospectus or any applicable prospectus supplement itself or in any subsequently filed incorporated document. This prospectus and any applicable prospectus supplement incorporate 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, 2020](#), filed with the SEC on March 16, 2021;
- Quarterly Reports on Form 10-Q for the periods ended [March 31, 2021](#), [June 30, 2021](#) and [September 30, 2021](#), filed with the SEC on May 11, 2021, August 10, 2021 and November 15, 2021, respectively;
- Current Reports on Form 8-K, filed with the SEC on [January 5, 2021](#) (Item 5.02 only), [March 23, 2021](#) and [May 27, 2021](#);
- 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 29, 2021; 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

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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, the applicable prospectus supplement and any previously filed documents.

Any statement contained herein or in a document incorporated or deemed to be incorporated by reference in this prospectus or any applicable prospectus supplement shall be deemed to be modified or superseded for purposes of this prospectus and such applicable prospectus supplement to the extent that a statement contained in this prospectus or such applicable prospectus supplement, or in any other subsequently filed document which also is or is deemed to be incorporated by reference in this prospectus and such applicable prospectus supplement, 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 or such applicable prospectus supplement.

You can obtain any of the filings incorporated by reference into this prospectus or any applicable prospectus supplement 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 or any applicable prospectus supplement. Prospective investors may obtain documents incorporated by reference in this prospectus or any applicable prospectus supplement by requesting them in writing or by telephone from us at our executive offices at:

Biodesix, Inc.
2970 Wilderness Place, Suite 100
Boulder, Colorado 80301
(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 "Information Incorporated by Reference") is not incorporated by reference into this prospectus or any applicable prospectus supplement and you should not consider it a part of this prospectus, any applicable prospectus supplement, or the registration statement.

\$250,000,000



Common Stock
Preferred Stock
Warrants
Rights to Purchase Common Stock, Preferred Stock or Units
Units

, 2021

PROSPECTUS

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

SUBJECT TO COMPLETION, DATED NOVEMBER 24, 2021

PROSPECTUS

Up to \$50,000,000



Common Stock

We have entered into a sales agreement with Cowen and Company, LLC (“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 Cowen acting as our agent.

Our common stock is listed on The NASDAQ Global Market under the symbol “BDSX”. On November 23, 2021, the last reported sale price of our common stock on The NASDAQ Global Market was \$6.29 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”). 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 Cowen and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

The compensation to Cowen for sales of common stock sold pursuant to the sales agreement will be an amount equal 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, Cowen will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation of Cowen will be deemed to be underwriting commissions or discounts. See “Plan of Distribution” beginning on page S-20 for additional information regarding the compensation to be paid to Cowen. We have also agreed to provide indemnification and contribution to 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.

Cowen

, 2021

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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 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 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 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.

Overview

Biodesix is a data-driven diagnostic solutions company leveraging state of the art technologies with its proprietary artificial intelligence platform to discover, develop, and commercialize solutions for clinical unmet needs, with a primary focus in lung disease. In addition to diagnostic tests, the Company provides biopharmaceutical companies with services that include diagnostic research, clinical trial testing, and the discovery, development, and commercialization of companion diagnostics.

The Company performs its blood-based diagnostic tests in its laboratory facilities, which are located in Boulder, Colorado and De Soto, Kansas. In May 2020, the Federal Drug Administration (FDA) granted Emergency Use Authorization (EUA) of the Bio-Rad SARS-CoV-2 Droplet Digital™ polymerase chain reaction (ddPCR) test to detect Coronavirus Disease 2019 (COVID-19) infection. In April 2020, the FDA authorized the Platelia SARS-CoV-2 Total Ab test to detect COVID-19 antibodies. Medical products that are granted an EUA are only permitted to commercialize their products under the terms and conditions provided in the authorization. The FDA may revoke an EUA where it is determined that the underlying health emergency no longer exists or warrants such authorization, if the conditions for the issuance of the EUA are no longer met, or if other circumstances make revocation appropriate to protect the public health or safety.

Blood-Based Lung Tests

The Company offers four blood-based lung cancer tests across the lung cancer continuum of care:

- *Nodify XL2*® and *Nodify CDT*™ tests, marketed as our *Nodify Lung*® Nodule Risk Assessment testing strategy, assess the risk of lung cancer to help identify the most appropriate treatment pathway. 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.
- *GeneStrat*® and *VeriStrat*® tests, marketed as our *Biodesix Lung Reflex*® testing strategy, are used following diagnosis of lung cancer to measure the presence of mutations in the tumor and the state of the patient’s immune system to establish the patient’s prognosis and help guide treatment decisions. The *GeneStrat* targeted tumor profiling test and the *VeriStrat* immune profiling test have a 36-hour average turnaround time, providing physicians with timely results to facilitate treatment decisions.

