SPHERIX INC
Form 424B5
February 06, 2012
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Filed Pursuant to Rule 424(b)(5)

Registration No. 333-161531

PROSPECTUS SUPPLEMENT

(To Prospectus Dated October 1, 2009)

1,064,815 Units

SPHERIX INCORPORATED

Units consisting of One Share of Common Stock, par value $0.01 per share, and

One Warrant to Purchase 0.2 Shares of Common Stock, par value $0.01 per share

This prospectus supplement and the accompanying prospectus relate to the sale of up to 1,064,815 units, with each unit consisting of one share of our common stock and one warrant to purchase 0.2 shares of common stock at an exercise price of $1.40 per share for each share of common stock purchased in this offering. Accordingly, we are offering up to 1,064,815 shares of our common stock and five-year warrants to purchase up to 212,963 additional shares of our common stock. Each unit will be sold at a negotiated price of $1.08 per unit. Units will not be issued or certificated. The shares of common stock and the warrants will be issued separately but purchased together in this offering.

You should carefully read this prospectus supplement and the accompanying prospectus, together with the documents we incorporate by reference, before you invest in our securities.

Our common stock is quoted on the NASDAQ Capital Market under the ticker symbol SPEX. The last reported sale price of our common stock on February 1, 2012 was $1.32 per share. The warrants will not be listed on any securities exchange.

We retained Rodman & Renshaw, LLC as placement agent to use its reasonable best efforts to solicit offers to purchase our securities in this offering. The placement agent is not required to arrange for the sale of any specific number of units or dollar amount. In addition to the placement agent s fee set forth in the table below, we have also agreed to issue the placement agent two (2) year warrants to purchase up to an aggregate of 31,944 shares of our common stock at an exercise price of $1.35 per share, which warrants are initially exercisable six months following issuance. The placement agent warrants are not covered by this prospectus supplement. In addition, we have agreed to reimburse the placement agent for legal and other expenses in connection with this offering as described in the Plan of Distribution section.

	Per Unit	Total
Public offering price	$ 1.08	$ 1,150,000
Placement agent s fees (1)	$ 0.0648	$ 69,000
Proceeds, before expenses, to Spherix	$ 1.0152	$ 1,081,000

(1) The placement agent will also be entitled to reimbursement of expenses up to a maximum of 1% of the gross proceeds raised in the offering and will receive warrants to purchase 3% of the aggregate number of

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shares of common stock sold in this offering. See Plan of Distribution for a description of the compensation payable to the placement agent.

The placement agent is not purchasing or selling any securities pursuant to this prospectus supplement or the accompanying prospectus. We expect that delivery of the securities being offered pursuant to this prospectus supplement will be made to purchasers on or about February 7, 2012.

The aggregate market value of our outstanding common stock held by non-affiliates is $1.48 million, based on 3,094,961 shares of outstanding common stock, of which 3,080,520 are held by non-affiliates, and a per share price of $1.4399 based on the closing price of our common stock on January 30, 2012. We have not offered any securities pursuant to General Instruction I.B.6 of Form S-3 during the prior 12 calendar month period that ends on and includes the date of this prospectus supplement.

Investing in our securities involves a high degree of risk and the purchasers of the securities may lose their entire investment. See Risk Factors beginning on page S-7 of this prospectus supplement to read about facts you should consider before buying our securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement and the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

RODMAN & RENSHAW, LLC

The date of this Prospectus Supplement is February 6, 2012

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Prospectus Supplement

Prospectus

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ABOUT THIS PROSPECTUS

This document is in two parts. The first is this prospectus supplement, which describes the specific terms of this offering. The second part, the accompanying prospectus, gives more general information, some of which may not apply to this offering. This prospectus supplement also adds to, updates and changes information contained in the accompanying prospectus. If the description of the offering varies between this prospectus supplement and the accompanying prospectus, you should rely on the information in this prospectus supplement. The accompanying prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, which we refer to as the SEC, using shelf registration rules. Under the shelf registration rules, using this prospectus supplement and the accompanying prospectus, we may sell from time to time common stock, preferred stock and warrants, or any combination thereof, in one or more offerings.

It is important that you read and consider all of the information contained in this prospectus supplement and the accompanying prospectus in making your investment decision. You should also read and consider the information in the documents to which we have referred you in Incorporation of Certain Information by Reference on page S-23 of this prospectus supplement and Where You Can Find More Information on page S-23 of this prospectus supplement.

The distribution of this prospectus supplement and the accompanying prospectus and the offering of our securities in certain jurisdictions may be restricted by law. This prospectus supplement and the accompanying prospectus do not constitute, and may not be used in connection with, an offer or solicitation by anyone in any jurisdiction in which such offer or solicitation is not authorized or in which the person making such offer or solicitation is not qualified to do so to any person to whom it is unlawful to make such offer or solicitation. See the Plan of Distribution section of this prospectus supplement beginning on page S-20.

