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

**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)

Copies to:

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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

Non-accelerated filer

Accelerated filer

Smaller reporting company

Emerging growth company

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

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered(1)	Proposed Maximum Offering Price Per Unit(2)	Proposed Maximum Aggregate Offering Price(2)	Amount of Registration Fee(3)
Common Stock, \$0.001 par value per share				
Preferred Stock, \$0.001 par value per share				
Warrants				
Rights to purchase common stock, preferred stock or units(4)				
Units(4)				
TOTAL	\$250,000,000	\$ N/A.	\$250,000,000	\$23,175

- (1) There are being registered hereunder such indeterminate number of shares of common stock, such indeterminate number of shares of preferred stock and such indeterminate number of warrants to purchase common stock or preferred stock as shall have an aggregate initial offering price not to exceed \$250,000,000. In addition, pursuant to Rule 416 under the Securities Act of 1933, as amended, or the Securities Act, the shares being registered hereunder include such indeterminate number of shares of common stock and preferred stock as may be issuable with respect to the shares being registered hereunder as a result of stock splits, stock dividends or similar transactions.
- (2) The proposed maximum aggregate offering price per class of security will be determined from time to time, in connection with the issuance of the securities registered hereunder and is not specified as to each class of the security pursuant to General Instruction II.D. of Form S-3 under the Securities Act.
- (3) Calculated pursuant to Rule 457(o) under the Securities Act.
- (4) Rights will represent rights to purchase shares of common stock, shares of preferred stock or units registered hereby. Because the rights will provide a right only to purchase such securities offered hereunder, no additional registration fee is required. Each unit will represent an interest in two or more securities registered pursuant to this registration statement, which may or may not be separable. Because the units will provide a right only to purchase such securities offered hereunder, no additional registration fee is required.

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 and/or selling securityholders 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 and/or selling stockholders 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 15, 2021

PROSPECTUS



\$250,000,000

BIODESIX, INC.

Common Stock

Preferred Stock

Warrants

Rights to Purchase Common Stock, Preferred Stock or Units

Units

We and/or any selling securityholder 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 and/or any selling securityholder 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 or any selling securityholder may offer. Each time we and/or any securityholder offers 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 12, 2021, the last reported sale price of our common stock was \$7.81.

We and/or any selling securityholder 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. The securities may also be sold by selling securityholders.

Each time we and/or any securityholder 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 and/or any securityholder 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.

Unless otherwise set forth in the applicable prospectus supplement, we will not receive any proceeds in the event that securities are sold by a selling securityholder.

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

Holdings 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.

SELLING SECURITYHOLDERS

The securities may be offered and sold from time to time by the Company and/or by one or more selling securityholders to be identified in the future. Information about selling securityholders, where applicable, will be set forth in a prospectus supplement or in filings we make with the SEC under the Exchange Act which are incorporated by reference into this prospectus.

PLAN OF DISTRIBUTION

We or any selling securityholder 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;
- though 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;

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- 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;
- 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.

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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.

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:

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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 15, 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 12, 2021, the last reported sale price of our common stock on The NASDAQ Global Market was \$7.81 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	<u>\$5.89</u>

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.
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.
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 (included in Signature Page).

* 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 15th 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)

POWER OF ATTORNEY

We, the undersigned directors and officers of Biodesix, Inc. (the Company), hereby severally constitute and appoint Scott Hutton and Robin Harper Cowie, and each of them singly, our true and lawful attorneys, with full power to them, and to each of them singly, to sign for us and in our names in the capacities indicated below, the registration statement on Form S-3 filed herewith, and any and all pre-effective and post-effective amendments to said registration statement, and any registration statement filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended, in connection with the registration under the Securities Act of 1933, as amended, of equity securities of the Company, and to file or cause to be filed the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as each of them might or could do in person, and hereby ratifying and confirming all that said attorneys, and each of them, or their substitute or substitutes, shall do or cause to be done by virtue of this Power of Attorney. This Power of Attorney does not revoke any power of attorney previously granted by the undersigned, or any of them.

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 15, 2021
<u>/s/ Robin Harper Cowie</u> Robin Harper Cowie	Chief Financial Officer, Secretary and Treasurer (Principal Financial Officer)	November 15, 2021
<u>/s/ John Patience</u> John Patience	Chairman and Director	November 15, 2021
<u>/s/ Jack Schuler</u> Jack Schuler	Director	November 15, 2021
<u>/s/ Matthew Strobeck</u> Matthew Strobeck, Ph.D.	Director	November 15, 2021
<u>/s/ Charles Watts</u> Charles Watts, M.D.	Director	November 15, 2021
<u>/s/ Jean Franchi</u> Jean Franchi	Director	November 15, 2021
<u>/s/ Hany Massarany</u> Hany Massarany	Director	November 15, 2021

BIODESIX, INC.

\$50,000,000

SHARES OF COMMON STOCKSALES AGREEMENT

November 15, 2021

Cowen and Company, LLC
599 Lexington Avenue
New York, NY 10022

Ladies and Gentlemen:

Biodesix, Inc. (the "**Company**"), confirms its agreement (this "**Agreement**") with Cowen and Company, LLC ("**Cowen**"), as follows:

1. **Issuance and Sale of Shares.** The Company agrees that, from time to time during the term of this Agreement, on the terms and subject to the conditions set forth herein, it may issue and sell through Cowen, acting as agent and/or principal, shares (the "**Placement Shares**") of the Company's common stock, par value \$0.001 per share (the "**Common Stock**"), having an aggregate offering price of up to \$50,000,000. Notwithstanding anything to the contrary contained herein, the parties hereto agree that compliance with the limitation set forth in this **Section 1** on the number of shares of Common Stock issued and sold under this Agreement shall be the sole responsibility of the Company, and Cowen shall have no obligation in connection with such compliance. The issuance and sale of Common Stock through Cowen will be effected pursuant to the Registration Statement (as defined below) filed by the Company and after such Registration Statement has been declared effective by the Securities and Exchange Commission (the "**Commission**"), although nothing in this Agreement shall be construed as requiring the Company to use the Registration Statement (as defined below) to issue the Common Stock.

The Company shall file, in accordance with the provisions of the Securities Act of 1933, as amended, and the rules and regulations thereunder (collectively, the "**Securities Act**"), with the Commission a registration statement on Form S-3, including a base prospectus, relating to certain securities, including the Common Stock, to be issued from time to time by the Company, and which incorporates by reference documents that the Company has filed or will file in accordance with the provisions of the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (collectively, the "**Exchange Act**"). The Company has prepared a prospectus specifically relating to the Placement Shares (the "**ATM Prospectus**") to the base prospectus included as part of such registration statement, and shall, if necessary, prepare a prospectus supplement specifically relating to the Placement Shares (the "**Prospectus Supplement**") to the base prospectus included as part of such registration statement. The Company shall furnish to Cowen, for use by Cowen, copies of the prospectus included as part of such registration statement, as supplemented by the Prospectus Supplement, if any, relating to the

Shares. Except where the context otherwise requires, such registration statement, and any post-effective amendment thereto, as amended when it becomes effective, including all documents filed as part thereof or incorporated by reference therein, and including any information contained in a Prospectus (as defined below) subsequently filed with the Commission pursuant to Rule 424(b) under the Securities Act or deemed to be a part of such registration statement pursuant to Rule 430B or 462(b) of the Securities Act, or any subsequent registration statement on Form S-3 filed pursuant to Rule 415(a)(6) under the Securities Act by the Company to cover any Shares, is herein called the “**Registration Statement**.” The base prospectus, including all documents incorporated therein by reference, included in the Registration Statement, as it may be supplemented by the ATM Prospectus and the Prospectus Supplement, if any, in the form in which such prospectus, ATM Prospectus and/or Prospectus Supplement have most recently been filed by the Company with the Commission pursuant to Rule 424(b) under the Securities Act, together with any “issuer free writing prospectus,” as defined in Rule 433 of the Securities Act regulations (“**Rule 433**”), relating to the Shares that (i) is consented to by Cowen, hereinafter referred to as a “**Permitted Free Writing Prospectus**,” (ii) is required to be filed with the Commission by the Company or (iii) is exempt from filing pursuant to Rule 433(d)(5)(i), in each case in the form filed or required to be filed with the Commission or, if not required to be filed, in the form retained in the Company’s records pursuant to Rule 433(g), is herein called the “**Prospectus**.” Any reference herein to the Registration Statement, the Prospectus or any amendment or supplement thereto shall be deemed to refer to and include the documents incorporated by reference therein, and any reference herein to the terms “amend,” “amendment” or “supplement” with respect to the Registration Statement or the Prospectus shall be deemed to refer to and include the filing after the execution hereof of any document with the Commission deemed to be incorporated by reference therein. For purposes of this Agreement, all references to the Registration Statement, the Prospectus or to any amendment or supplement thereto shall be deemed to include any copy filed with the Commission pursuant to the Electronic Data Gathering Analysis and Retrieval System (“**EDGAR**”).

2. **Placements.** Each time that the Company wishes to issue and sell the Placement Shares hereunder (each, a “**Placement**”), it will notify Cowen by email notice (or other method mutually agreed to in writing by the parties) (a “**Placement Notice**”) containing the parameters in accordance with which it desires the Placement Shares to be sold, which shall at a minimum include the number of Placement Shares to be issued, the time period during which sales are requested to be made, any limitation on the number of Placement Shares that may be sold in any one Trading Day (as defined in **Section 3**) and any minimum price below which sales may not be made, a form of which containing such minimum sales parameters necessary is attached hereto as **Schedule 1**. The Placement Notice shall originate from any of the individuals from the Company set forth on **Schedule 2** (with a copy to each of the other individuals from the Company listed on such schedule), and shall be addressed to each of the individuals from Cowen set forth on **Schedule 2**, as such **Schedule 2** may be amended from time to time. The Placement Notice shall be effective upon receipt by Cowen unless and until (i) in accordance with the notice requirements set forth in **Section 4**, Cowen declines to accept the terms contained therein for any reason, in its sole discretion, (ii) the entire amount of the Placement Shares have been sold, (iii) in accordance with the notice requirements set forth in **Section 4**, the Company suspends or terminates the Placement Notice, (iv) the Company issues a subsequent Placement Notice with parameters superseding those on the earlier dated Placement Notice for any reason, in its sole discretion, or (v) this Agreement has been terminated under the provisions of **Section 11**. The amount of any discount, commission

or other compensation to be paid by the Company to Cowen in connection with the sale of the Placement Shares shall be calculated in accordance with the terms set forth in **Schedule 3**. It is expressly acknowledged and agreed that neither the Company nor Cowen will have any obligation whatsoever with respect to a Placement or any Placement Shares unless and until the Company delivers a Placement Notice to Cowen and Cowen does not decline such Placement Notice pursuant to the terms set forth above, and then only upon the terms specified therein and herein. In the event of a conflict between the terms of this Agreement and the terms of a Placement Notice, the terms of the Placement Notice will control.