COVID-19 Tests

We operate and have commercialized the *Biodesix WorkSafe*™ testing program, under which the Company offers three SARS-CoV-2 tests:

- *Bio-Rad SARS-CoV-2 ddPCR* test, which is authorized by the FDA to be performed by Clinical Laboratory Institute Amendments (CLIA) authorized laboratories that perform high complexity tests. The ddPCR test is designed to detect the presence of infection by the SARS-CoV-2 virus.

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- *Platelia SARS-CoV-2 Total Ab* test, which is an antibody test, authorized by the FDA, intended for detecting a B-cell immune response to SARS-CoV-2, indicating recent or prior infection.
- *cPass™ SARS-CoV-2 Neutralization Antibody* test, which is the first blood-based surrogate neutralizing antibody test with FDA EUA and uses ELISA technology to qualitatively detect circulating neutralizing antibodies to the receptor binding domain (RBD) in the spike protein of SARS-CoV-2 that are produced in response to vaccination or a previous SARS-CoV-2 infection. This test was commercially introduced during the second quarter 2021 in partnership with GenScript Biotech Corporation.

These tests under the Biodesix WorkSafe™ testing program are utilized by healthcare providers, including hospitals and nursing homes, and are also offered to businesses and educational systems to assist in their back-to-work or back-to-school strategies, a crucial element of restarting economic activity.

In developing the Company's products, the Company has built or gained access to unique biorepositories, proprietary technology, and bioinformatics methods that it believes are important to the development of new targeted therapies, determining clinical trial eligibility and guiding treatment selection.

All of the Company's testing services are made available through its clinical laboratories.

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 (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 this prospectus and 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 \$1.07 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) the last day of the fiscal year ending after the fifth anniversary of the completion of our initial public offering.

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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.

For certain risks related to our status as an emerging growth company, see “Risk Factors—Risks Related to our Common Stock and this Offering—We are an “emerging growth company” and a “smaller reporting company,” and the reduced disclosure requirements applicable to emerging growth companies and smaller reporting companies may make our common stock less attractive to investors.”

Corporate Information

We were incorporated in Delaware in 2005 as Elston Technologies, Inc. Our principal executive offices are located at 2970 Wilderness Place, Suite 100, Boulder, Colorado 80301, 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.
Common stock to be outstanding after this offering	Up to 33,422,118 shares, assuming the sale of \$50,000,000 of shares at a sales price of \$7.81 per share, which was the last reported sale price on The NASDAQ Global Market on November 12, 2021. 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, Cowen. See “Plan of Distribution” on page S-20 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, (3) funding the expansion of technology integration efforts and automation and (4) our Integrated Diagnostics acquisition milestone payments. 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 27,020,070 shares outstanding as of September 30, 2021 and excludes:

- 691,918 shares of common stock reserved for future issuance under our 2020 Equity Incentive Plan (the “2020 Incentive Plan”); and
- 295,251 shares of common stock reserved for issuance pursuant to future awards under our 2020 Employee Stock Purchase Plan (“ESPP”).

This prospectus reflects and assumes no exercise of outstanding options or warrants.

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, 2020 and in our Quarterly Reports on Form 10-Q for the periods ended March 31, June 30 and September 30, 2021, 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 November 12, 2021, 719,509 shares of common stock were reserved for future issuance under the 2020 Incentive Plan and 295,251 shares of common stock were reserved for future issuance under the ESPP. As of that date,

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there were also options to purchase 3,210,703 shares of our common stock outstanding and 119,192 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 have incurred significant losses since inception, including as a consequence of the COVID-19 pandemic.

As of September 30, 2021, we maintained cash and cash equivalents of \$47.9 million and we are fully drawn under our \$30 million Loan and Security Agreement dated March 19, 2021 (the “2021 Term Loan”). 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 our initial public offering in October 2020, the issuance of notes payable, and from our two primary revenue sources: (i) diagnostic testing, which include lung diagnostic testing and COVID-19 testing, and (ii) providing biopharmaceutical companies with development and testing services.