References herein to $ and dollars are to the currency of the United States of America. In this prospectus supplement and the accompanying prospectus, Spherix, the Company, we, us, and our refer to Spherix Incorporated, a Delaware corporation, unless the context otherwise requi

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You should rely only on the information contained in this prospectus supplement and the accompanying prospectus and information to which we have referred you, including the information incorporated by reference. We have not authorized anyone to provide you with different information. The information contained in this prospectus supplement is complete and accurate only as of the date on the front cover, but the information may have changed since that date. You must not rely on any unauthorized information or representation. This prospectus supplement is not an offer to sell, nor is it seeking an offer to buy, these securities in any jurisdiction where the offer or sale is not permitted.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents we incorporate by reference contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Forward looking statements reflect our current views with respect to future events and future forward performance, including in particular statements about our plans, objectives, expectations and prospects. You can identify these statements by forward-looking words such as anticipate, believe, estimate, expect, intend, plan, seek, forecasts, projects, could, may, will, would, hopes, and similar expressions. Although we believe objectives, expectations and prospects reflected in or suggested by our forward-looking statements are reasonable, those statements involve uncertainties and risks, and we can give no assurance that our plans, objectives, expectations and prospects will be achieved. Important factors that could cause our actual results to differ materially from the results anticipated by the forward-looking statements are contained herein under Risk Factors and elsewhere in this prospectus. Any or all of these factors could cause our actual results and financial or legal status for future periods to differ materially from those expressed or referred to in any forward-looking statements. All written or oral forward-looking statements attributable to us are expressly qualified in their entirety by these cautionary statements. Forward-looking statements speak only as of the date on which they are made and we do not assume any obligation to update or revise any forward-looking statements that we make, whether as a result of new information, future events or otherwise.

We have identified some of the important factors that could cause future events to differ from our current expectations herein and in our most recent Annual Report on Form 10-K filed on March 30, 2011 including, without limitation, under the captions Item 1A. Risk Factors and Item 7. Management s Discussion and Analysis of Financial Condition and Results of Operation, in our Quarterly Reports on Form 10-Q filed on May 13, 2011, August 15, 2011 and November 10, 2011, together with other documents we file with the SEC and that are incorporated herein by reference, all of which you should review carefully. Although we have attempted to list comprehensively these important factors, we also wish to caution investors that other factors may prove to be important in the future in affecting our operating results. New factors emerge from time to time, and it is not possible for us to predict all of these factors, nor can we assess the impact each factor or combination of factors may have on our business.

ABOUT SPHERIX

We were founded in 1967 and are incorporated in the State of Delaware. Our principal executive offices are located at 6430 Rockledge Drive #503, Bethesda, Maryland 20817, and our telephone number is (301) 897-2540. Our website is www.spherix.com. The information contained on our website is not a part of this prospectus. We have included our website address in this prospectus for reference only.

We are engaged in two (2) lines of business, our biotechnology research and development business and our health sciences technical and regulatory consulting business. We have created two wholly-owned subsidiaries, Biospherics Incorporated and Spherix Consulting, Inc., for our

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two operating businesses. The subsidiaries began operations on January 1, 2009. Spherix now provides management, strategic guidance, business development, marketing and other services to its subsidiaries.

Biospherics is dedicated to development of pharmaceuticals. Until June 2010, this development was limited to developing D-tagatose as a novel, first-in-class treatment for Type 2 diabetes.

Tagatose, a naturally occurring sugar, is a low-calorie, full-bulk sweetener previously approved by the Food and Drug Administration (FDA) as a GRAS (Generally Recognized As Safe) food ingredient. It is a true sugar that looks, feels, and tastes like table sugar. During human safety studies supporting food use, we discovered and patented a number of health and medical uses for D-tagatose.

In June 2010, the Company announced that it would seek a pharma partner to continue the diabetes development and that it would also explore D-tagatose as a potential treatment for high triglycerides, a risk factor for atherosclerosis, myocardial infarction and stroke. The Company has begun such exploration and is also evaluating other drug compounds it has licensed from the University of Kentucky. Recently, the Company has focused its studies on treating high triglycerides with a combination of D-tagatose and one of the licensed drug candidates, which combination is referred to as SPX-106T. Animal studies of SPX-106T are ongoing and an initial human efficiency study could begin in mid 2012.

The Company is also exploring the possibility of obtaining by license or acquisition other clinical stage compounds/orphan drugs for continued development and commercialization.

Diabetes Indication

In spite of favorable Phase 3 and Phase 2 results, the cost burden of developing drugs specifically for diabetes has increased significantly within the last few years under evolving and more stringent FDA guidelines. A company-commissioned analysis estimates it would take several additional years of clinical trials and could cost as much as several hundred million dollars to achieve a New Drug Application (NDA) filing for D-tagatose as a treatment for diabetes under current FDA guidelines. European regulatory requirements are significantly lower and we believe Europe represents a better opportunity for development, especially given the longer exclusivity period granted to a new chemical entity. We have determined that continued development of D-tagatose as a treatment for Type 2 diabetes requires the involvement of a pharma partner with the resources needed to fund the rest of the development and to bring it to market. Accordingly, we are seeking a strategic relationship with a pharma company for the continued development of D-tagatose as a treatment for Type 2 diabetes.

Triglycerides Indication

Secondary endpoints of our diabetes trials include triglyceride measurements. High triglyceride levels are sometimes a symptom of conditions associated with heart disease such as obesity and metabolic syndrome, which is a condition associated with elevated glucose levels as

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well as excess fat around the waist, high blood pressure, high triglycerides and low HDL cholesterol. Although our Phase 2 and Phase 3 trials were not primarily designed to measure the impact of D-tagatose on high triglycerides, we are encouraged enough to continue with pursuit of this project. Our Phase 2 data showed that by the end of the six-month trial, the 7.5g dose reduced triglycerides by approximately 23% versus the 2.5g dose.

The program to investigate D-tagatose as a pharmaceutical agent to lower serum triglycerides has begun. We are also investigating other drug compounds which we have licensed from the University of Kentucky. We are now focusing on SPX-106T, a combination of D-tagatose and one of such licensed drug candidates, as a potential treatment of high triglycerides. We have engaged a leading global contract research organization to investigate the role of D-tagatose and SPX-106T in lowering triglycerides. We are conducting animal and will likely conduct human studies in order to fully explore the mechanism of action on lipid metabolism including triglycerides as well as LDL and HDL cholesterol. The commercial intent of the triglyceride program is to develop a formulation, dose and dosing regimen appropriate for the lipid market segment and uniquely different from the diabetes market. Thus, our intent is to develop a completely new, second brand for triglycerides, separate from the diabetes brand. Our goal is to produce a robust proof of concept in a Phase 2 clinical study, and then seek a pharma partner for further development of the triglycerides drug product. We estimate that it will likely take three or more years to complete the studies/trials necessary to attract a pharma partner to complete the development and an additional 2-4 years to complete all necessary studies for an NDA filing.