3. **Sale of Placement Shares by Cowen.** Subject to the terms and conditions herein set forth, upon the Company's delivery of a Placement Notice, and unless the sale of the Placement Shares described therein has been declined, suspended, or otherwise terminated in accordance with the terms of this Agreement, Cowen, for the period specified in the Placement Notice, will use its commercially reasonable efforts consistent with its normal trading and sales practices and applicable state and federal laws, rules and regulations and the rules of the Nasdaq Global Market ("**Nasdaq**") to sell such Placement Shares up to the amount specified, and otherwise in accordance with the terms of such Placement Notice. Cowen will provide written confirmation to the Company (including by email correspondence to each of the individuals of the Company set forth on **Schedule 2**, if receipt of such correspondence is actually acknowledged by any of the individuals to whom the notice is sent, other than via auto-reply) no later than the opening of the Trading Day (as defined below) immediately following the Trading Day on which it has made sales of Placement Shares hereunder setting forth the number of Placement Shares sold on such day, the volume-weighted average price of the Placement Shares sold, and the Net Proceeds (as defined below) payable to the Company. In the event the Company engages Cowen for a sale of Placement Shares that would constitute a "block" within the meaning of Rule 10b-18(a)(5) under the Exchange Act (a "**Block Sale**"), the Company will provide Cowen, at Cowen's request and upon reasonable advance notice to the Company, on or prior to the Settlement Date (as defined below), the opinions of counsel, accountant's letter and officers' certificates set forth in **Section 8** hereof, each dated the Settlement Date, and such other documents and information as Cowen shall reasonably request. Cowen may sell Placement Shares by any method permitted by law deemed to be an "at the market" offering as defined in Rule 415 of the Securities Act, including without limitation sales made through Nasdaq or on any other existing trading market for the Common Stock. Cowen shall not purchase Placement Shares for its own account as principal unless expressly authorized to do so by the Company in a Placement Notice. The Company acknowledges and agrees that (i) there can be no assurance that Cowen will be successful in selling Placement Shares, and (ii) Cowen will incur no liability or obligation to the Company or any other person or entity if it does not sell Placement Shares for any reason other than a failure by Cowen to use its commercially reasonable efforts consistent with its normal trading and sales practices to sell such Placement Shares as required under this **Section 3**. For the purposes hereof, "**Trading Day**" means any day on which the Company's Common Stock is purchased and sold on the principal market on which the Common Stock is listed or quoted.

Notwithstanding any other provision of this Agreement, the Company shall not offer, sell or deliver, or request the offer or sale, of any Placement Shares pursuant to this Agreement and, by notice to Cowen given by telephone (confirmed promptly by email), shall cancel any instructions for the offer or sale of any Placement Shares, and Cowen shall not be obligated to offer or sell any Placement Shares, (i) during any period in which the Company is, or could be deemed to be, in

possession of material non-public information, or (ii) at any time from and including the date on which the Company shall issue a press release containing, or shall otherwise publicly announce, its earnings, revenues or other results of operations (an “**Earnings Announcement**”) through and including the time that the Company files a Quarterly Report on Form 10-Q or an Annual Report on Form 10-K that includes consolidated financial statements as of and for the same period or periods, as the case may be, covered by such Earnings Announcement.

4. Suspension of Sales.

(a) The Company or Cowen may, upon notice to the other party in writing (including by email correspondence to each of the individuals of the other party set forth on **Schedule 2**, if receipt of such correspondence is actually acknowledged by any of the individuals to whom the notice is sent, other than via auto-reply) or by telephone (confirmed immediately by verifiable facsimile transmission or email correspondence to each of the individuals of the other party set forth on **Schedule 2**), suspend any sale of Placement Shares; *provided, however*, that such suspension shall not affect or impair either party’s obligations with respect to any Placement Shares sold hereunder prior to the receipt of such notice. While a suspension is in effect any obligations under **Section 7(m)**, **7(n)** and **7(o)** with respect to the delivery of certificates, opinions or comfort letters to Cowen shall be waived. Each of the parties agrees that no such notice under this **Section 4** shall be effective against the other unless it is made to one of the individuals named on **Schedule 2** hereto, as such schedule may be amended in writing from time to time.

(b) If either Cowen or the Company has reason to believe that the exemptive provisions set forth in Rule 101(c)(1) of Regulation M under the Exchange Act are not satisfied with respect to the Common Stock, it shall promptly notify the other party, and Cowen may, at its sole discretion, suspend sales of the Placement Shares under this Agreement.

(c) Notwithstanding any other provision of this Agreement, during any period in which the Registration Statement is no longer effective under the Securities Act, the Company shall promptly notify Cowen, the Company shall not request the sale of any Placement Shares, and Cowen shall not be obligated to sell or offer to sell any Placement Shares.

5. Settlement.

(a) **Settlement of Placement Shares.** Unless otherwise specified in the applicable Placement Notice, settlement for sales of Placement Shares will occur on the second (2nd) Trading Day (or such earlier day as is industry practice for regular-way trading) following the date on which such sales are made (each, a “**Settlement Date**” and the first such settlement date, the “**First Delivery Date**”). The amount of proceeds to be delivered to the Company on a Settlement Date against receipt of the Placement Shares sold (the “**Net Proceeds**”) will be equal to the aggregate sales price received by Cowen at which such Placement Shares were sold, after deduction for (i) Cowen’s commission, discount or other compensation for such sales payable by the Company pursuant to **Section 2** hereof, (ii) any other amounts due and payable by the Company to Cowen hereunder pursuant to **Section 7(g)** (Expenses) hereof, and (iii) any transaction fees imposed by any governmental or self-regulatory organization in respect of such sales.

(b) **Delivery of Placement Shares.** On or before each Settlement Date, the Company will, or will cause its transfer agent to, electronically transfer the Placement Shares being sold by crediting Cowen's or its designee's account (provided Cowen shall have given the Company written notice of such designee prior to the Settlement Date) at The Depository Trust Company through its Deposit and Withdrawal at Custodian System or by such other means of delivery as may be mutually agreed upon by the parties hereto which in all cases shall be freely tradeable, transferable, registered shares in good deliverable form. On each Settlement Date, Cowen will deliver the related Net Proceeds in same day funds to an account designated by the Company on, or prior to, the Settlement Date. The Company agrees that if the Company, or its transfer agent (if applicable), defaults in its obligation to deliver duly authorized Placement Shares on a Settlement Date, the Company agrees that in addition to and in no way limiting the rights and obligations set forth in Section 9(a) (Indemnification and Contribution) hereto, it will (i) hold Cowen harmless against any loss, claim, damage, or reasonable and documented expense (including reasonable legal fees and expenses), as incurred, arising out of or in connection with such default by the Company and (ii) pay to Cowen any commission, discount, or other compensation to which it would otherwise have been entitled absent such default.

6. **Representations and Warranties of the Company.** The Company represents and warrants to, and agrees with, Cowen that as of (i) the date of this Agreement, (ii) each Time of Sale (as defined below), (iii) each Settlement Date, and (iv) each Bring-Down Date (as defined below) (each date included in (i) through (iv), a "**Representation Date**"):

(a) **Compliance with Registration Requirements.** Prior to the issuance of any Placement Notice by the Company, the Registration Statement will have been filed and declared effective by the Commission under the Securities Act, and any required Rule 462(b) Registration Statement will have become effective under the Securities Act. The Company has complied to the Commission's satisfaction with all requests of the Commission for additional or supplemental information. No stop order suspending the effectiveness of the Registration Statement or any Rule 462(b) Registration Statement is in effect and no proceedings for such purpose have been instituted or are pending or, to the best knowledge of the Company, contemplated or threatened by the Commission. The Company meets the requirements for use of Form S-3 under the Securities Act. The proposed offering and sale of the Placement Shares hereunder meets the requirements or General Instruction I.B.1 of Form S-3.

(b) **No Misstatement or Omission.** The Prospectus when filed complied or will comply and, as amended or supplemented, if applicable, will comply in all material respects with the Securities Act. Each of the Registration Statement, any Rule 462(b) Registration Statement, the Prospectus and any post-effective amendments or supplements thereto, at the time it became effective or its date, as applicable, complied and as of each Representation Date, complied and will comply in all material respects with the Securities Act and did not and, as of each Representation Date, did not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Prospectus, as amended or supplemented, as of its date, did not and, as of each Representation Date, will not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The representations and warranties set forth in the two immediately preceding sentences do not apply to statements in or omissions from the

Registration Statement, any Rule 462(b) Registration Statement, or any post-effective amendment thereto, or the Prospectus, or any amendments or supplements thereto, made in reliance upon and in conformity with information relating to Agent's Information (as defined below). There are no contracts or other documents required to be described in the Prospectus or to be filed as exhibits to the Registration Statement which have not been described or filed as required. As used herein, "**Time of Sale**" means with respect to each offering of Placement Shares pursuant to this Agreement, the time of Cowen's initial entry into contracts with purchasers for the sale of such Placement Shares.

(c) Offering Materials Furnished to Cowen. The Company has delivered, or will deliver, to Cowen one complete copy of the Registration Statement and a copy of each consent and certificate of experts filed as a part thereof, and conformed copies of the Registration Statement (without exhibits) and the Prospectus, as amended or supplemented, in such quantities and at such places as Cowen has reasonably requested. The Registration Statement, the Prospectus and any Permitted Free Writing Prospectus (to the extent any such Permitted Free Writing Prospectus was required to be filed with the Commission) delivered to Cowen for use in connection with the public offering of the Placement Shares contemplated herein have been and will be identical to the versions of such documents transmitted to the Commission for filing via EDGAR, except to the extent permitted by Regulation S-T.

(d) Emerging Growth Company. The Company is an "emerging growth company," as defined in Section 2(a) of the Securities Act. The Company agrees to notify Cowen promptly upon the Company ceasing to be an emerging growth company.

(e) Not an Ineligible Issuer. The Company currently is not an "ineligible issuer," as defined in Rule 405 under the Securities Act. The Company agrees to notify Cowen promptly upon the Company becoming an "ineligible issuer."

(f) Distribution of Offering Material By the Company. The Company has not distributed and will not distribute, prior to the completion of Cowen's distribution of the Placement Shares, any offering material in connection with the offering and sale of the Placement Shares other than the Prospectus or the Registration Statement.

(g) The Sales Agreement. This Agreement has been duly authorized, executed and delivered by the Company.

(h) Authorization of the Common Stock. The shares of Common Stock outstanding prior to the issuance of the Placement Shares have been duly authorized and are validly issued, fully paid and non-assessable. The Placement Shares have been duly authorized and, when issued, delivered and paid for in accordance with the terms of this Agreement, will be validly issued, fully paid and non-assessable, and the issuance of the Placement Shares will not be subject to any preemptive or similar rights that have not been validly waived.

(i) No Applicable Registration or Other Similar Rights. There are no contracts, agreements or understandings between the Company and any person granting such person the right to require the Company to file a registration statement under the Securities Act with respect to any securities of the Company or to require the Company to include such securities with the Placement Shares registered pursuant to the Registration Statement, except as has been validly waived or complied with in connection with the issuance and sale of the Placement Shares contemplated hereby.

(j) No Material Adverse Change. There has not occurred any material adverse change, or any development involving a prospective material adverse change, in the condition, financial or otherwise, or in the earnings, business or operations of the Company, from that set forth in the Prospectus.