As a result of the impact of the COVID-19 pandemic on our operations and our obligation to remain in compliance with our financial covenants under our 2021 Term Loan, our management has determined that there is a substantial doubt about our ability to continue as a going concern over the next twelve months. If we are not able to improve our operating results, we may need to limit our operations substantially. We will need to raise additional capital to increase our liquidity but there is no assurance that we will be able to secure any such funding in a sufficient amount or on terms that are acceptable to us. If we do raise additional capital through public or private 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. Furthermore, the reaction of investors to the inclusion of a going concern statement in our periodic filings, 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 Cowen at any time throughout the term of the sales agreement. The number of shares that are sold through 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 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

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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:

- our ability to continue as a going concern;
- the level of demand for our diagnostic tests, which may vary significantly;
- the timing and cost of manufacturing our diagnostic tests, which may vary depending on the quantity of production and the terms of our agreements with third-party suppliers and manufacturers;
- expenditures that we may incur to acquire, develop or commercialize additional tests and technologies;
- unanticipated pricing pressures;
- the rate at which we grow our sales force and the speed at which newly hired salespeople become effective, and the cost and level of investment therein;
- the degree of competition in our industry and any change in the competitive landscape of our industry, including consolidation among our competitors or future partners;
- coverage and reimbursement policies with respect to lung cancer treatment equipment, and potential future diagnostic tests that compete with our diagnostic test;
- the timing and success or failure of clinical trials for our diagnostic tests or any enhancements to such tests we develop or competing diagnostic tests;
- positive or negative coverage, or public perception, of our diagnostic tests or those of our competitors or broader industry trends;
- the impact, if any, of the spread of COVID-19, and the resulting effects on the number of patients treated or the demand for our non-COVID-19 diagnostic tests;
- the timing and cost of, and level of investment in, research, development, licenses, regulatory approval, commercialization activities, acquisitions and other strategic transactions, or other significant events relating to our diagnostic tests, which may change from time to time;
- the timing and cost of obtaining regulatory approvals or clearances for planned or future improvements or enhancements to our diagnostic tests;
- changes in governmental regulations or in the status of regulatory approvals or applications;
- pricing, discounts and incentives for our diagnostic tests;
- general market conditions; and
- the other factors described in the “Risk Factors” sections of our Form 10-K for the year ended December 31, 2020 and in our Quarterly Reports on Form 10-Q for the periods ended March 31, June 30 and September 30, 2021, and in subsequent filings, which are incorporated by reference into this prospectus

In addition, the spread of COVID-19 has caused a broad impact globally. While the potential economic impact brought by, and the duration of, COVID-19 may be difficult to assess or predict, it has significantly disrupted global financial markets, and a recession or market correction resulting from the spread or continuation of COVID-19 could materially affect our business and the value of our common stock.

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:

- the impact of a pandemic, epidemic, or outbreak of an infectious disease in the United States or worldwide, including the continuing spread of COVID-19 (including notable and severe mutations of the virus) may have a material adverse effect on our operations, our ability to generate revenues and income, and our ability to maintain compliance with our debt covenants and, under certain circumstances, remain a going concern;
- our inability to achieve or sustain profitability;
- 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;
- the demand for our COVID-19 and antibody testing program and our ability to meet such demand;
- 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;
- natural or man-made disasters and other similar events, including the COVID-19 pandemic, 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 and warehousing providers;
- cost-containment efforts of our customers, purchasing groups and integrated delivery networks having a material adverse effect on our sales and profitability;

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- 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.

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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 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, (3) funding the expansion of technology integration efforts and automation and (4) our Integrated Diagnostics acquisition milestone payments. 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, 2021 was approximately \$16,033,000, or \$0.59 per share of our common stock. Net tangible book value per share as of September 30, 2021 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, 2021.

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 \$7.81 per share, the last reported sale price of our common stock on The NASDAQ Global Market on November 12, 2021, and after deducting estimated offering commissions and expenses payable by us, our as adjusted net tangible book value would have been approximately \$64,233,000, or \$1.92 per share of common stock, as of September 30, 2021. This represents an immediate increase in net tangible book value of approximately \$1.33 per share to existing stockholders and an immediate dilution of approximately \$5.89 per share to investors in this offering. The following table illustrates this calculation on a per share basis.

Assumed public offering price per share	\$7.81
Net tangible book value per share as of September 30, 2021	\$0.59
Increase in net tangible book value per share attributable to this offering	<u>\$1.33</u>
As adjusted net tangible book value per share as of September 30, 2021, after giving effect to this offering	<u>\$1.92</u>
Dilution per share to new investors purchasing shares in this offering	\$5.89

The table above assumes for illustrative purposes that an aggregate of 6,402,048 shares of our common stock are sold at a price of \$7.81 per share, the last reported sale price of our common stock on The NASDAQ Global Market on November 12, 2021, 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 \$7.81 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 \$1.96 per share and would increase the dilution in net tangible book value per share to new investors in this offering to \$6.85 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 \$7.81 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 \$1.87 per share and would decrease the dilution in net tangible book value per share to new investors in this offering to \$4.94 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 27,020,070 shares outstanding as of September 30, 2021 and excludes:

- 691,918 shares of common stock reserved for future issuance under the 2020 Incentive Plan; and
- 295,251 shares of common stock reserved for issuance pursuant to future awards under the ESPP.