We expect to incur substantial development costs in our Biospherics segment in the next several years, without substantial corresponding revenue. We intend to finance our development activities through the remaining net proceeds of our previous equity offerings, the net proceeds from this Offering, and additional funds we will seek to raise through the sale of additional stock in the future.

Health Sciences

In July 2007, we entered into the Health Sciences business when Claire L. Kruger, CEO and COO, joined us in advance of the anticipated sale of our wholly-owned subsidiary, InfoSpherix Incorporated. The Health Sciences business provides technical and regulatory consulting services to biotechnology and pharmaceutical companies, as well as providing technical support for our R&D activities.

During 2011 and 2010, Health Sciences provided services to and 23 companies, respectively. We generally provide our services on either a fixed-price basis or a time and expenses basis, charging hourly rates for each staff member involved in a project, based on his or her skills and experience. Our engagement agreements typically provide for monthly billing and payment of our invoices within thirty days of receipt.

The projects range from safety analyses of food ingredients to safety analyses of pharmaceutical manufacturing and dispensing equipment. Many clients are large, well-known companies with a number of successful products on the market. The proliferation of new

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products in the food and pharmaceutical areas creates a growing need for such regulatory services.

Revenues are primarily derived from services provided in response to client requests or events that occur without notice, and engagements, generally billed as services are performed, are terminable or subject to postponement or delay at any time by clients. Revenues and operating margins for any particular quarter are generally affected by staffing mix, resource requirements, and timing and size of engagements.

Health Sciences is also monitoring and directing the clinical trials of D-tagatose and SPX-106T for Biospherics.

Health Sciences revenue accounted for 100% and 99% of our total revenue in 2011 and 2010, respectively.

Liquidity

The Company has been and will continue to rely upon equity financings to support its pharmaceutical development activities. In late October 2011, we completed a private placement offering in which we sold 532,559 shares of common stock and warrants for an additional 532,559 shares and received approximately $1.15 million in net proceeds. In January, 2011, we completed a registered direct equity financing involving the issuance of 4,269,000 shares of our common stock and warrants exercisable for an additional 2,134,500 shares of our common stock. We received approximately $2.6 million in net proceeds from the offering, after deducting the placement agent s fees and our offering expenses.

As of December 31, 2011, the Company has cash and short-term investments of approximately $4.9 million and expects to expend all of this amount within the next twelve months.

Due to the nature of our business, we will need to raise additional funds on a consistent basis to continue operations and to fully pursue the triglycerides opportunity and any other development opportunities we pursue. Fundraising will likely require the issuance of additional equity securities and a purchaser of such securities will likely insist that such securities be registered securities. NASDAQ rules require stockholder approval for certain stock issuances constituting twenty percent (20%) or more of a company s issued and outstanding stock.

If we reach a point where we are unable to raise needed additional funds to continue our business activities, we will be forced to cease our development activities and dissolve the company. In such an event, we will need to satisfy various severance, lease termination and other dissolution-related obligations.

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THE OFFERING

Common stock offered by us in this offering	1,064,815 shares of common stock
Warrants offered by us in this offering	Warrants to purchase 212,963 shares of common stock
Common stock outstanding before this offering	3,094,961 shares of common stock
Common stock to be outstanding after this offering	4,159,776 shares of common stock (1)(2)
Use of proceeds	Net proceeds will be used to fund our development activities, including possibly obtaining by license or acquisition other clinical stage compounds/orphan drugs, and to meet our working capital needs and general corporate purposes. See Use of Proceeds.
NASDAQ Symbol	SPEX
Risk factors	Investing in our common stock and warrants involves a high degree of risk and the purchasers of our common stock, warrants and the underlying common stock may lose their entire investment. See Risk Factors and the other information included and incorporated by reference in this prospectus supplement and the accompanying prospectus for a discussion of risk factors you should carefully consider before deciding to invest in our securities.

(1) The number of shares of common stock to be outstanding after this offering is based on 3,094,961 shares outstanding as of December 31, 2011.

(2) The number of shares of common stock to be outstanding after this offering excludes:

- 48,509 shares of common stock issuable upon the exercise of stock options issued under our equity incentive plan and outstanding as of December 31, 2011, at a weighted average exercise price of $2.68 per share;
- 22,514 shares of common stock available for future issuance under our equity incentive plan as of December 31, 2011;
- 110,435 shares of common stock issuable upon the exercise of outstanding warrants issued to the purchasers in the common stock and warrant financing we completed in November, 2009, at an exercise price of $32.50 per share;
- 210,000 shares of our common stock issuable upon the exercise of outstanding warrants issued to the purchasers in the convertible preferred stock and warrant financing we completed in October, 2010, at an exercise price of $15.00 per share;

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- 12,600 shares of our common stock issuable upon the exercise of outstanding warrants issued to the placement agent in connection with the convertible preferred stock and warrant financing we completed in October, 2010, at an exercise price of $15.625 per share;

- 213,450 shares of our common stock issuable upon exercise of warrants to be issued to the purchasers in our January, 2011 common stock and warrant offering, at an exercise price of $8.00 per share;

- 12,807 shares of our common stock issuable upon exercise of warrants to be issued to the placement agent in our January, 2011 common stock and warrant offering, at an exercise price of $8.125 per share;

- 532,559 shares of common stock issuable upon the exercise of outstanding warrants issued to the purchasers in the common stock and warrant financing we completed in October 2011, at an exercise price of $2.24 per share;

- 15,977 shares of our common stock issuable upon exercise of warrants issued to the placement agent in connection with the common stock and warrant offering we completed in October 2011, at an exercise price of $2.95625 per share;

- 212,963 shares of our common stock issuable upon the exercise of warrants to be issued to the purchasers in this offering, at an exercise price of $1.40 per share; and

- 31,944 shares of our common stock issuable upon the exercise of warrants to be issued to the placement agent in connection with this offering, at an exercise price of $1.35 per share.