(k) Independent Accountants. KPMG LLP, who have certified certain financial statements of the Company and delivered its report with respect to the audited consolidated financial statements and schedules filed with the Commission as part of the Registration Statement and included in each of the Registration Statement and the Prospectus, is an independent registered public accounting firm with respect to the Company within the meaning of the Securities Act and the applicable rules and regulations thereunder adopted by the Commission and the Public Company Accounting Oversight Board (United States).

(l) Preparation of the Financial Statements. The financial statements included or incorporated by reference in each of the Registration Statement and the Prospectus, together with the related schedules and notes thereto, comply as to form in all material respects with the applicable accounting requirements of the Securities Act and present fairly, in all material respects, the consolidated financial position of the Company as of the dates shown and its results of operations and cash flows for the periods shown, and such financial statements have been prepared in conformity with generally accepted accounting principles in the United States (“**U.S. GAAP**”) applied on a consistent basis throughout the periods covered thereby except for any normal year-end adjustments in the Company’s quarterly financial statements. The other financial information included in each of the Registration Statement and the Prospectus has been derived from the accounting records of the Company and presents fairly in all material respects the information shown thereby.

(m) XBRL. The interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement fairly presents the information called for in all material respects and has been prepared in accordance with the Commission’s rules and guidelines applicable thereto.

(n) Incorporation and Good Standing of the Company. The Company has been duly incorporated, is validly existing as a corporation in good standing under the laws of the jurisdiction of its incorporation, has the corporate power and authority to own or lease its property and to conduct its business as described in each of the Registration Statement and the Prospectus and is duly qualified to transact business and is in good standing in each jurisdiction in which the conduct of its business or its ownership or leasing of property requires such qualification, except to the extent that the failure to be so qualified or be in good standing would not reasonably be expected to singly or in the aggregate, have a material adverse effect on the Company; and the Company does not have any subsidiaries.

(o) Capital Stock Matters. The authorized capital stock of the Company conforms as to legal matters, in all material respects, to the description thereof contained in each of the Registration Statement and the Prospectus.

(p) Non-Contravention of Existing Instruments; No Further Authorizations or Approvals Required. The execution and delivery by the Company of, and the performance by the Company of its obligations under, this Agreement will not contravene (i) any provision of applicable law, (ii) or the certificate of incorporation or by-laws of the Company, (iii) or any agreement or other material instrument binding upon the Company, or (iv) any judgment, order or decree of any governmental body, agency or court having jurisdiction over the Company, except in the case of clauses (i), (iii) and (iv), where such contravention would not reasonably be expected to have a material adverse effect on the Company, and no consent, approval, authorization or order of, or qualification with, any governmental body, agency or court is required for the performance by the Company of its obligations under this Agreement, except such as have been obtained or waived or as may be required by the securities or Blue Sky laws of the various states in connection with the offer and sale of the Shares.

(q) No Material Actions or Proceedings. There are no legal or governmental proceedings pending or, to the Company's knowledge, threatened to which the Company is a party or to which any of the properties of the Company is subject (i) other than proceedings accurately described in all material respects in each of the Registration Statement and the Prospectus and proceedings that would not reasonably be expected to, singly or in the aggregate, have a material adverse effect on the Company or on the power or ability of the Company to perform its obligations under this Agreement or to consummate the transactions contemplated by each of the Registration Statement and the Prospectus or (ii) that are required to be described in the Registration Statement or the Prospectus and are not so described in all material respects; and there are no statutes, regulations, contracts or other documents that are required to be described in the Registration Statement or the Prospectus or to be filed as exhibits to the Registration Statement that are not described in all material respects or filed as required.

(r) All Necessary Permits, etc. The Company possesses all certificates, authorizations and permits issued by the appropriate federal, state or foreign regulatory authorities necessary to conduct their respective businesses, and the Company has not received any written notice of proceedings relating to the revocation or modification of any such certificate, authorization or permit which, singly or in the aggregate, if the subject of an unfavorable decision, ruling or finding, would have a material adverse effect on the Company.

(s) Tax Law Compliance. The Company has filed all federal, state, local and foreign tax returns required to be filed through the date of this Agreement or have requested extensions thereof (except where the failure to file would not, singly or in the aggregate, reasonably be expected to have a material adverse effect on the Company) and have paid all taxes required to be paid thereon (except for cases in which the failure to file or pay would not, singly or in the aggregate, reasonably be expected to have a material adverse effect on the Company, or, except as currently being contested in good faith and for which reserves required by U.S. GAAP have been created in the financial statements of the Company), and no tax deficiency has been determined adversely to the Company which, singly or in the aggregate, has had (nor does the Company have any notice or knowledge of any tax deficiency which could reasonably be expected to be determined adversely to the Company and which could reasonably be expected to have) a material adverse effect on the Company.

(t) Company Not an “Investment Company”. The Company is not, and after giving effect to the offering and sale of the Placement Shares and the application of the proceeds thereof as described in each of the Registration Statement and the Prospectus will not be, required to register as an “investment company” as such term is defined in the Investment Company Act of 1940, as amended.

(u) Insurance. The Company is insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as in the Company’s reasonable judgment are prudent and customary in the businesses in which they are engaged; the Company has not been refused any insurance coverage sought or applied for; and the Company does not have any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not reasonably be expected to have a material adverse effect on the Company.

(v) No Price Stabilization or Manipulation. The Company has not taken and will not take, directly or indirectly, any action designed to or that might be reasonably expected to cause or result in stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Placement Shares.

(w) Reliability of Data. Any statistical and market-related data included in the Registration Statement or the Prospectus are based on or derived from sources that the Company believes, after reasonable inquiry, to be reliable and accurate in all material respects and, to the extent required, the Company has obtained the written consent to the use of such data from such sources.

(x) Exchange Act Compliance. The documents incorporated or deemed to be incorporated by reference in the Prospectus, at the time they were or hereafter are filed with the Commission, complied and will comply in all material respects with the requirements of the Exchange Act, and, when read together with the other information in the Prospectus, at the Settlement Dates, will not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(y) No Unlawful Contributions or Other Payments. (i) None of the Company, or any director, officer, or employee thereof, or, to the Company’s knowledge, any affiliate, agent or representative of the Company, has taken or will take any action in furtherance of an offer, payment, promise to pay, or authorization or approval of the payment, giving or receipt of money, property, gifts or anything else of value, directly or indirectly, to any government official (including any officer or employee of a government or government-owned or controlled entity or of a public international organization, or any person acting in an official capacity for or on behalf of any of the foregoing, or any political party or party official or candidate for political office) (“**Government Official**”) in order to influence official action, or to any person in violation of any

applicable anti-corruption laws; (ii) the Company has conducted its business in compliance with applicable anti-corruption laws and has instituted and maintained and will continue to maintain policies and procedures reasonably designed to promote and achieve compliance with such laws and with the representations and warranties contained herein; and (iii) the Company will not use, directly or indirectly, the proceeds of the offering in furtherance of an offer, payment, promise to pay, or authorization of the payment or giving of money, or anything else of value, to any person in violation of any applicable anti-corruption laws.

(z) Compliance with Money Laundering Laws. The operations of the Company are and have been conducted at all times in material compliance with all applicable financial recordkeeping and reporting requirements, including those of the Bank Secrecy Act, as amended by Title III of the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (USA PATRIOT Act), and the applicable anti-money laundering statutes of jurisdictions where the Company conducts business, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the “**Anti-Money Laundering Laws**”), and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company with respect to the Anti-Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(aa) Compliance with OFAC. (i) None of the Company, or any director, officer, or employee thereof, or, to the Company’s knowledge, any agent, affiliate or representative of the Company, is an individual or entity (“**Person**”) that is, or is owned or controlled by one or more Persons that are:

- (A) the subject of any sanctions administered or enforced by the U.S. Department of the Treasury’s Office of Foreign Assets Control, the United Nations Security Council, the European Union, Her Majesty’s Treasury (“**HMT**”), or other relevant sanctions authority (collectively, “**Sanctions**”), or
 - (B) located, organized or resident in a country or territory that is the subject of Sanctions (including, without limitation, Crimea, Cuba, Iran, North Korea and Syria).
- (ii) The Company will not, directly or indirectly, use the proceeds of the offering, or lend, contribute or otherwise make available such proceeds to any joint venture partner or other Person:
- (A) to fund or facilitate any activities or business of or with any Person or in any country or territory that, at the time of such funding or facilitation, is the subject of Sanctions; or
 - (B) in any other manner that will result in a violation of Sanctions by any Person (including any Person participating in the offering, whether as agent, advisor, investor or otherwise).

- (iii) For the past 5 years, the Company has not knowingly engaged in, is not now knowingly engaged in, and will not engage in, any dealings or transactions with any Person, or in any country or territory, that at the time of the dealing or transaction is or was the subject of Sanctions.

(bb) Company's Accounting System. The Company maintains a system of internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management's general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with U.S. GAAP and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management's general or specific authorization; (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences and (v) the interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement is accurate. Since the end of the Company's most recent audited fiscal year, there has been (A) no material weakness in the Company's internal control over financial reporting (whether or not remediated) and (B) no change in the Company's internal control over financial reporting that has materially and adversely affected, or is reasonably likely to materially and adversely affect, the Company's internal control over financial reporting.

(cc) No Material Labor Disturbance. No material labor dispute with the employees of the Company exists, or, to the knowledge of the Company, is imminent; and the Company is not aware of any existing, threatened or imminent labor disturbance by the employees of any of its principal suppliers, manufacturers or contractors that would, singly or in the aggregate, have a material adverse effect on the Company.

(dd) Compliance with Environmental Laws. (i) The Company (A) is, and has been, in compliance with any and all applicable foreign, federal, state and local laws, rules, orders, consents and regulations relating to the protection of health and human safety, the environment, natural resources, and hazardous or toxic substances, wastes, chemicals, pollutants or contaminants ("**Environmental Laws**"), (B) have received all permits, licenses or other approvals required of them under applicable Environmental Laws to conduct their respective businesses, (C) are in compliance with all terms and conditions of any such permit, license or approval and (D) have not received notices of, and have no knowledge of any event or condition that would reasonably be expected to result in, any actual or potential liability or violation, and is not subject to any pending or to the Company's knowledge, threatened action, suit, proceeding, investigation or claim, arising under or relating to any Environmental Law, except where such noncompliance with Environmental Laws, failure to receive required permits, licenses or other approvals, failure to comply with the terms and conditions of such permits, licenses or approvals, or notice, action, suit, proceeding, investigation or claim would not, singularly or in the aggregate, reasonably be expected to have a material adverse effect on the Company, (ii) there are no costs (including anticipated capital expenditures), obligations or liabilities associated with or arising under Environmental Laws of or relating to the Company and (iii) except as described in the Registration Statement and the Prospectus, (A) there are no proceedings pending, or to the Company's knowledge, contemplated, against the Company under Environmental Laws in which a government authority is also a party, other than such proceedings in which it is reasonably believed no monetary sanctions of \$100,000 or more will be imposed and (B) the Company is not aware of any facts or issues regarding compliance with Environmental Laws that could reasonably be expected to have a material effect on the capital expenditures, earnings or competitive position of the Company.