This prospectus also reflects and assumes no exercise of outstanding options or warrants.

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 November 12, 2021, we had 27,020,576 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. 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

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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.

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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 Cowen and Company, LLC (“Cowen”) under which we may issue and sell from time to time up to \$50,000,000 of our common stock through Cowen as our sales agent. 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, Cowen may purchase shares of our common stock as principal.

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 Cowen. We will designate the maximum amount of common stock to be sold through Cowen on a daily basis or otherwise determine such maximum amount together with Cowen. Subject to the terms and conditions of the sales agreement, 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 Cowen not to sell common stock if the sales cannot be effected at or above the price designated by us in any such instruction. Cowen or we may suspend the offering of our common stock being made through Cowen under the sales agreement upon proper notice to the other party. 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 Cowen as sales agent equals 3% of the gross sales price of the shares sold through it pursuant to the sales agreement. We have also agreed to reimburse Cowen up to \$75,000 of Cowen’s actual outside legal expenses incurred by 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 Cowen under the sales agreement, will be approximately \$300,000.

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.

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 Cowen under the sales agreement, the net proceeds to us and the compensation paid by us to Cowen in connection with the sales of common stock.

Settlement for sales of common stock will occur, unless the parties agree otherwise, on the second 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, Cowen will be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation paid to Cowen will be deemed to be underwriting commissions or discounts. We have agreed in the sales agreement to provide indemnification and contribution to Cowen against certain liabilities, including liabilities under the Securities Act. As sales agent, 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.

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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, 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. 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. 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, 2020 and 2019, and for each of the years in the two-year period ended December 31, 2020, have been incorporated by reference herein and in the registration statement in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in 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, 2020, filed with the SEC on March 16, 2021;
- Quarterly Reports on Form 10-Q for the periods ended [March 31, 2021](#), [June 30, 2021](#) and [September 30, 2021](#), filed with the SEC on May 11, 2021, August 10, 2021 and November 15, 2021, respectively;
- Current Reports on Form 8-K, filed with the SEC on [January 5, 2021](#) (Item 5.02 only), [March 23, 2021](#) and [May 27, 2021](#);
- 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 29, 2021; 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

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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.
2970 Wilderness Place, Suite 100
Boulder, Colorado 80301
(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

Cowen

, 2021

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

Set forth below is an estimate (except in the case of the registration fee) of the amount of fees and expenses to be incurred in connection with the issuance and distribution of the offered securities, other than underwriting discounts and commissions. All amounts are estimates except the SEC registration fee and the FINRA filing fee.

SEC registration fee	\$ 23,175
FINRA filing fee	38,000
Legal fees and expenses	*
Accounting fees and expenses	*
Printing expenses	*
Transfer agent and registrar fees	*
Miscellaneous	*
Total	\$ *

* Estimated expenses not presently known.

Item 15. Indemnification of Directors and Officers

No director of the Company shall be personally liable to the Company or its stockholders for monetary damages for breach of fiduciary duty as a director, except to the extent such exemption from liability or limitation thereof is not permitted under the DGCL, as it presently exists or may hereafter be amended from time to time. If the DGCL is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Company shall be eliminated or limited to the fullest extent permitted by the DGCL, as so amended.

The Company shall indemnify its directors and officers to the fullest extent authorized or permitted by the DGCL, as now or hereafter in effect, and such right to indemnification shall continue as to a person who has ceased to be a director or officer of the Company and shall inure to the benefit of such person's heirs, executors and personal and legal representatives. A director's or officer's right to indemnification shall include the right to be paid by the Company the expenses incurred in defending or otherwise participating in any proceeding in advance of its final disposition, provided that such director or officer presents to the Company a written undertaking to repay such amount if it shall ultimately be determined that such director or officer is not entitled to be indemnified by the Company. Notwithstanding the foregoing, except for proceedings to enforce any director's or officer's rights to indemnification or rights to advancement of expenses, the Company shall not be obligated to indemnify any director or officer, or advance expenses of any director or officer, (or such director's or officer's heirs, executors or personal or legal representatives) in connection with any proceeding (or part thereof) initiated by such person unless such proceeding (or part thereof) was authorized by the Board.