RISK FACTORS

An investment in our securities involves a high degree of risk and should be considered only by those persons who are able to afford a loss of their entire investment. There are important factors that could cause our actual results, level of activity, performance or achievements to differ materially from the results, level of activity, performance or achievements expressed or implied by any forward-looking statement. In particular, you should consider the numerous risks outlined below. Those risk factors are not exhaustive.

RISKS ASSOCIATED WITH PRODUCT DEVELOPMENT

WE MAY NOT BE ABLE TO FIND A STRATEGIC PARTNER FOR OUR DIABETES DRUG CANDIDATE. With the conclusion of the Phase 3 trial, we have scaled back our development of D-tagatose as a treatment for Type 2 diabetes and are seeking a strategic partner to continue this development. We may not locate such a partner or may not negotiate an appropriate strategic relationship agreement. If we are not successful, we will not obtain any benefit from the substantial investment we have made in these efforts over the past several years.

OUR POTENTIAL TRIGLYCERIDES DRUG IS AT A VERY EARLY STAGE OF DEVELOPMENT. We will be starting at the beginning in our development of a triglycerides drug. We are beginning with animal studies and will likely then progress to human studies and trials. We expect that it could take three or more years to complete the studies/trials necessary to attract a pharma partner to complete the development and an additional 2-4 years to

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complete all necessary studies for an NDA filing. There can be no assurance that any of these studies/trials will be successful or that we will develop the necessary proof of concept required to attract a pharma partner.

WE MAY NOT OBTAIN RIGHTS TO ANY OTHER CLINICAL STAGE COMPOUNDS/ORPHAN DRUGS. Despite our best efforts, we may not be able to obtain via license or acquisition rights to any other clinical stage/compounds/orphan drugs. In such an event, our future will be solely determined by our ability to find a strategic partner for D-tagatose as a diabetes drug and the success of our development of our triglycerides drug.

WE MAY OBTAIN RIGHTS TO OTHER CLINICAL STAGE COMPOUNDS/ORPHAN DRUGS BUT WE MAY NOT BE SUCCESSFUL IN COMMERCIALIZING SUCH DRUG CANDIDATES. The types of clinical stage compounds/orphan drugs we are seeking will likely be at a fairly early stage of development and actual research and development costs could exceed budgeted amounts and estimated time frames may require extension. Cost overruns, unanticipated regulatory delays or demands, unexpected adverse side effects or insufficient efficacy could prevent or substantially slow our research and development effort.

OUR POTENTIAL TRIGLYCERIDES DRUG IS DEPENDENT UPON OUR LICENSE OF THE SPX-106 COMPOUND. We have licensed the rights to commercialize the SPX-106 compound from the University of Kentucky Research Foundation and our ability to continue this development will depend upon our continued maintenance of our rights under this license agreement. If we fail to remain in compliance with this license agreement, we could lose the right to continue to develop SPX-106T.

WE WILL LIKELY RELY ON OTHER LICENSE AGREEMENTS AS WE SEEK TO DEVELOP ADDITIONAL COMPOUNDS/ORPHAN DRUGS. We will likely enter into our additional license agreements to obtain rights to develop additional compounds/orphan drugs as well as additional agreements with the University of Kentucky Research Foundation or other research institutions for continued research and development. In each case, failure to remain in compliance with such agreements could result in the loss of our ability to continue to commercialize drugs/products.

IF WE ARE UNABLE TO COMPLETE OUR CLINICAL TRIAL PROGRAMS SUCCESSFULLY, OR IF SUCH CLINICAL TRIALS TAKE LONGER TO COMPLETE THAN WE PROJECT, OUR ABILITY TO EXECUTE OUR CURRENT BUSINESS STRATEGY WILL BE ADVERSELY AFFECTED. Whether or not and how quickly we complete clinical trials is dependent in part upon the rate at which we are able to engage clinical trial sites and, thereafter, the rate of enrollment of patients, and the rate we collect, clean, lock and analyze the clinical trial database. Patient enrollment is a function of many factors, including the size of the patient population, the proximity of patients to clinical sites, the eligibility criteria for the study, the existence of competitive clinical trials, and whether existing or new drugs are approved for the indication we are studying. Certain clinical trials are designed to continue until a pre-determined number of events have occurred in the patients enrolled. Trials such as this are subject to delays stemming from patient withdrawal and from lower than

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expected event rates. They may also incur additional costs if enrollment is increased in order to achieve the desired number of events. If we experience delays in identifying and contracting with sites and/or in patient enrollment in our clinical trial programs, we may incur additional costs and delays in our development programs, and may not be able to complete our clinical trials in a cost-effective or timely manner. In addition, conducting multi-national studies adds another level of complexity and risk. We are subject to events affecting countries outside the United States. Negative or inconclusive results from the clinical trials we conduct or unanticipated adverse medical events could cause us to have to repeat or terminate the clinical trials. We may also opt to change the delivery method, formulation or dosage, which could affect efficacy results for the drug candidate. Accordingly, we may not be able to complete the clinical trials within an acceptable time frame, if at all.