(ee) **Intellectual Property.** (i) The Company solely and exclusively owns or has a valid and enforceable license or right to use all patents, inventions, copyrights, know how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures), trademarks, service marks, trade names and all other intellectual property and similar proprietary rights (including all registrations and applications for registration of, and all goodwill associated with, any of the foregoing, as applicable) (collectively, “**Intellectual Property Rights**”) used in or reasonably necessary to conduct its business; (ii) the Intellectual Property Rights owned by the Company and, to the Company’s knowledge, the Intellectual Property Rights licensed to the Company, are valid, subsisting and enforceable, and there is no material pending or, to the Company’s knowledge, threatened action, suit, proceeding or claim by others challenging the validity, scope or enforceability of any such Intellectual Property Rights; (iii) the Company has not received any written notice alleging any material infringement, misappropriation or other violation of Intellectual Property Rights; (iv) to the Company’s knowledge, no third party is infringing, misappropriating or otherwise violating, or has infringed, misappropriated or otherwise violated, any Intellectual Property Rights owned or licensed by the Company; (v) the Company does not infringe, misappropriate or otherwise violate, nor has infringed, misappropriated or otherwise violated, any Intellectual Property Rights; (vi) all employees or contractors engaged in the development of Intellectual Property Rights on behalf of the Company have executed an invention assignment agreement whereby such employees or contractors presently assign all of their right, title and interest in and to such Intellectual Property Rights to the Company, and to the Company’s knowledge no such agreement has been breached or violated; and (vii) the Company uses, and has used, commercially reasonable efforts to appropriately maintain all information intended to be maintained as a trade secret.

(ff) **Listing.** The Company is subject to and in compliance in all material respects with the reporting requirements of Section 13 or Section 15(d) of the Exchange Act. The Common Stock is registered pursuant to Section 12(b) or Section 12(g) of the Exchange Act and is listed on the Nasdaq, and the Company has taken no action designed to, or reasonably likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act or delisting the Common Stock from the Exchange, nor has the Company received any notification that the Commission or Nasdaq is contemplating terminating such registration or listing. All of the Placement Shares that have been or may be sold under this Agreement have been approved for listing on the Nasdaq, subject to official notice of issuance; the Company has taken all necessary actions to ensure that, upon and at all times after the Nasdaq shall have approved the Placement Shares for listing, it will be in compliance with all applicable corporate governance requirements set forth in the Nasdaq’s listing rules that are then in effect.

(gg) **Brokers.** Except for Cowen, there is no broker, finder or other party that is entitled to receive from the Company any brokerage or finder’s fee or other fee or commission as a result of any transactions contemplated by this Agreement.

(hh) **No Outstanding Loans or Other Indebtedness.** Except as described in the Prospectus, there are no outstanding loans, advances (except normal advances for business expenses in the ordinary course of business) or guarantees or indebtedness by the Company to or for the benefit of any of the officers or directors of the Company or any of the members of any of them.

(ii) **No Reliance.** The Company has not relied upon Cowen or legal counsel for Cowen for any legal, tax or accounting advice in connection with the offering and sale of the Placement Shares.

(jj) **No Material Change to Liabilities or Obligations.** Subsequent to the respective dates as of which information is given in each of the Registration Statement and the Prospectus, (i) the Company has not incurred any material liability or obligation, direct or contingent, nor entered into any material transaction; (ii) the Company has not purchased any of its outstanding capital stock, nor declared, paid or otherwise made any dividend or distribution of any kind on its capital stock other than ordinary and customary dividends; and (iii) there has not been any material change in the capital stock, short-term debt or long-term debt of the Company.

(kk) **Privacy Laws.** (i) The Company has complied in all material respects and is presently in compliance with all internal and external privacy policies, contractual obligations, industry standards, applicable laws, statutes, judgments, orders, rules and regulations of any court or arbitrator or other governmental or regulatory authority and any other legal obligations, in each case, relating to the collection, use, transfer, import, export, storage, protection, disposal and disclosure by the Company of personally identifiable or other regulated data (“**Data Security Obligations**”, and such data, “**Data**”); (ii) the Company has not received any written notification of or complaint regarding material non-compliance with any Data Security Obligation; and (iii) there is no action, suit, investigation or proceeding by or before any court or governmental agency, authority or body pending or, to the Company’s knowledge, threatened alleging non-compliance with any Data Security Obligation.

(ll) **IT Systems.** The Company’s information technology assets and equipment, computers, systems, networks, hardware, software, internet websites, applications and data and databases (including the data of their respective customers, employees, suppliers, vendors and any third-party data maintained by or on behalf of the Company) (collectively, “**IT Systems**”) are adequate for, and operate and perform in all material respects as required in connection with, the operation of the business of the Company, free and clear of all bugs, errors, defects, Trojan horses, time bombs, malware and other corruptants. The Company has implemented reasonable controls, policies, procedures and technical safeguards to protect the IT Systems and Data used in connection with the operation of the Company’s business. Without limiting the foregoing, the Company has used reasonable efforts to implement appropriate controls, policies, procedures and technical safeguards to establish and maintain, and have implemented, maintained and complied with, reasonable data protection controls, policies and procedures that are designed to protect against and prevent breach, destruction, loss, unauthorized distribution, use, access, disablement, misappropriation or modification, or other compromise or misuse of any IT Systems or Data used in connection with the operation of the Company’s business (“**Breach**”). To the Company’s knowledge, there has been no material Breach, and the Company has not been notified of and has no knowledge of any event or condition that would reasonably be expected to result in, any such material Breach.

(mm) Good and Marketable Title; Valid Leases. The Company has good and marketable title to all real property and good and marketable title to all personal property owned by them which is material to the business of the Company, free and clear of all liens, encumbrances and defects except such as do not materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company; and any real property and buildings held under lease by the Company is held under valid, subsisting and enforceable leases with such exceptions as are not material and would not reasonably be expected to materially interfere with the use made and proposed to be made of such property and buildings by the Company.

(nn) Open Source Software. (i) The Company uses and has used any and all software and other materials distributed under a “free,” “open source,” or similar licensing model (including but not limited to the MIT License, Apache License, GNU General Public License, GNU Lesser General Public License and GNU Affero General Public License) (“**Open Source Software**”) in compliance with all license terms applicable to such Open Source Software; and (ii) the Company does not use or distribute nor has used or distributed any Open Source Software in any manner that requires or has required (A) the Company to permit reverse engineering of any software code or other technology owned by the Company or (B) any software code or other technology owned by the Company to be (1) disclosed or distributed in source code form, (2) licensed for the purpose of making derivative works or (3) redistributed at no charge.

(oo) Regulatory Compliance. The Company has operated at all times and is currently in compliance in all material respects with all applicable statutes, rules and regulations of the U.S. Food and Drug Administration (the “**FDA**”) and applicable foreign regulatory authorities, including the European Medicines Agency and the UK Medicines & Healthcare products Regulatory Agency (collectively, the “Regulatory Authorities”), including, without limitation

- (i) the Federal Food, Drug, and Cosmetic Act and the regulations promulgated thereunder;
- (ii) applicable federal, state, local and foreign health care laws, including the U.S. Anti-Kickback Statute (42 U.S.C. Section 1320a-7b(b)), the Civil Monetary Penalties Law (42 U.S.C. § 1320a-7a), the U.S. Civil False Claims Act (31 U.S.C. Section 3729 et seq.), all applicable federal, state, local and all foreign criminal laws relating to health care fraud and abuse, including but not limited to false statements relating to health care matters (42 U.S.C. Section 1320a-7b(a)), 18 U.S.C. Sections 286 and 287, and the health care fraud criminal provisions under the U.S. Health Insurance Portability and Accountability Act of 1996 (“**HIPAA**”) (42 U.S.C. Section 1320d et seq.), the exclusion laws, the statutes, regulations and directives of applicable government funded or sponsored healthcare programs, and the regulations promulgated pursuant to such statutes;
- (iii) the Standards for Privacy of Individually Identifiable Health Information, the Security Standards, and the Standards for Electronic Transactions and Code Sets promulgated under HIPAA, the Health Information Technology for Economic and Clinical Health Act (42 U.S.C. Section 17921 et seq.), and the regulations promulgated thereunder and any state or non-U.S. counterpart thereof or any other law or regulation the purpose of which is to protect the privacy of individuals or prescribers;

- (iv) the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Reconciliation Act of 2010, the regulations promulgated thereunder;
- (v) the U.S. Controlled Substances Act (21 U.S.C. Section 801 et seq.);
- (vi) the Clinical Laboratories Improvement Act of 1967, as amended) (“**CLIA**”);
- (vii) licensure, quality, safety and accreditation requirements under applicable federal, state, local or foreign laws or regulatory bodies; and
- (viii) all other local, state, federal, national, supranational and foreign laws, relating to the regulation of the Company and the ownership, testing, development, manufacture, packaging, processing, use, distribution, marketing, labeling, promotion, sale, offer for sale, storage, import, export or disposal of any product under development, manufactured or distributed by the Company; (clauses (i) through (viii), collectively, “**Health Care Laws**”).

(pp) Studies and Trials. (i) The studies, tests and preclinical and clinical trials conducted by or, to the Company’s knowledge, on behalf of or sponsored by the Company or in which the Company has participated, were, and if still pending are being conducted in all material respects in accordance with standard medical and experimental protocols, procedures and controls pursuant to accepted professional scientific research standards and procedures, and all applicable Health Care Laws, the rules and regulations of the Regulatory Authorities and, to the extent required, current Good Clinical Practices and Good Laboratory Practices; (ii) the descriptions of the results of such studies and trials contained in the Registration Statement or the Prospectus are accurate and complete in all material respects and fairly present the data derived from such trials and studies; (iii) the Company has no knowledge of any other studies or trials not described in the Registration Statement and the Prospectus, the results of which are materially inconsistent with or call into question the results described or referred to in the Registration Statement and the Prospectus; has provided Cowen with all substantive written notices, correspondence and summaries of all other communications provided to the Company from the Regulatory Authorities; and (iv) the Company has not received any written notices or correspondence from any Regulatory Authority or any other governmental entity requiring the termination, material modification or suspension of any studies or trials that are described in the Registration Statement and the Prospectus or the results of which are referred to in the Registration Statement and the Prospectus.

(qq) Health Care Laws Compliance. (i) The Company has filed, obtained, maintained or submitted all reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Health Care Laws, and, all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were timely, complete, accurate and not misleading on the date filed (or were corrected or supplemented by a subsequent submission); (ii) the Company has not received written notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any court or arbitrator or Regulatory Authority, other governmental entity or third party alleging that any Company or product operation or activity is in violation of any Health Care Laws, including, without limitation, any FDA Form 483, notice of adverse finding, warning letter, untitled letter or other correspondence or notice from the FDA or any other Regulatory Authority or governmental entity, nor, to the Company's knowledge, is any such claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action threatened; (iii) the Company is not party to any corporate integrity agreements, monitoring agreements, consent decrees, settlement orders, or similar agreements with or imposed by any Regulatory Authority or other governmental entity; and (iv) neither the Company nor its employees, officers or directors has been excluded, suspended or debarred from participation in any U.S. federal health care program or human clinical research or, to the knowledge of the Company, is subject to an inquiry, investigation, proceeding or other similar action by a Regulatory Authority or other governmental entity that could reasonably be expected to result in debarment, suspension, or exclusion.