The rights to indemnification and advancement of expenses shall neither be exclusive of, nor be deemed in limitation of, any rights to which any person may otherwise be or become entitled or permitted under the Certificate of Incorporation, the Bylaws, any statute, agreement, vote of stockholders or disinterested directors or otherwise.

To the fullest extent authorized or permitted by the DGCL, the Company may purchase and maintain insurance on behalf of any current or former director or officer of the Company against any liability asserted against such person, whether or not the Company would have the power to indemnify such person against such liability.

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The sales agreement filed as Exhibit 1.2 to this registration statement provides for indemnification of us and our directors and officers by Cowen against certain liabilities under the Securities Act and the Exchange Act.

The underwriting agreement, to be filed by an amendment to this registration statement, will provide for indemnification of us and our directors and officers by the underwriters against certain liabilities under the Securities Act and the Exchange Act.

Item 16. Exhibits

Exhibit Number	Description of Document
1.1†	Form(s) of underwriting agreement(s).
1.2*	Sales Agreement, dated as of November 15, 2021, between the Registrant and Cowen and Company, LLC (previously filed with the Company's Registration Statement on Form S-3, with the SEC on November 15, 2021).
3.1*	Amended and Restated Certificate of Incorporation of the Registrant (previously filed with the Company's Annual Report on Form 10-K dated December 31, 2020).
3.2*	Amended and Restated Bylaws of the Registrant (previously filed with the Company's Annual Report on Form 10-K dated December 31, 2020).
4.1†	Form(s) of Rights Agreement(s) (including form(s) of Rights).
4.2†	Form of Certificate of Designation of Preferred Stock.
4.3*	Specimen stock certificate evidencing shares of Common Stock (previously filed with the Company's Registration Statement on Form S-1/A, with the SEC on October 21, 2020).
4.4†	Form of Warrant Agreement and Warrant Certificate.
4.5†	Form of Certificate for Preferred Stock.
4.6*	Eleventh Amended and Restated Investor Rights Agreement, (previously filed in the Company's Registration Statement on Form S-1, with the SEC on October 2, 2020).
5.1	Opinion of Sidley Austin LLP.
5.2*	Opinion of Sidley Austin LLP (previously filed with the Company's Registration Statement on Form S-3, with the SEC on November 15, 2021).
23.1	Consent of Sidley Austin LLP (included in Exhibit 5.1).
23.2*	Consent of Sidley Austin LLP (included in Exhibit 5.2).
23.3	Consent of KPMG LLP
24.1*	Power of Attorney.

* Previously filed.

† To be filed by amendment or as exhibit(s) to a Current Report of the Registrant on Form 8-K and incorporated herein by reference, as applicable.

Item 17. Undertakings

(a) The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by section 10(a)(3) of the Securities Act;

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- (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in this registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
- (iii) To include any material information with respect to the plan of distribution not previously disclosed in this registration statement or any material change to such information in this registration statement;

provided, however, that subparagraphs (i), (ii) and (iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in this registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act to any purchaser:
 - (i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

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- (5) That, for the purpose of determining liability of the registrant under the Securities Act to any purchaser in the initial distribution of the securities:

The undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

- (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or their securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.
- (b) The undersigned registrant hereby further undertakes that, for the purposes of determining any liability under the Securities Act, each filing of the annual reports of the registrant pursuant to Section 13(a) or Section 15(d) of the Exchange Act that are incorporated by reference in this registration statement, if any, shall be deemed to be a new registration statement relating to the securities offered herein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (c) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the provisions described under Item 15 of this registration statement, or otherwise, the registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in such the Securities Act and will be governed by the final adjudication of such issue.
- (d) The undersigned registrant hereby undertakes that:
- (1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective; and
 - (2) For purposes of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Boulder, State of Colorado on this 24th day of November, 2021.

BIODESIX, INC.

By: /s/ Scott Hutton

Scott Hutton
President, Chief Executive Officer and Director
(Principal Executive Officer)

/s/ Robin Harper Cowie

Robin Harper Cowie
Chief Financial Officer, Secretary and Treasurer
(Principal Financial Officer)

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Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed by the following persons in the capacities indicated on the date indicated:

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Scott Hutton</u> Scott Hutton	President, Chief Executive Officer and Director (Principal Executive Officer)	November 24, 2021
<u>/s/ Robin Harper Cowie</u> Robin Harper Cowie	Chief Financial Officer, Secretary and Treasurer (Principal Financial Officer)	November 24, 2021
<u> *</u> John Patience	Chairman and Director	November 24, 2021
<u> *</u> Jack Schuler	Director	November 24, 2021
<u> *</u> Matthew Strobeck, Ph.D.	Director	November 24, 2021
<u> *</u> Charles Watts, M.D.	Director	November 24, 2021
<u> *</u> Jean Franchi	Director	November 24, 2021
<u> *</u> Hany Massarany	Director	November 24, 2021