Additionally, we have never filed an NDA or similar application for approval in the United States, or in any country, which may result in a delay in, or the rejection of, our filing of an NDA or similar application. During the drug development process, regulatory agencies will typically ask questions of drug sponsors. While we endeavor to answer all such questions in a timely fashion, or in the NDA filing, some questions may remain unanswered by the time we file our NDA. Unless the FDA opts not to pursue answers to these questions, submission of an NDA may be delayed or rejected.

PRE-CLINICAL TESTING AND CLINICAL DEVELOPMENT ARE LONG, EXPENSIVE AND UNCERTAIN PROCESSES. IF OUR DRUG CANDIDATES DO NOT RECEIVE THE NECESSARY REGULATORY APPROVALS, WE WILL BE UNABLE TO COMMERCIALIZE OUR DRUG CANDIDATES. We have not received, and may never receive, regulatory approval for the commercial sale of any of our drug candidates. We will need to conduct significant additional research and human testing before we can apply for product approval with the FDA or with regulatory authorities of other countries. Pre-clinical testing and clinical development are long, expensive and uncertain processes. Satisfaction of regulatory requirements typically depends on the nature, complexity and novelty of the product. It requires the expenditure of substantial resources. Data obtained from pre-clinical and clinical tests can be interpreted in different ways, which could delay, limit or prevent regulatory approval. The FDA may pose additional questions or request further clinical substantiation. It may take us many years to complete the testing of our drug candidates and failure can occur at any stage of this process. Negative or inconclusive results or medical events during a clinical trial could cause us to delay or terminate our development efforts.

Furthermore, interim results of preclinical or clinical studies do not necessarily predict their final results, and acceptable results in early studies might not be obtained in later studies.

Clinical trials have a high risk of failure. A number of companies in the pharmaceutical industry, including biotechnology companies, have suffered significant setbacks in advanced clinical trials, even after achieving what appeared to be promising results in earlier trials. If we experience delays in the testing or approval process or if we need to perform more or larger clinical trials than originally planned, our financial results and the commercial prospects for our drug candidates may be materially impaired. In addition, we have limited experience in conducting and managing the clinical trials necessary to obtain regulatory approval in the United

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States and abroad. Accordingly, we may encounter unforeseen problems and delays in the approval process. Although we may engage a clinical research organization with experience in conducting regulatory trials, errors in the conduct, monitoring and/or auditing could potentially invalidate the results.

OUR PATENT PROTECTION MAY NOT BE SUFFICIENT TO PROTECT US. Our current use patent for D-tagatose as a treatment for Type 2 diabetes expires in February 2012. At present we only have rights for patents pending for triglycerides treatment. There can be no assurance these patents will be issued.

WE DO NOT CURRENTLY HAVE THE RESOURCES TO BECOME A FULL SCALE BIOTECHNOLOGY COMPANY AND WE MAY NOT BE ABLE TO ATTRACT A NECESSARY BUYER/LICENSEE/PARTNER/STRATEGIC PARTNER BEFORE WE EXPEND ALL OF OUR FUNDS. We intend to continue to develop D-tagatose as a viable triglycerides treatment and to continuously seek a sale, license, or partner. Our hope and expectation is that as we proceed with the development, incremental successes may allow us to negotiate a favorable transaction. There can be no assurance, however, that we will have such incremental successes, or even if we achieve them, that we will attract a buyer, licensee or partner. We have limited resources. We will need to raise additional funds in 2012 to continue operations and will likely require additional capital raises thereafter to fully pursue the triglycerides and any other clinical stage compound/orphan drug opportunity and we may not be able to do so in a timely fashion.

REGULATORY AUTHORITIES MAY NOT APPROVE OUR PRODUCT EVEN IF IT MEETS SAFETY AND EFFICACY ENDPOINTS IN CLINICAL TRIALS. The FDA and foreign regulatory agencies can delay, limit or deny marketing approval for many reasons, including:

- a product candidate may not be considered safe or effective;
- the manufacturing processes or facilities we have selected may not meet the applicable requirements; and
- changes in approval policies or adoption of new regulations may require additional work on our part.

Any delay in, or failure to receive or maintain, approval for our drug candidates could prevent us from ever generating meaningful revenues.

Our products may not be approved even if they achieve endpoints in clinical trials. Regulatory agencies, including the FDA, or their advisors may disagree with our trial design and our interpretations of data from preclinical studies and clinical trials. Regulatory agencies may change requirements for approval even after a clinical trial design has been approved. Regulatory agencies may also approve a product candidate for fewer or more limited indications than requested, or may grant approval subject to the performance of post-marketing studies. In addition, regulatory agencies may not approve the labeling claims that are necessary or desirable for the successful commercialization of our products.

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OUR FINANCIAL RESOURCES ARE LIMITED AND WE WILL NEED TO RAISE ADDITIONAL CAPITAL IN THE FUTURE TO CONTINUE OUR BUSINESS. WE MAY NOT BE ABLE TO OBTAIN ADDITIONAL FINANCING IF NEEDED. The Company expects to expend all of its cash within the next twelve months. Our future capital requirements will depend on many factors, including the progress of the clinical trials and commercialization of our products, as well as general and administrative costs. Over the next 12 months, the Company expects that it will need to expend at least $4 to $6 million to support its current operations. We will need to raise additional funds in 2012 to continue operations and will likely require additional capital raises thereafter to fully pursue our opportunities. We cannot ensure that additional funding will be available or, if it is available, that it can be obtained on terms and conditions we will deem acceptable. Any additional funding derived from the sale of equity securities is likely to result in significant dilution to our existing stockholders. These matters involve risks and uncertainties that may prevent us from raising additional capital or may cause the terms upon which we raise additional capital, if additional capital is available, to be less favorable to us than would otherwise be the case. If we reach a point where we are unable to raise needed additional funds to continue our business activities, we will be forced to cease our development activities and dissolve the company. In such an event, we will need to satisfy various severance, lease termination and other dissolution-related obligations.