(rr) Laboratory Testing Compliance. The Company's clinical laboratory tests are conducted in compliance with all applicable Health Care Laws, and, to the extent applicable, the respective counterparts thereof promulgated by governmental authorities in countries outside the United States. The Company has not received notice from the FDA, HHS or other governmental authority alleging or asserting noncompliance with any applicable Health Care Law. To the Company's knowledge, neither the FDA nor any other governmental authority is considering such action.

(ss) No Issuance of Securities in Preceding Six Months. The Company has not sold, issued or distributed any shares of Common Stock during the six-month period preceding the date hereof, including any sales pursuant to Rule 144A under, or Regulation D or S of, the Securities Act, other than shares issued pursuant to employee benefit plans, qualified stock option plans or other employee compensation plans or pursuant to outstanding options, rights or warrants.

(tt) No Rated Securities. The Company does not have any securities rated by any "nationally recognized statistical rating organization," as such term is defined in Section 3(a)(62) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**").

Any certificate signed by an officer of the Company and delivered to Cowen or to counsel for Cowen pursuant to or in connection with this Agreement shall be deemed to be a representation and warranty by the Company to Cowen as to the matters set forth therein.

The Company acknowledges that Cowen and, for purposes of the opinions to be delivered pursuant to Section 7 hereof, counsel to the Company and counsel to Cowen, will rely upon the accuracy and truthfulness of the foregoing representations and hereby consents to such reliance.

7. Covenants of the Company. The Company covenants and agrees with Cowen that:

(a) Registration Statement Amendments. After the date of this Agreement and during any period in which a Prospectus relating to any Placement Shares is required to be delivered by Cowen under the Securities Act (including in circumstances where such requirement may be satisfied pursuant to Rule 172 under the Securities Act), (i) the Company will notify Cowen promptly of the time when any subsequent amendment to the Registration Statement, other than documents incorporated by reference, has been filed with the Commission and/or has become effective or any subsequent supplement to the Prospectus has been filed and of any request by the Commission for any amendment or supplement to the Registration Statement or Prospectus or for additional information, (ii) the Company will prepare and file with the Commission, promptly upon Cowen's reasonable request, any amendments or supplements to the Registration Statement or Prospectus that, in Cowen's reasonable opinion, may be necessary or advisable in connection with the distribution of the Placement Shares by Cowen (*provided, however*, that the failure of Cowen to make such request shall not relieve the Company of any obligation or liability hereunder, or affect Cowen's right to rely on the representations and warranties made by the Company in this Agreement); (iii) the Company will not file any amendment or supplement to the Registration Statement or Prospectus, other than documents incorporated by reference, relating to the Placement Shares or a security convertible into the Placement Shares unless a copy thereof has been submitted to Cowen within a reasonable period of time before the filing and Cowen has not reasonably objected thereto (*provided, however*, that the failure of Cowen to make such objection shall not relieve the Company of any obligation or liability hereunder, or affect Cowen's right to rely on the representations and warranties made by the Company in this Agreement) and the Company will furnish to Cowen at the time of filing thereof a copy of any document that upon filing is deemed to be incorporated by reference into the Registration Statement or Prospectus, except for those documents available via EDGAR; (iv) the Company will cause each amendment or supplement to the Prospectus, other than documents incorporated by reference, to be filed with the Commission as required pursuant to the applicable paragraph of Rule 424(b) of the Securities Act, and (v) prior to the termination of this Agreement, the Company will notify Cowen if at any time the Registration Statement shall no longer be effective as a result of the passage of time pursuant to Rule 415 under the Securities Act or otherwise. Prior to the initial sale of any Placement Shares, the Company shall file a final Prospectus Supplement pursuant to Rule 424(b) relating to the Placement Shares.

(b) Notice of Commission Stop Orders. The Company will advise Cowen, promptly after it receives notice or obtains knowledge thereof, of the issuance or threatened issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement, of the suspension of the qualification of the Placement Shares for offering or sale in any jurisdiction, or of the initiation or threatening of any proceeding for any such purpose; and it will promptly use its commercially reasonable efforts to prevent the issuance of any stop order or to obtain its withdrawal if such a stop order should be issued.

(c) Delivery of Prospectus; Subsequent Changes. During any period in which a Prospectus relating to the Placement Shares is required to be delivered by Cowen under the Securities Act with respect to a pending sale of the Placement Shares, (including in circumstances where such requirement may be satisfied pursuant to Rule 172 under the Securities Act), the Company will comply with all requirements imposed upon it by the Securities Act, as from time to time in force, and to file on or before their respective due dates all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Sections 13(a), 13(c), 14, 15(d) or any other provision of or under the Exchange Act. If during such period any event occurs as a result of which the Prospectus as then amended or

supplemented would include an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances then existing, not misleading, or if during such period it is necessary to amend or supplement the Registration Statement or Prospectus to comply with the Securities Act, the Company will promptly notify Cowen to suspend the offering of Placement Shares during such period and the Company will promptly amend or supplement the Registration Statement or Prospectus (at the expense of the Company) so as to correct such statement or omission or effect such compliance.

(d) Listing of Placement Shares. During any period in which the Prospectus relating to the Placement Shares is required to be delivered by Cowen under the Securities Act with respect to a pending sale of the Placement Shares (including in circumstances where such requirement may be satisfied pursuant to Rule 172 under the Securities Act), the Company will use its commercially reasonable efforts to cause the Placement Shares to be listed on Nasdaq and to qualify the Placement Shares for sale under the securities laws of such jurisdictions as Cowen reasonably designates and to continue such qualifications in effect so long as required for the distribution of the Placement Shares; *provided, however*, that the Company shall not be required in connection therewith to qualify as a foreign corporation or dealer in securities or file a general consent to service of process in any jurisdiction.

(e) Delivery of Registration Statement and Prospectus. The Company will furnish to Cowen and its counsel (at the expense of the Company) copies of the Registration Statement, the Prospectus (including all documents incorporated by reference therein) and all amendments and supplements to the Registration Statement or Prospectus that are filed with the Commission during any period in which a Prospectus relating to the Placement Shares is required to be delivered under the Securities Act (including all documents filed with the Commission during such period that are deemed to be incorporated by reference therein), in each case as soon as reasonably practicable and in such quantities as Cowen may from time to time reasonably request and, at Cowen's request, will also furnish copies of the Prospectus to each exchange or market on which sales of the Placement Shares may be made; *provided, however*, that the Company shall not be required to furnish any document (other than the Prospectus) to Cowen to the extent such document is available on EDGAR.

(f) Earnings Statement. The Company will make generally available to its security holders as soon as practicable, but in any event not later than 15 months after the end of the Company's current fiscal quarter, an earnings statement covering a 12-month period that satisfies the provisions of Section 11(a) and Rule 158 of the Securities Act. For the avoidance of doubt, the Company's timely compliance with the reporting requirements of the Exchange Act shall be deemed to satisfy this Section 7(f).

(g) Expenses. The Company, whether or not the transactions contemplated hereunder are consummated or this Agreement is terminated, in accordance with the provisions of Section 11 hereunder, will pay the following expenses all incident to the performance of its obligations hereunder, including, but not limited to, expenses relating to (i) the preparation, printing and filing of the Registration Statement and each amendment and supplement thereto, of each Prospectus and of each amendment and supplement thereto, (ii) the preparation, issuance and delivery of the Placement Shares, (iii) the qualification of the Placement Shares under securities laws in accordance with the provisions of Section 7(d) of this Agreement, including filing fees (provided,

however, that any fees or disbursements of counsel for Cowen in connection therewith shall be paid by Cowen except as set forth in (vii) below), (iv) the printing and delivery to Cowen of copies of the Prospectus and any amendments or supplements thereto, and of this Agreement, (v) the fees and expenses incurred in connection with the listing or qualification of the Placement Shares for trading on Nasdaq, (vi) the filing fees and expenses, if any, of the Commission, (vii) the filing fees and associated legal expenses of Cowen's outside counsel for filings with the FINRA Corporate Financing Department, such legal expense reimbursement not to exceed \$15,000, and (viii) the reasonable fees and disbursements of Cowen's counsel in an amount not to exceed \$75,000.

(h) Use of Proceeds. The Company will use the Net Proceeds as described in the Prospectus in the section entitled "Use of Proceeds."

(i) Notice of Other Sales. During the pendency of any Placement Notice given hereunder, and for 5 trading days following the termination of any Placement Notice given hereunder, the Company shall provide Cowen notice as promptly as reasonably possible before it offers to sell, contracts to sell, sells, grants any option to sell or otherwise disposes of any shares of Common Stock (other than Placement Shares offered pursuant to the provisions of this Agreement) or securities convertible into or exchangeable for Common Stock, warrants or any rights to purchase or acquire Common Stock; *provided*, that such notice shall not be required in connection with the (i) issuance, grant or sale of Common Stock, options to purchase shares of Common Stock or Common Stock issuable upon the exercise of options or other equity awards pursuant to any stock option, stock bonus or other stock plan or arrangement described in the Prospectus, (ii) the issuance of securities in connection with an acquisition, merger or sale or purchase of assets, (iii) the issuance or sale of Common Stock pursuant to any dividend reinvestment plan that the Company may adopt from time to time provided the implementation of such is disclosed to Cowen in advance or (iv) any shares of common stock issuable upon the exchange, conversion or redemption of securities or the exercise of warrants, options or other rights in effect or outstanding.

(j) Change of Circumstances. The Company will, at any time during a fiscal quarter in which the Company intends to tender a Placement Notice or sell Placement Shares, advise Cowen promptly after it shall have received notice or obtained knowledge thereof, of any information or fact that would alter or affect in any material respect any opinion, certificate, letter or other document provided to Cowen pursuant to this Agreement.

(k) Due Diligence Cooperation. The Company will cooperate with any reasonable due diligence review conducted by Cowen or its agents in connection with the transactions contemplated hereby, including, without limitation, providing information and making available documents and senior corporate officers, during regular business hours and at the Company's principal offices, as Cowen may reasonably request.

(l) Required Filings Relating to Placement of Placement Shares. The Company agrees that on such dates as the Securities Act shall require, the Company will (i) file a prospectus supplement with the Commission under the applicable paragraph of Rule 424(b) under the Securities Act (each and every filing under Rule 424(b), a "**Filing Date**"), and (ii) deliver such number of copies of each such prospectus supplement to each exchange or market on which such sales were effected as may be required by the rules or regulations of such exchange or market. The

Company shall disclose in its quarterly reports on Form 10-Q and in its annual report on Form 10-K, the number of the Placement Shares sold through Cowen under this Agreement, and the gross proceeds and Net Proceeds to the Company from the sale of the Placement Shares and the compensation paid by the Company with respect to sales of the Placement Shares pursuant to this Agreement during the relevant quarter or, in the case of an Annual Report on Form 10-K, during the fiscal year covered by such Annual Report and the fourth quarter of such fiscal year.