* By: /s/ Robin Harper Cowie
Robin Harper Cowie
Attorney-in-fact

SIDLEY

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555 CALIFORNIA STREET
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SAN FRANCISCO, CA 94104
+1 415 772 1200
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AMERICA • ASIA PACIFIC • EUROPE

November 24, 2021

Biodesix, Inc.
2970 Wilderness Place, Suite 100
Boulder, CO 80301

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We refer to the Registration Statement on Form S-3 (the "Registration Statement") originally filed by Biodesix, Inc., a Delaware corporation (the "Company"), with the Securities and Exchange Commission (the "SEC") under the Securities Act of 1933, as amended (the "Securities Act"), on November 15, 2021, relating to the registration of up to an aggregate total offering price of \$250,000,000 of:

- (a) shares of the Company's common stock, \$0.001 par value per share (the "Common Stock");
- (b) shares of the Company's preferred stock, \$0.001 par value per share (the "Preferred Stock");
- (c) warrants to purchase Common Stock or Preferred Stock (as defined below) (the "Warrants");
- (d) rights to purchase Common Stock, Preferred Stock or Units (as defined below) (the "Rights"); and
- (e) units (the "Units"), each consisting of two or more types of the securities listed in clauses (a) through (d) above.

The Common Stock, the Preferred Stock, the Warrants, the Rights and the Units are collectively referred to herein as the "Securities."

Unless otherwise specified in the applicable prospectus supplement:

(1) the Warrants will be issued under a warrant agreement (the "Warrant Agreement") to be entered into between the Company and a warrant agent (the "Warrant Agent");

(2) any Rights will be issued under a rights agreement (the "Rights Agreement") to be entered into between the Company and a rights agent (the "Rights Agent"); and

(3) the Units will be issued pursuant to one or more unit agreements (each, a "Unit Agreement") to be entered into between the Company and a unit agent (each, a "Unit Agent");

in each case substantially in the form that has been or will be filed as one or more exhibits to the Registration Statement.

This opinion letter is being delivered in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act.

Sidley Austin (NY) LLP is a Delaware limited liability partnership doing business as Sidley Austin LLP and practicing in affiliation with other Sidley Austin partnerships.

We have examined the Registration Statement, the exhibits thereto, the certificate of incorporation of the Company, as amended to the date hereof (the “Charter”), the bylaws of the Company, as amended to the date hereof (the “Bylaws”), and the resolutions (the “Resolutions”) adopted by the board of directors of the Company (the “Board”) relating to the Registration Statement. We have also examined originals, or copies of originals certified to our satisfaction, of such agreements, documents, certificates and statements of the Company and others, and have examined such questions of law, as we have considered relevant and necessary as a basis for this opinion letter. We have assumed the authenticity of all documents submitted to us as originals, the genuineness of all signatures, the legal capacity of all persons and the conformity with the original documents of any copies thereof submitted to us for examination. As to facts relevant to the opinions expressed herein, we have relied without independent investigation or verification upon, and assumed the accuracy and completeness of, certificates, letters and oral and written statements and representations of public officials and officers and other representatives of the Company.

Based on and subject to the foregoing and the other limitations, qualifications and assumptions set forth herein, we are of the opinion that:

1. With respect to an offering of shares of Common Stock covered by the Registration Statement, such shares of Common Stock will be validly issued, fully paid and nonassessable, when: (i) the Registration Statement, as finally amended (including any necessary post-effective amendments), shall have become effective under the Securities Act; (ii) a prospectus supplement with respect to the sale of such shares of Common Stock, if any shall be required, shall have been filed with the SEC in compliance with the Securities Act and the rules and regulations thereunder; (iii) the Board or a duly authorized committee thereof shall have duly adopted final resolutions in conformity with the Charter, the Bylaws and the Resolutions authorizing the issuance and sale of such shares of Common Stock; and (iv) certificates representing such shares of Common Stock shall have been duly executed, countersigned and registered and duly delivered in accordance with the applicable definitive purchase, underwriting or similar agreement upon payment of the agreed consideration therefor in an amount not less than the aggregate par value thereof or, if any such shares of Common Stock are to be issued in uncertificated form, the Company’s books shall reflect the issuance of such shares of Common Stock in accordance with the applicable definitive purchase, underwriting or similar agreement upon payment of the agreed consideration therefor in an amount not less than the aggregate par value thereof.