UNSTABLE MARKET CONDITIONS MAY HAVE SERIOUS ADVERSE CONSEQUENCES ON OUR BUSINESS. The recent economic downturn and market instability have made the business climate more volatile and more costly. Our general business strategy may be adversely affected by unpredictable and unstable market conditions, including:

- one or more of our current service providers, manufacturers and other partners may encounter difficulties during challenging economic times, which would directly affect our ability to attain our goals on schedule and on budget;
- demand for our consulting services may decrease resulting in a decrease in revenue;
- our ability to collect on trade receivables may be negatively impacted by slow payments or bad debt;
- our efforts to raise additional capital may be negatively impacted;
- additional funding may not be available or, if it is available, may not be on terms and conditions we deem acceptable;
- any additional funding derived from the sale of equity securities is likely to result in significant dilution to our existing stockholders; and
- failure to secure the necessary financing in a timely manner and on favorable terms could have a material adverse effect on our business strategy, financial performance, and stock price and could require us to delay or abandon the clinical development plans.

IF CLINICAL TRIALS ARE PROLONGED, DELAYED OR SUSPENDED, IT MAY TAKE SIGNIFICANTLY LONGER AND COST SUBSTANTIALLY MORE TO OBTAIN APPROVAL FOR OUR DRUG CANDIDATE AND ACHIEVE PROFITABILITY, IF AT ALL. Each delay makes it more likely that we will need additional financing to complete our clinical trials. We cannot predict whether we will encounter additional problems that will cause us or regulatory authorities to delay or suspend the clinical trial, or

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delay the analysis of data from the trials. Any of the following could delay the clinical development of our drug candidates:

- ongoing discussions with the FDA regarding the scope or design of our trial;
- delays in receiving, or the inability to obtain, required approvals from reviewing entities at clinical sites selected for participation in our trial;
- a lower than anticipated retention rate of patients in the trial;
- the need to repeat the trial or conduct another trial as a result of inconclusive or negative results or unforeseen complications in testing;
- inadequate supply or deficient quality of materials necessary to conduct our trial;
- serious and unexpected drug-related side effects experienced by participants in our clinical trials;
- the placement by the FDA of a clinical hold on a trial; or
- any restrictions on or post-approval commitments with regard to any regulatory approval we ultimately obtain that render the drug candidate not commercially viable.

WE WILL RELY ON THIRD PARTIES TO CONDUCT PORTIONS OF OUR TRIALS, AND THOSE THIRD PARTIES MAY NOT PERFORM SATISFACTORILY. We will rely on third parties to enroll qualified patients, conduct our trials, provide services in connection with such trials, and coordinate and oversee significant aspects of the trials. Our reliance on these third parties for clinical development activities reduces our control over these activities. Accordingly, these third party contractors may not complete activities on schedule, or may not conduct our trials in accordance with regulatory requirements or the trial design. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may be required to replace them or we may be required to provide these services with our own personnel. Although we believe there are a number of third party contractors we could engage to continue these activities, replacing a third party contractor may result in a delay or affect the trial. If this were to occur, our efforts to obtain regulatory approvals for and commercialize our drug candidate may be delayed.

OUR CORPORATE COMPLIANCE EFFORTS CANNOT GUARANTEE THAT WE ARE IN COMPLIANCE WITH ALL POTENTIALLY APPLICABLE REGULATIONS. The development, manufacturing, pricing, sales, and reimbursement of drug products are subject to extensive regulation by federal, state and other authorities within the United States and numerous entities outside of the United States. We are a relatively small company with only 10 employees. We also have significantly fewer employees than many other companies that have a product candidate in clinical development, and we rely heavily on third parties to conduct many important functions. While we believe that our corporate compliance program is sufficient to ensure compliance with applicable regulation, we cannot assure that we are or will be in compliance with all potentially applicable regulations. If we fail to comply with any of these regulations we could be subject to a range of regulatory actions including suspension or termination of clinical trials, the failure to approve our product candidate, restrictions on our products or manufacturing processes, withdrawal of products from the market, significant fines, or other sanctions or litigation.

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WE DO NOT HAVE INTERNAL MANUFACTURING CAPABILITIES, AND IF WE FAIL TO DEVELOP AND MAINTAIN SUPPLY RELATIONSHIPS WITH OUTSIDE MANUFACTURERS, WE MAY BE UNABLE TO DEVELOP OR COMMERCIALIZE OUR PRODUCTS. Our ability to develop and commercialize D-tagatose and any other products will depend in part on our ability to arrange for other parties to manufacture our products at a competitive cost, in accordance with regulatory requirements and in sufficient quantities for clinical testing and eventual commercialization. If we are unable to enter into or maintain commercial-scale manufacturing agreements on acceptable terms, or if we are unable to successfully bridge material from a manufacturer to the material initially used in the trials, the development and commercialization of our products could be delayed, which would adversely affect our ability to generate revenues and would increase our expenses.

FAILURE TO OBTAIN REGULATORY APPROVAL IN FOREIGN JURISDICTIONS WOULD PREVENT MARKETING OF OUR PRODUCTS. We intend to have our products marketed both inside and outside of the United States. In order to market D-tagatose in the European Union and many other foreign jurisdictions, we must obtain separate regulatory approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ from that required to obtain FDA approval. The foreign regulatory approval process may include all of the risks associated with obtaining FDA approval. We may not obtain foreign regulatory approvals on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries, and approval by one foreign regulatory authority does not ensure approval by regulatory authorities in other foreign countries or by the FDA. We and our collaborators may not be able to file for regulatory approvals and may not receive necessary approvals to commercialize our products in any market. The failure to obtain these approvals could materially adversely affect our business, financial condition and results of operations.