(m) **Bring-Down Dates; Certificate.** On or prior to the First Delivery Date and each time (i) the Company files the Prospectus relating to the Placement Shares or amends or supplements the Registration Statement or the Prospectus relating to the Placement Shares (other than a prospectus supplement filed in accordance with Section 7(l) of this Agreement) by means of a post-effective amendment, sticker, or supplement but not by means of incorporation of document(s) by reference to the Registration Statement or the Prospectus relating to the Placement Shares; (ii) the Company files an annual report on Form 10-K under the Exchange Act; (iii) the Company files its quarterly reports on Form 10-Q under the Exchange Act; or (iv) the Company files a report on Form 8-K containing amended financial information (other than an earnings release or other information “furnished” pursuant to Items 2.02 or 7.01 of Form 8-K) under the Exchange Act (each date of filing of one or more of the documents referred to in clauses (i) through (iv) shall be a “**Bring-Down Date**”); the Company shall furnish Cowen with a certificate, in the form attached hereto as Exhibit 7(m) within three (3) Trading Days of any Bring-Down Date if requested by Cowen. The requirement to provide a certificate under this Section 7(m) shall be waived for any Bring-Down Date occurring at a time at which no Placement Notice is pending, which waiver shall continue until the earlier to occur of the date the Company delivers a Placement Notice hereunder (which for such calendar quarter shall be considered a Bring-Down Date) and the next occurring Bring-Down Date; *provided, however*, that such waiver shall not apply for any Bring-Down Date on which the Company files its annual report on Form 10-K. Notwithstanding the foregoing, if the Company subsequently decides to sell Placement Shares following a Bring-Down Date when the Company relied on such waiver and did not provide Cowen with a certificate under this Section 7(m), then before the Company delivers the Placement Notice or Cowen sells any Placement Shares, the Company shall provide Cowen with a certificate, in the form attached hereto as Exhibit 7(m), dated the date of the Placement Notice.

(n) **Legal Opinions.** On or prior to the First Delivery Date and within three (3) Trading Days of each Bring-Down Date with respect to which the Company is obligated to deliver a certificate in the form attached hereto as Exhibit 7(m) for which no waiver is applicable, the Company shall cause to be furnished to Cowen (A) an opinion letter (including certain negative assurance statements) of Sidley Austin LLP, in substantially the form as set forth on Exhibit 7(n)(i), (B) opinions of (i) Foley Hoag LLP, (ii) Sheridan Ross P.C., (iii) DLA Piper LLP and (iv) Parker Highlander PLLC, each acting as outside intellectual property counsel for the Company, in substantially the forms as set forth on Exhibits 7(n)(ii)(A), 7(n)(ii)(B), 7(n)(ii)(C) and 7(n)(ii)(D), respectively, (C) an opinion of Foley Hoag LLP, outside regulatory counsel for the Company, in substantially the form as set forth on Exhibits 7(n)(iii), each such opinion to be dated the date that such opinion is required to be delivered, modified, as necessary, to relate to the Registration Statement and the Prospectus as then amended or supplemented; *provided, however*, that in lieu of such opinions for subsequent Bring-Down Dates, counsel may furnish Cowen with a letter (a “**Reliance Letter**”) to the effect that Cowen may rely on a prior opinion delivered under this Section 7(n) to the same extent as if it were dated the date of such letter (except that statements in such prior opinion shall be deemed to relate to the Registration Statement and the Prospectus as amended or supplemented at such Bring-Down Date).

(o) Comfort Letter. On or prior to the First Delivery Date and within three (3) Trading Days of each Bring-Down Date with respect to which the Company is obligated to deliver a certificate in the form attached hereto as Exhibit 7(m) for which no waiver is applicable, the Company shall cause its independent accountants to furnish Cowen letters (the “**Comfort Letters**”), dated the date the Comfort Letter is delivered, in form and substance satisfactory to Cowen, (i) confirming that they are an independent registered public accounting firm within the meaning of the Securities Act and the PCAOB, (ii) stating, as of such date, the conclusions and findings of such firm with respect to the financial information and other matters ordinarily covered by accountants’ “comfort letters” to Cowen in connection with registered public offerings (the first such letter, the “**Initial Comfort Letter**”) and (iii) updating the Initial Comfort Letter with any information that would have been included in the Initial Comfort Letter had it been given on such date and modified as necessary to relate to the Registration Statement and the Prospectus, as amended and supplemented to the date of such letter.

(p) Market Activities. The Company will not, directly or indirectly, (i) take any action designed to cause or result in, or that constitutes or might reasonably be expected to constitute, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Placement Shares or (ii) sell, bid for, or purchase the Common Stock to be issued and sold pursuant to this Agreement, or pay anyone any compensation for soliciting purchases of the Placement Shares other than Cowen; provided, however, that the Company may bid for and purchase shares of its common stock in accordance with Rule 10b-18 under the Exchange Act.

(q) Insurance. The Company shall maintain, or cause to be maintained, insurance in such amounts and covering such risks as is reasonable and customary for the business for which it is engaged.

(r) Compliance with Laws. The Company shall maintain, or cause to be maintained, all material environmental permits, licenses and other authorizations required by federal, state and local law in order to conduct their businesses as described in the Prospectus, and the Company shall conduct its business in substantial compliance with such permits, licenses and authorizations and with applicable environmental laws, except where the failure to maintain or be in compliance with such permits, licenses and authorizations could not reasonably be expected to result in a material adverse effect on the Company.

(s) Investment Company Act. The Company will conduct its affairs in such a manner so as to reasonably ensure that it will not be or become, at any time prior to the termination of this Agreement, an “investment company,” as such term is defined in the Investment Company Act, assuming no change in the Commission’s current interpretation as to entities that are not considered an investment company.

(t) Securities Act and Exchange Act. The Company will use its reasonable best efforts to comply with all requirements imposed upon it by the Securities Act and the Exchange Act as from time to time in force, so far as necessary to permit the continuance of sales of, or dealings in, the Placement Shares as contemplated by the provisions hereof and the Prospectus.

(u) No Offer to Sell. Other than a Permitted Free Writing Prospectus, neither Cowen nor the Company (including its agents and representatives, other than Cowen in its capacity as such) will make, use, prepare, authorize, approve or refer to any written communication (as defined in Rule 405 under the Securities Act), required to be filed with the Commission, that constitutes an offer to sell or solicitation of an offer to buy Common Stock hereunder.

(v) Sarbanes-Oxley Act. The Company will comply with all effective applicable provisions of the Sarbanes-Oxley Act.

(w) Affirmation. Each Placement Notice delivered by the Company to Cowen shall be deemed to be (i) an affirmation that the representations, warranties and agreements of the Company herein contained and contained in any certificate delivered to Cowen pursuant hereto are true and correct at the time of delivery of such Placement Notice, and (ii) an undertaking that such representations, warranties and agreements will be true and correct on any applicable Time of Sale and Settlement Date, as though made at and as of each such time (it being understood that such representations, warranties and agreements shall relate to the Registration Statement and the Prospectus as amended and supplemented to the time of such Placement Notice acceptance).

(x) Renewal. If immediately prior to the third anniversary (the "**Renewal Deadline**") of the initial effective date of the Registration Statement, the aggregate gross sales price of Placement Shares sold by the Company is less than the Maximum Amount and this Agreement has not expired or been terminated, the Company will, prior to the Renewal Deadline, file, if it has not already done so and is eligible to do so, a new shelf registration statement relating to the Placement Shares, in a form satisfactory to Cowen, and, if not automatically effective, will use its best efforts to cause such registration statement to be declared effective within 60 days after the Renewal Deadline. The Company will take all other action necessary or appropriate to permit the issuance and sale of the Placement Shares to continue as contemplated in the expired registration statement relating to the Placement Shares. References herein to the Registration Statement shall include such new shelf registration statement.

8. Conditions to Cowen's Obligations. The obligations of Cowen hereunder with respect to a Placement Notice will be subject to the continuing accuracy and completeness of the representations and warranties made by the Company herein, to the due performance by the Company of its obligations hereunder and thereunder, to the completion by Cowen of a due diligence review satisfactory to Cowen in its reasonable judgment, and to the continuing satisfaction (or waiver by Cowen in its sole discretion) of the following additional conditions:

(a) Registration Statement Effective. The Registration Statement shall have become effective and shall be available for the sale of all Placement Shares contemplated to be issued pursuant to any Placement Notice.

(b) No Material Notices. None of the following events shall have occurred and be continuing: (i) receipt by the Company of any request for additional information from the Commission or any other federal or state governmental authority during the period of effectiveness of the Registration Statement, the response to which would require any post-effective amendments or supplements to the Registration Statement or the Prospectus; (ii) the issuance by the

Commission or any other federal or state governmental authority of any stop order suspending the effectiveness of the Registration Statement or the initiation of any proceedings for that purpose; (iii) receipt by the Company of any notification with respect to the suspension of the qualification or exemption from qualification of any of the Placement Shares for sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose; or (iv) the occurrence of any event that makes any material statement made in the Registration Statement or the Prospectus or any material document incorporated or deemed to be incorporated therein by reference untrue in any material respect or that requires the making of any changes in the Registration Statement, related Prospectus or such documents so that, in the case of the Registration Statement, it will not contain any materially untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading and, that in the case of the Prospectus, it will not contain any materially untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(c) No Misstatement or Material Omission. Cowen shall not have advised the Company that the Registration Statement or Prospectus, or any amendment or supplement thereto, contains an untrue statement of fact that in Cowen's reasonable opinion is material, or omits to state a fact that in Cowen's opinion is material and is required to be stated therein or is necessary to make the statements therein not misleading.

(d) Material Changes. Except as contemplated in the Prospectus, or disclosed in the Company's reports filed with the Commission, there shall not have been any material adverse change, on a consolidated basis, in the authorized capital stock of the Company or any material adverse change, or any development involving a prospective material adverse change, in the condition, financial or otherwise, or in the earnings, business or operations of the Company the effect of which, in the reasonable judgment of Cowen (without relieving the Company of any obligation or liability it may otherwise have), is so material as to make it impracticable or inadvisable to proceed with the offering of the Placement Shares on the terms and in the manner contemplated in the Prospectus.

(e) Company Counsel Legal Opinions. Cowen shall have received each of the opinions of Company counsel required to be delivered pursuant to Section 7(n) on or before the date on which such delivery of such opinion is required pursuant to Section 7(n).

(f) Cowen Counsel Legal Opinion. Cowen shall have received from Davis Polk & Wardwell LLP, counsel for Cowen, such opinion or opinions, on or before the date on which the delivery of the Company counsel legal opinions are required pursuant to Section 7(n), with respect to such matters as Cowen may reasonably require, and the Company shall have furnished to such counsel such documents as they request for enabling them to pass upon such matters.

(g) Comfort Letter. Cowen shall have received the Comfort Letter required to be delivered pursuant to Section 7(o) on or before the date on which such delivery of such Comfort Letter is required pursuant to Section 7(o).

(h) Representation Certificate. Cowen shall have received the certificate required to be delivered pursuant to Section 7(m) on or before the date on which delivery of such certificate is required pursuant to Section 7(m).

(i) Secretary's Certificate. On or prior to the First Delivery Date, Cowen shall have received a certificate, signed on behalf of the Company by its corporate secretary, in form and substance satisfactory to Cowen and its counsel.

(j) No Suspension. Trading in the Common Stock shall not have been suspended on Nasdaq.

(k) Other Materials. On each date on which the Company is required to deliver a certificate pursuant to Section 7(m), the Company shall have furnished to Cowen such appropriate further information, certificates and documents as Cowen may have reasonably requested. All such opinions, certificates, letters and other documents shall have been in compliance with the provisions hereof. The Company will furnish Cowen with such conformed copies of such opinions, certificates, letters and other documents as Cowen shall have reasonably requested.