2. The issuance and sale of each series of Preferred Stock covered by the Registration Statement will be duly authorized, and each share of such series of Preferred Stock will be validly issued, fully paid and nonassessable, when: (i) the Registration Statement, as finally amended (including any necessary post-effective amendments), shall have become effective under the Securities Act; (ii) a prospectus supplement with respect to the sale of such series of Preferred Stock shall have been filed with the SEC in compliance with the Securities Act and the rules and regulations thereunder; (iii) the Board or a duly authorized committee thereof shall have duly adopted final resolutions in conformity with the Charter, the Bylaws and the Resolutions establishing the designations, preferences, rights, qualifications, limitations or restrictions of such series of Preferred Stock and authorizing the issuance and sale of such series of Preferred Stock; (iv) the Company shall have filed with the Secretary of State of the State of Delaware a Certificate of Designations with respect to such series of Preferred Stock in accordance with the General Corporation Law of the State of Delaware (the “DGCL”) and in conformity with the Charter and such final resolutions; and (v) certificates representing such series of Preferred Stock shall have been duly executed, countersigned and registered and duly delivered in accordance with the applicable definitive purchase, underwriting or similar agreement to the purchasers thereof against payment of the agreed consideration therefor in an amount not less than the aggregate par value thereof or, if any shares of such series of Preferred Stock are to be issued in uncertificated form, the Company’s books shall reflect the issuance of such shares in accordance with the applicable definitive purchase, underwriting or similar agreement upon payment of the agreed consideration therefor in an amount not less than the aggregate par value thereof.

3. Each issue of Warrants covered by the Registration Statement will constitute valid and binding obligations of the Company when: (i) the Registration Statement, as finally amended (including any necessary post-effective amendments), shall have become effective under the Securities Act; (ii) a prospectus supplement with respect to such issue of Warrants and the Common Stock or Preferred Stock issuable upon exercise of such Warrants shall have been filed with the SEC in compliance with the Securities Act and the rules and regulations thereunder; (iii) a Warrant Agreement relating to such issue of Warrants shall have been duly authorized, executed and delivered by the Company and duly executed and delivered by the Warrant Agent named in the Warrant Agreement; (iv) the Board or a duly authorized committee thereof shall have duly adopted final resolutions in conformity with the Charter, the Bylaws and the Resolutions authorizing the execution and delivery of the Warrant Agreement and the issuance and sale of such issue of Warrants; (v) if such Warrants are exercisable for Common Stock, the actions described in paragraph 1 above shall have been taken; (vi) if such Warrants are exercisable for Preferred Stock, the actions described in paragraph 2 above shall have been taken; and (vii) certificates representing such issue of Warrants shall have been duly executed, countersigned and issued in accordance with such Warrant Agreement and shall have been duly delivered in accordance with the applicable definitive purchase, underwriting or similar agreement to the purchasers thereof against payment of the agreed consideration therefor.

4. With respect to an offering of Rights covered by the Registration Statement, such Rights will constitute valid and binding obligations of the Company when: (i) the Registration Statement, as finally amended (including any necessary post-effective amendments), shall have become effective under the Securities Act; (ii) a prospectus supplement with respect to such Rights and the Common Stock, Preferred Stock or Units, as the case may be, issuable upon exercise of such Rights shall have been filed with the SEC in compliance with the Securities Act and the rules and regulations thereunder; (iii) a Rights Agreement relating to such Rights shall have been duly authorized, executed and delivered by the Company and duly executed and delivered by the Rights Agent named in the Rights Agreement; (iv) the Board or a duly authorized committee thereof shall have duly adopted final resolutions in conformity with the Charter, the Bylaws and the Resolutions authorizing the execution and delivery of the Rights Agreement and the execution, delivery, issuance and sale of such Rights; (v) if such Rights relate to the issuance and sale of Common Stock, the actions described in paragraph 1 above shall have been taken; (vi) if such Rights relate to the issuance and sale of Preferred Stock, the actions described in paragraph 2 above shall have been taken; and (vii) certificates representing such Rights shall have been duly executed, countersigned and registered in accordance with the Rights Agreement and shall have been duly delivered to the purchasers thereof in accordance with the Rights Agreement against payment of the agreed consideration therefor.