EVEN IF OUR CLINICAL TRIALS ARE SUCCESSFUL, WE MAY NOT HAVE A COMMERCIALLY VIABLE DRUG OR PRODUCT. We have a number of hurdles to overcome to have a commercially viable drug or product even assuming our clinical trials are successful, including:

- We must secure one or more manufacturers for our products and we must bridge the materials supplied by the current manufacturer(s) to the previously supplied materials to gain FDA approval.

- We must demonstrate that the product will be accepted in the market place. Even if the clinical trial is successful, the market may not accept the drug formulation or dosing, which would be three times a day in powder form for diabetes treatment.

IF PHYSICIANS AND PATIENTS DO NOT ACCEPT OUR PRODUCTS, WE MAY NOT BE ABLE TO GENERATE SIGNIFICANT REVENUES FROM PRODUCT SALES. Even if we obtain regulatory approval for our products, they may not gain market acceptance among physicians, patients and the medical community for a variety of reasons including:

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- timing of market introduction of competitive drugs;
- lower demonstrated clinical safety and efficacy compared to other drugs;
- lack of cost-effectiveness;
- lack of availability of reimbursement from managed care plans and other third-party payors;
- inconvenient administration;
- prevalence and severity of adverse side effects;
- drug interactions with other widely prescribed medications;
- potential advantages of alternative treatment methods;
- safety concerns with similar drugs marketed by others;
- the reluctance of the target population to try new therapies and of physicians to prescribe these therapies; and
- ineffective sales, marketing and distribution support.

If our products fail to achieve market acceptance, we would not be able to generate significant revenue or achieve profitability.

BIOTECHNOLOGY BUSINESS HAS A SUBSTANTIAL RISK OF PRODUCT LIABILITY CLAIMS. THE DEFENSE OF ANY PRODUCT LIABILITY CLAIM BROUGHT AGAINST US WILL DIVERT MANAGEMENT TIME AND REQUIRE SIGNIFICANT EXPENSE. We could be exposed to significant potential product liability risks that are inherent in the development, manufacture, sales and marketing of drugs and related products. Our insurance may not, however, provide adequate coverage against potential liabilities. Furthermore, product liability insurance is becoming increasingly expensive. As a result, we may be unable to maintain current amounts of insurance coverage or obtain additional or sufficient insurance at a reasonable cost to protect against losses that could have a material adverse effect on us. If a claim is brought against us, we might be required to pay legal and other expenses to defend the claim, as well as uncovered damage awards resulting from a claim brought successfully against us. Furthermore, whether or not we are ultimately successful in defending any such claims, we might be required to redirect significant financial and managerial resources to such defense, and adverse publicity is likely to result.

WE HAVE SUSTAINED LOSSES IN THE PAST AND WE WILL SUSTAIN LOSSES IN THE FUTURE. We have incurred losses from continuing operations in prior periods. Our net loss from continuing operations before taxes for the first nine months of 2011 was $2.2 million and for the years ended December 31, 2010 and 2009 were $7.7 million and $9.1 million, respectively. We expect to incur substantial losses for the foreseeable future.

WE MAY NOT BE ABLE TO RETAIN OUR KEY EXECUTIVES AND PERSONNEL. As a small company, our success depends on the services of key employees in executive and other positions. The loss of the services of one or more of such employees could have a material adverse effect on us.

WE FACE INTENSE COMPETITION BY COMPETITORS. Our biotechnology business is characterized by intensive research efforts. Our competitors include many companies, research institutes and universities that are working in a number of pharmaceutical or

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biotechnology disciplines to develop therapeutic products similar to those we are currently investigating. Most of these competitors have substantially greater financial, technical, manufacturing, marketing, distribution and/or other resources than we do. In addition, many of our competitors have experience in performing human clinical trials of new or improved therapeutic products and obtaining approvals from the FDA and other regulatory agencies. Our competitors may succeed in developing or marketing biotechnology products that are more effective than ours.

WE FACE EVOLVING REGULATION OF CORPORATE GOVERNANCE AND PUBLIC DISCLOSURE THAT MAY RESULT IN ADDITIONAL EXPENSES AND CONTINUING UNCERTAINTY. Changing laws, regulations and standards relating to corporate governance and public disclosure, including the Sarbanes-Oxley Act of 2002, SEC regulations and NASDAQ Stock Market LLC rules are creating uncertainty for public companies. We are presently evaluating and monitoring developments with respect to new and proposed rules and cannot predict or estimate the amount of the additional costs we may incur or the timing of these costs. For example, compliance with the internal control requirements of Section 404 of the Sarbanes-Oxley Act has to date required the commitment of significant resources to document and test the adequacy of our internal control over financial reporting. While our assessment, testing and evaluation of the design and operating effectiveness of our internal control over financial reporting resulted in our conclusion that, as of December 31, 2010, our internal control over financial reporting was effective, we can provide no assurance as to conclusions of management or by our independent registered public accounting firm with respect to the effectiveness of our internal control over financial reporting in the future. These new or changed laws, regulations and standards are subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices. We are committed to maintaining high standards of corporate governance and public disclosure. As a result, we intend to invest the resources necessary to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management time and attention from revenue-generating activities to compliance activities. If our efforts to comply with new or changed laws, regulations and standards differ from the activities intended by regulatory or governing bodies, due to ambiguities related to practice or otherwise, regulatory authorities may initiate legal proceedings against us, which could be costly and time-consuming, and our reputation and business may be harmed.