(l) Securities Act Filings Made. All filings with the Commission required by Rule 424 under the Securities Act to have been filed prior to the issuance of any Placement Notice hereunder shall have been made within the applicable time period prescribed for such filing by Rule 424.

(m) Approval for Listing. The Placement Shares shall either have been (i) approved for listing on Nasdaq, subject only to notice of issuance, or (ii) the Company shall have filed an application for listing of the Placement Shares on Nasdaq at, or prior to, the issuance of any Placement Notice.

(n) No Termination Event. There shall not have occurred any event that would permit Cowen to terminate this Agreement pursuant to Section 11(a).

9. Indemnification and Contribution.

(a) Company Indemnification. The Company agrees to indemnify and hold harmless Cowen, the directors, officers, partners, employees and agents of Cowen and each person, if any, who (i) controls Cowen within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, or (ii) is controlled by or is under common control with Cowen from and against any and all losses, claims, liabilities, expenses and damages (including, but not limited to, any and all reasonable investigative, legal and other expenses incurred in connection with, and any and all amounts paid in settlement (in accordance with Section 9(c)) of, any action, suit or proceeding between any of the indemnified parties and any indemnifying parties or between any indemnified party and any third party, or otherwise, or any claim asserted), as and when incurred, to which Cowen, or any such person, may become subject under the Securities Act, the Exchange Act or other federal or state statutory law or regulation, at common law or otherwise, insofar as such losses, claims, liabilities, expenses or damages arise out of or are based, directly or indirectly, on (x) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement or the Prospectus or any amendment or supplement to the Registration Statement or the Prospectus or in any free writing prospectus or in any application or other document executed by

or on behalf of the Company or based on written information furnished by or on behalf of the Company filed in any jurisdiction in order to qualify the Common Stock under the securities laws thereof or filed with the Commission, (y) the omission or alleged omission to state in any such document a material fact required to be stated in it or necessary to make the statements in it not misleading or (z) any breach by any of the indemnifying parties of any of their respective representations, warranties and agreements contained in this Agreement; *provided, however*, that this indemnity agreement shall not apply to the extent that such loss, claim, liability, expense or damage arises from the sale of the Placement Shares pursuant to this Agreement and is caused directly or indirectly by an untrue statement or omission made in reliance upon and in conformity with solely Agent's Information. "Agent's Information" means, solely, the following information in the Prospectus: the third sentence in the eighth paragraph under the caption "Plan of Distribution" in the Prospectus. This indemnity agreement will be in addition to any liability that the Company might otherwise have.

(b) Cowen Indemnification. Cowen agrees to indemnify and hold harmless the Company and its directors and each officer of the Company that signed the Registration Statement, and each person, if any, who (i) controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act or (ii) is controlled by or is under common control with the Company against any and all loss, liability, claim, damage and expense described in the indemnity contained in Section 9(a), as incurred, but only with respect to untrue statements or omissions, or alleged untrue statements or omissions, made in the Registration Statement (or any amendments thereto) or the Prospectus (or any amendment or supplement thereto) in reliance upon and in conformity with the Agent's Information.

(c) Procedure. Any party that proposes to assert the right to be indemnified under this Section 9 will, promptly after receipt of notice in writing of commencement of any action against such party in respect of which a claim is to be made against an indemnifying party or parties under this Section 9, notify each such indemnifying party in writing of the commencement of such action, enclosing a copy of all papers served, but the omission so to notify such indemnifying party will not relieve the indemnifying party from (i) any liability that it might have to any indemnified party otherwise than under this Section 9 and (ii) any liability that it may have to any indemnified party under the foregoing provision of this Section 9 unless, and only to the extent that, such omission results in the forfeiture of substantive rights or defenses by the indemnifying party. If any such action is brought against any indemnified party and it notifies the indemnifying party of its commencement, the indemnifying party will be entitled to participate in and, to the extent that it elects by delivering written notice to the indemnified party promptly after receiving notice of the commencement of the action from the indemnified party, jointly with any other indemnifying party similarly notified, to assume the defense of the action, with counsel reasonably satisfactory to the indemnified party, and after notice from the indemnifying party to the indemnified party of its election to assume the defense, the indemnifying party will not be liable to the indemnified party for any legal or other expenses except as provided below and except for the reasonable and documented costs of investigation subsequently incurred by the indemnified party in connection with the defense. The indemnified party will have the right to employ its own counsel in any such action, but the fees, expenses and other charges of such counsel will be at the expense of such indemnified party unless (1) the employment of counsel by the indemnified party has been authorized in writing by the indemnifying party, (2) the indemnified party has reasonably concluded (based on advice of counsel) that there may be legal defenses available to it or other

indemnified parties that are different from or in addition to those available to the indemnifying party, (3) a conflict or potential conflict exists (based on advice of counsel to the indemnified party) between the indemnified party and the indemnifying party (in which case the indemnifying party will not have the right to direct the defense of such action on behalf of the indemnified party) or (4) the indemnifying party has not in fact employed counsel to assume the defense of such action within a reasonable time after receiving notice of the commencement of the action, in each of which cases the reasonable and documented fees, disbursements and other charges of counsel will be at the expense of the indemnifying party or parties. It is understood that the indemnifying party or parties shall not, in connection with any proceeding or related proceedings in the same jurisdiction, be liable for the reasonable and documented fees, disbursements and other charges of more than one separate firm admitted to practice in such jurisdiction at any one time for all such indemnified party or parties. All such fees, disbursements and other charges will be reimbursed by the indemnifying party promptly as they are incurred. An indemnifying party will not, in any event, be liable for any settlement of any action or claim effected without its written consent. No indemnifying party shall, without the prior written consent of each indemnified party, settle or compromise or consent to the entry of any judgment in any pending or threatened claim, action or proceeding relating to the matters contemplated by this Section 9 (whether or not any indemnified party is a party thereto), unless such settlement, compromise or consent includes an unconditional release of each indemnified party from all liability arising or that may arise out of such claim, action or proceeding.

(d) Contribution. In order to provide for just and equitable contribution in circumstances in which the indemnification provided for in the foregoing paragraphs of this Section 9 is applicable in accordance with its terms but for any reason is held to be unavailable from the Company or Cowen, the Company and Cowen will contribute to the total losses, claims, liabilities, reasonable and documented expenses and damages (including any investigative, legal and other expenses reasonably incurred in connection with, and any amount paid in settlement of, any action, suit or proceeding or any claim asserted, but after deducting any contribution received by the Company from persons other than Cowen, such as persons who control the Company within the meaning of the Securities Act, officers of the Company who signed the Registration Statement and directors of the Company, who also may be liable for contribution) to which the Company and Cowen may be subject in such proportion as shall be appropriate to reflect the relative benefits received by the Company on the one hand and Cowen on the other. The relative benefits received by the Company on the one hand and Cowen on the other hand shall be deemed to be in the same proportion as the total Net Proceeds from the sale of the Placement Shares (before deducting expenses) received by the Company bear to the total compensation received by Cowen from the sale of Placement Shares on behalf of the Company. If, but only if, the allocation provided by the foregoing sentence is not permitted by applicable law, the allocation of contribution shall be made in such proportion as is appropriate to reflect not only the relative benefits referred to in the foregoing sentence but also the relative fault of the Company, on the one hand, and Cowen, on the other, with respect to the statements or omission that resulted in such loss, claim, liability, expense or damage, or action in respect thereof, as well as any other relevant equitable considerations with respect to such offering. Such relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or omission or alleged omission to state a material fact relates to information supplied by the Company or Cowen, the intent of the parties and their relative knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and Cowen agree that it would not be just

and equitable if contributions pursuant to this Section 9(d) were to be determined by pro rata allocation or by any other method of allocation that does not take into account the equitable considerations referred to herein. The amount paid or payable by an indemnified party as a result of the loss, claim, liability, expense, or damage, or action in respect thereof, referred to above in this Section 9(d) shall be deemed to include, for the purpose of this Section 9(d), any documented legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim to the extent consistent with Section 9(c) hereof. Notwithstanding the foregoing provisions of this Section 9(d), Cowen shall not be required to contribute any amount in excess of the commissions received by it under this Agreement and no person found guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. For purposes of this Section 9(d), any person who controls a party to this Agreement within the meaning of the Securities Act, and any officers, directors, partners, employees or agents of Cowen, will have the same rights to contribution as that party, and each officer and director of the Company who signed the Registration Statement will have the same rights to contribution as the Company, subject in each case to the provisions hereof. Any party entitled to contribution, promptly after receipt of notice of commencement of any action against such party in respect of which a claim for contribution may be made under this Section 9(d), will notify any such party or parties from whom contribution may be sought, but the omission to so notify will not relieve that party or parties from whom contribution may be sought from any other obligation it or they may have under this Section 9(d) except to the extent that the failure to so notify such other party materially prejudiced the substantive rights or defenses of the party from whom contribution is sought. Except for a settlement entered into pursuant to the last sentence of Section 9(c) hereof, no party will be liable for contribution with respect to any action or claim settled without its written consent if such consent is required pursuant to Section 9(c) hereof.

10. Representations and Agreements to Survive Delivery. The indemnity and contribution agreements contained in Section 9 of this Agreement and all representations and warranties of the Company herein or in certificates delivered pursuant hereto shall survive, as of their respective dates, regardless of (i) any investigation made by or on behalf of Cowen, any controlling persons, or the Company (or any of their respective officers, directors or controlling persons), (ii) delivery and acceptance of the Placement Shares and payment therefor or (iii) any termination of this Agreement.

11. Termination.

(a) Cowen shall have the right by giving written notice as hereinafter specified at any time to terminate this Agreement if (i) any Material Adverse Change, or any development that could reasonably be expected to result in a Material Adverse Change has occurred that, in the reasonable judgment of Cowen, may materially impair the ability of Cowen to sell the Placement Shares hereunder, (ii) the Company shall have failed, refused or been unable to perform any agreement on its part to be performed hereunder; provided, however, in the case of any failure of the Company to deliver (or cause another person to deliver) any certification, opinion or letter required under Sections 7(m), 7(n) or 7(o), Cowen's right to terminate shall not arise unless such failure to deliver (or cause to be delivered) continues for more than thirty (30) days from the date such delivery was required or (iii) any other condition of Cowen's obligations hereunder is not fulfilled, or (iv), any suspension or limitation of trading in the Placement Shares or in securities

generally on Nasdaq shall have occurred. Any such termination shall be without liability of any party to any other party except that the provisions of Section 7(g) (Expenses), Section 9 (Indemnification and Contribution), Section 10 (Representations and Agreements to Survive Delivery), Section 16 (Applicable Law; Consent to Jurisdiction) and Section 17 (Waiver of Jury Trial) hereof shall remain in full force and effect notwithstanding such termination. If Cowen elects to terminate this Agreement as provided in this Section 11(a), Cowen shall provide the required notice as specified in Section 12 (Notices).

(b) The Company shall have the right, by giving ten (10) days' notice as hereinafter specified to terminate this Agreement in its sole discretion at any time after the date of this Agreement. Any such termination shall be without liability of any party to any other party except that the provisions of Section 7(g), Section 9, Section 10, Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination.