5. With respect to an offering of Units covered by the Registration Statement, such Units will constitute valid and binding obligations of the Company when: (i) the Registration Statement, as finally amended (including any necessary post-effective amendments), shall have become effective under the Securities Act; (ii) a prospectus supplement with respect to such Units and the Common Stock, Preferred Stock, Warrants or Rights, as the case may be, included as a component of such Units shall have been filed with the SEC in compliance with the Securities Act and the rules and regulations thereunder; (iii) a Unit Agreement relating to such issue of Units shall have been duly authorized, executed and delivered by the Company and duly executed and delivered by the Unit Agent named in the Unit Agreement, (iv) the Board or a duly authorized committee thereof shall have duly adopted final resolutions in conformity with the Charter, the Bylaws and the Resolutions authorizing the execution and delivery of the Units Agreement and the execution, delivery, issuance and sale of such Units; (v) if such Units relate to the issuance and sale of Common Stock, the actions described in paragraph 1 above shall have been taken; (vi) if such Units relate to the issuance and sale of Preferred Stock, the actions described in paragraph 2 above shall have been taken; (vii) if such Units relate to the issuance and sale of Warrants, the actions described in paragraph 3 above shall have been taken; (viii) if such Units relate to the issuance and sale of Rights, the actions described in paragraph 4 above shall have been taken; and (ix) certificates representing such Units shall have been duly executed, countersigned and registered and shall have been duly delivered to the purchasers thereof in accordance with the applicable definitive purchase, underwriting or similar agreement against payment of the agreed consideration therefor.

Our opinions are subject to bankruptcy, insolvency, reorganization, moratorium, fraudulent conveyance, fraudulent transfer and other similar laws relating to or affecting creditors' rights generally and to general equitable principles (regardless of whether considered in a proceeding in equity or at law), including concepts of commercial reasonableness, good faith and fair dealing and the possible unavailability of specific performance or injunctive relief. Our opinion is also subject to (i) provisions of law which may require that a judgment for money damages rendered by a court in the United States of America be expressed only in United States dollars, (ii) requirements that a claim with respect to any obligations that are denominated or payable other than in United States dollars (or a judgment denominated or payable other than in United States dollars in respect of such claim) be converted into United States dollars at a rate of exchange prevailing on a date determined pursuant to applicable law and (iii) governmental authority to limit, delay or prohibit the making of payments outside of the United States of America or in a foreign currency.

For the purposes of this letter, we have assumed that, at the time of the issuance, sale and delivery of any of the Securities:

(i) the Securities being offered will be issued and sold as contemplated in the Registration Statement and the prospectus supplement relating thereto;

(ii) the execution, delivery and performance by the Company of each Warrant Agreement, each Rights Agreement and each Unit Agreement, as applicable, and the issuance sale and delivery of the Securities will not (A) contravene or violate the Charter or Bylaws, (B) violate any law, rule or regulation applicable to the Company, (C) result in a default under or breach of any agreement or instrument binding upon the Company or any order, judgment or decree of any court or governmental authority applicable to the Company, or (D) require any authorization, approval or other action by, or notice to or filing with, any court or governmental authority (other than such authorizations, approvals, actions, notices or filings which shall have been obtained or made, as the case may be, and which shall be in full force and effect);

(iii) the authorization thereof by the Company will not have been modified or rescinded, and there will not have occurred any change in law affecting the validity, legally binding character or enforceability thereof; and

(iv) the Charter and the Bylaws, each as currently in effect, will not have been modified or amended and will be in full force and effect.

We have further assumed that each Warrant Agreement, each Rights Agreement, each Unit Agreement, each Warrant, each Right and each Unit will be governed by the laws of the State of New York.

With respect to each instrument or agreement referred to in or otherwise relevant to the opinions set forth herein (each, an "Instrument"), we have assumed, to the extent relevant to the opinions set forth herein, that (i) each party to such Instrument (if not a natural person) was duly organized or formed, as the case may be, and was at all relevant times and is validly existing and in good standing under the laws of its jurisdiction of organization or formation, as the case may be, and had at all relevant times and has full right, power and authority to execute, deliver and perform its obligations under such Instrument; (ii) such Instrument has been duly authorized, executed and delivered by each party thereto; and (iii) such Instrument was at all relevant times and is a valid, binding and enforceable agreement or obligation, as the case may be, of, each party thereto.

This opinion letter is limited to the DGCL and the laws of the State of New York (excluding the securities laws of the State of New York). We express no opinion as to the laws, rules or regulations of any other jurisdiction, including, without limitation, the federal laws of the United States of America or any state securities or blue sky laws.

We hereby consent to the filing of this opinion letter as an Exhibit to the Registration Statement and to all references to our Firm included in or made a part of the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act.

Very truly yours,

/s/ Sidley Austin LLP

Consent of Independent Registered Public Accounting Firm

We consent to the use of our report dated March 16, 2021, with respect to the financial statements of Bidesix, Inc., incorporated herein by reference and to the reference to our firm under the heading “Experts” in the prospectus.

/s/ KPMG LLP

Denver, Colorado

November 24, 2021