(c) Cowen shall have the right, by giving ten (10) days' notice as hereinafter specified to terminate this Agreement in its sole discretion at any time after the date of this Agreement. Any such termination shall be without liability of any party to any other party except that the provisions of Section 7(g), Section 9, Section 10, Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination.

(d) Unless earlier terminated pursuant to this Section 11, this Agreement shall automatically terminate upon the issuance and sale of all of the Placement Shares through Cowen on the terms and subject to the conditions set forth herein; *provided* that the provisions of Section 7(g), Section 9, Section 10, Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination.

(e) This Agreement shall remain in full force and effect unless terminated pursuant to Sections 11(a), (b), (c), or (d) above or otherwise by mutual agreement of the parties; *provided, however*, that any such termination by mutual agreement shall in all cases be deemed to provide that Section 7(g), Section 9, Section 10, Section 16 and Section 17 shall remain in full force and effect. Upon termination of this Agreement, subject to Section 11(f), the Company shall not have any liability to Cowen for any discount, commission or other compensation with respect to any Placement Shares not otherwise sold by Cowen under this Agreement, or otherwise, except with respect to reimbursement of expenses pursuant to Section 7(g).

(f) Any termination of this Agreement shall be effective on the date specified in such notice of termination; *provided, however*, that such termination shall not be effective until the close of business on the date of receipt of such notice by Cowen or the Company, as the case may be. If such termination shall occur prior to the Settlement Date for any sale of Placement Shares, such Placement Shares shall settle in accordance with the provisions of this Agreement.

12. Notices. All notices or other communications required or permitted to be given by any party to any other party pursuant to the terms of this Agreement shall be in writing, unless otherwise specified in this Agreement, and if sent to Cowen, shall be delivered to Cowen at Cowen and Company, LLC, 599 Lexington Avenue, New York, NY 10022, fax no. 646-562-1130, Attention: General Counsel, email: Bradley.friedman@cowen.com; or if sent to the Company, shall be delivered to Biondesix, Inc., 2970 Wilderness Place, Suite 100, Boulder, CO 80301,

attention: Scott Hutton and Robin Harper Cowie, emails: scott.hutton@biodesix.com and robin.cowie@biodesix.com, with a copy to Sidley Austin, LLP, attention: Frank Rahmani and Samir Gandhi, emails: frahmani@sidley.com and sgandhi@sidley.com. Each party to this Agreement may change such address for notices by sending to the parties to this Agreement written notice of a new address for such purpose. Each such notice or other communication shall be deemed given (i) when delivered personally or by verifiable facsimile transmission (with an original to follow) on or before 4:30 p.m., New York City time, on a Business Day (as defined below), or, if such day is not a Business Day on the next succeeding Business Day, (ii) on the next Business Day after timely delivery to a nationally-recognized overnight courier and (iii) on the Business Day actually received if deposited in the U.S. mail (certified or registered mail, return receipt requested, postage prepaid). For purposes of this Agreement, "**Business Day**" shall mean any day on which the Nasdaq and commercial banks in the City of New York are open for business.

13. Successors and Assigns. This Agreement shall inure to the benefit of and be binding upon the Company and Cowen and their respective successors and the affiliates, controlling persons, officers and directors referred to in Section 9 hereof. References to any of the parties contained in this Agreement shall be deemed to include the successors and permitted assigns of such party. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and permitted assigns any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement. Neither party may assign its rights or obligations under this Agreement without the prior written consent of the other party; *provided, however*, that Cowen may assign its rights and obligations hereunder to an affiliate of Cowen without obtaining the Company's consent.

14. Adjustments for Share Splits. The parties acknowledge and agree that all share-related numbers contained in this Agreement shall be adjusted to take into account any share split, share dividend or similar event effected with respect to the Common Stock.

15. Entire Agreement; Amendment; Severability. This Agreement (including all schedules and exhibits attached hereto and Placement Notices issued pursuant hereto) constitutes the entire agreement and supersedes all other prior and contemporaneous agreements and undertakings, both written and oral, among the parties hereto with regard to the subject matter hereof. Neither this Agreement nor any term hereof may be amended except pursuant to a written instrument executed by the Company and Cowen. In the event that any one or more of the provisions contained herein, or the application thereof in any circumstance, is held invalid, illegal or unenforceable as written by a court of competent jurisdiction, then such provision shall be given full force and effect to the fullest possible extent that it is valid, legal and enforceable, and the remainder of the terms and provisions herein shall be construed as if such invalid, illegal or unenforceable term or provision was not contained herein, but only to the extent that giving effect to such provision and the remainder of the terms and provisions hereof shall be in accordance with the intent of the parties as reflected in this Agreement.

16. Applicable Law; Consent to Jurisdiction. This Agreement shall be governed by, and construed in accordance with, the internal laws of the State of New York without regard to the principles of conflicts of laws. Each party hereby irrevocably submits to the non-exclusive jurisdiction of the state and federal courts sitting in the City of New York, borough of Manhattan, for the adjudication of any dispute hereunder or in connection with any transaction contemplated hereby,

and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is brought in an inconvenient forum or that the venue of such suit, action or proceeding is improper. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof (certified or registered mail, return receipt requested) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any manner permitted by law.

17. Waiver of Jury Trial. The Company and Cowen each hereby irrevocably waives any right it may have to a trial by jury in respect of any claim based upon or arising out of this Agreement or any transaction contemplated hereby.

18. Absence of Fiduciary Relationship. The Company acknowledges and agrees that:

(a) Cowen has been retained solely to act as an arm's length contractual counterparty to the Company in connection with the sale of the Placement Shares contemplated hereby and that no fiduciary, advisory or agency relationship between the Company and Cowen has been created in respect of any of the transactions contemplated by this Agreement, irrespective of whether Cowen has advised or is advising the Company on other matters;

(b) the Company is capable of evaluating and understanding and understands and accepts the terms, risks and conditions of the transactions contemplated by this Agreement;

(c) the Company has been advised that Cowen and its affiliates are engaged in a broad range of transactions which may involve interests that differ from those of the Company and that Cowen has no obligation to disclose such interests and transactions to the Company by virtue of any fiduciary, advisory or agency relationship; and

(d) the Company waives, to the fullest extent permitted by law, any claims it may have against Cowen, for breach of fiduciary duty or alleged breach of fiduciary duty and agrees that Cowen shall have no liability (whether direct or indirect) to the Company in respect of such a fiduciary claim or to any person asserting a fiduciary duty claim on behalf of or in right of the Company, including stockholders, partners, employees or creditors of the Company.

19. Counterparts; Electronic Signatures. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Delivery of an executed Agreement by one party to the other may be made by facsimile or electronic transmission. Signature pages may be electronically executed and delivered, including by facsimile, any electronic method complying with the federal ESIGN Act (e.g. DocuSign) or by wet ink signature, captured on a pdf email attachment, and any signature pages executed and delivered shall be valid and binding for all purposes.

[Remainder of Page Intentionally Blank]

If the foregoing correctly sets forth the understanding between the Company and Cowen, please so indicate in the space provided below for that purpose, whereupon this letter shall constitute a binding agreement between the Company and Cowen.

Very truly yours,

COWEN AND COMPANY, LLC

By: /s/ Connor Leahy
Name: Connor Leahy
Title: Vice President

**ACCEPTED as of the date
first-above written:**

BIODESIX, INC.

By: /s/ Robin Harper Cowie
Name: Robin Harper Cowie
Title: Chief Financial Officer

Notice Parties

Company

Scott Hutton Chief Executive Officer

Robin Cowie Chief Financial Officer

Cowen

Michael J. Murphy Managing Director

William Follis Managing Director

Compensation

Cowen shall be paid compensation equal to 3% of the gross proceeds from the sales of Common Stock pursuant to the terms of this Agreement.

OFFICER CERTIFICATE

The undersigned, the duly qualified and elected _____, of Biodesix, Inc. ("**Company**"), a Delaware corporation, does hereby certify in such capacity and on behalf of the Company, pursuant to Section 7(m) of the Sales Agreement dated November 15, 2021 (the "**Sales Agreement**") between the Company and Cowen and Company, LLC, that to the best of the knowledge of the undersigned.

(i) The representations and warranties of the Company in Section 6 of the Sales Agreement (A) to the extent such representations and warranties are subject to qualifications and exceptions contained therein relating to materiality or material adverse effect, are true and correct on and as of the date hereof with the same force and effect as if expressly made on and as of the date hereof, except for those representations and warranties that speak solely as of a specific date and which were true and correct as of such date, and (B) to the extent such representations and warranties are not subject to any qualifications or exceptions, are true and correct in all material respects as of the date hereof as if made on and as of the date hereof with the same force and effect as if expressly made on and as of the date hereof except for those representations and warranties that speak solely as of a specific date and which were true and correct as of such date; and

(ii) The Company has complied with all agreements and satisfied all conditions on its part to be performed or satisfied pursuant to the Sales Agreement at or prior to the date hereof.

Biodesix, Inc.

By: _____

Name:

Title:

Date: _____

CORPORATE OPINION

IP OPINIONS

REGULATORY OPINION

SIDLEY

SIDLEY AUSTIN LLP
555 CALIFORNIA STREET
SUITE 2000
SAN FRANCISCO, CA 94104
+1 415 772 1200
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AMERICA • ASIA PACIFIC • EUROPE

November 15, 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") being 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

SIDLEY

SIDLEY AUSTIN LLP
555 CALIFORNIA STREET
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November 15, 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"), being filed by Biodesix, Inc., a Delaware corporation (the "Company"), with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act") as it relates to the registration under the Securities Act of shares (the "Shares") of the Company's Common Stock, \$0.001 par value per share (the "Common Stock") with an aggregate sales price of up to \$50,000,000. The Shares are to be sold by the Company pursuant to a Sales Agreement dated November 15, 2021 between the Company and Cowen and Company, LLC (the "Sales Agreement").

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

We have examined the Registration Statement, the Company's prospectus dated November 15, 2021 (the "Prospectus") relating to the Shares, the Sales Agreement, the Company's certificate of incorporation (as amended and restated, the "Certificate of Incorporation") and the resolutions adopted by the board of directors of the Company relating to the Registration Statement and the Sales Agreement. We have also examined originals, or copies of originals certified to our satisfaction, of such agreements, documents, certificates and statements of the Company and other corporate documents and instruments, 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 the issuance and sale of the Shares pursuant to the Sales Agreement have been duly authorized by the Company, and such Shares will be validly issued, fully paid and non-assessable when certificates representing such Shares shall have been duly executed, countersigned and registered and duly delivered to the purchasers thereof against payment of the agreed consideration therefor in an amount not less than the par value thereof or, if any such Shares are to be issued in uncertificated form, the Company's books shall reflect the issuance of such Shares to the purchasers thereof against payment of the agreed consideration therefor in an amount not less than the par value thereof, in accordance with the Sales Agreement.

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.

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

(i) 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 thereof;

(ii) the Certificate of Incorporation and bylaws of the Company, as currently in effect, will not have been modified or amended and will be in full force and effect; and

(iii) the Company will have sufficient authorized and unissued shares of Common Stock from which to issue as the Shares.

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 15, 2021