RISKS RELATED TO OWNERSHIP OF OUR COMMON STOCK

THE PRICE OF OUR COMMON STOCK HAS BEEN HIGHLY VOLATILE DUE TO SEVERAL FACTORS THAT WILL CONTINUE TO AFFECT THE PRICE OF OUR STOCK. Our common stock has traded as low as $1.13 and as high as $21.00 between January 1, 2010 and December 31, 2011. Some of the factors leading to this volatility include:

- relatively small amounts of our stock trading on any given day;
- fluctuations in our operating results;

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- announcements of technological innovations or new products that we or our competitors make;
- developments with respect to patents or proprietary rights; and
- recent economic downturn and market instability.

OUR COMMON STOCK WILL BE DELISTED FROM NASDAQ CAPITAL MARKET SYSTEM IF WE FAIL TO COMPLY WITH CONTINUED LISTING STANDARDS. Our common stock is currently traded on the NASDAQ Capital Market under the symbol SPEX. If we fail to meet any of the continued listing standards of the NASDAQ Capital Market, our common stock could be delisted from the NASDAQ Capital Market. These continued listing standards include specifically enumerated criteria, such as:

- a $1.00 minimum closing bid price;
- shareholders equity of $2.5 million;
- 500,000 shares of publicly-held common stock with a market value of at least $1 million;
- 300 round-lot stockholders; and
- compliance with NASDAQ s corporate governance requirements, as well as additional or more stringent criteria that may be applied in the exercise of NASDAQ s discretionary authority.

On two separate occasions in the last few years, NASDAQ has notified the Company that its common stock failed to maintain a minimum bid price of $1.00 as required by the NASDAQ Listing Rules. In both cases, the Company s stock price increased over the $1.00 threshold before NASDAQ delisted the stock. In May 2011, the Company effected a 1 for 10 reverse stock split which immediately preceded the stock price increase.

WE COULD FAIL IN FINANCING EFFORTS OR BE DELISTED FROM NASDAQ IF WE FAIL TO RECEIVE SHAREHOLDER APPROVAL WHEN NEEDED. We are required under the NASDAQ rules to obtain shareholder approval for any issuance of additional equity securities that would comprise more than 20% of the total shares of our common stock outstanding before the issuance of such securities sold at a discount to the greater of book or market value in an offering that is not deemed to be a public offering by NASDAQ. Funding of our operations in the future may require issuance of additional equity securities that would comprise more than 20% of the total shares of our common stock outstanding, but we might not be successful in obtaining the required shareholder approval for such an issuance. If we are unable to obtain financing due to shareholder approval difficulties, such failure may have a material adverse effect on our ability to continue operations.

DIVIDENDS ON OUR COMMON STOCK ARE NOT LIKELY. We do not anticipate paying cash dividends on our common stock in the foreseeable future. Investors must look solely to appreciation in the market price of the shares of our common stock to obtain a return on their investment.

BECAUSE OF THE RIGHTS AGREEMENT AND ANTI-TAKEOVER PROVISIONS IN OUR CERTIFICATE OF INCORPORATION AND BYLAWS, A

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THIRD PARTY MAY BE DISCOURAGED FROM MAKING A TAKEOVER OFFER THAT COULD BE BENEFICIAL TO OUR STOCKHOLDERS. In 2001, we adopted a shareholder rights plan. In December 2010, we extended the term of this plan through December 31, 2012. The effect of this rights plan and of certain provisions of our Certificate of Incorporation, By-Laws, and the anti-takeover provisions of the Delaware General Corporation Law, could delay or prevent a third party from acquiring us or replacing members of our Board of Directors, even if the acquisition or the replacements would be beneficial to our stockholders. These factors could also reduce the price that certain investors might be willing to pay for shares of the common stock and result in the market price being lower than it would be without these provisions.

RISKS RELATING TO THIS OFFERING

WE WILL HAVE IMMEDIATE AND BROAD DISCRETION OVER THE USE OF THE NET PROCEEDS FROM THIS OFFERING. There is no minimum offering amount required as a condition to closing this offering and therefore net proceeds from this offering will be immediately available to us to use at our discretion. We intend to use the net proceeds to further develop our products and for working capital and general corporate purposes. Our judgment may not result in positive returns on your investment and you will not have an opportunity to evaluate the economic, financial, or other information upon which we base our decisions.

FUTURE SALES BY OUR STOCKHOLDERS MAY ADVERSELY AFFECT OUR STOCK PRICE AND OUR ABILITY TO RAISE FUNDS IN NEW STOCK OFFERINGS. Sales of our common stock in the public market following this offering could lower the market price of our common stock. Sales may also make it more difficult for us to sell equity securities or equity-related securities in the future at a time and price that our management deems acceptable or at all.

THERE IS NO PUBLIC MARKET FOR THE WARRANTS BEING OFFERED IN THIS OFFERING. There is no established public trading market for the warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply for listing the warrants on any securities exchange. Without an active market, the liquidity of the warrants will be limited.

THE OFFERING MAY NOT BE FULLY SUBSCRIBED AND, EVEN IF THE OFFERING IS FULLY SUBSCRIBED, WE WILL NEED ADDITIONAL CAPITAL IN THE FUTURE. IF ADDITIONAL CAPITAL IS NOT AVAILABLE, WE MAY NOT BE ABLE TO CONTINUE TO OPERATE OUR BUSINESS PURSUANT TO OUR BUSINESS PLAN OR WE MAY HAVE TO DISCONTINUE OUR OPERATIONS ENTIRELY. The placement agent in this offering will offer the securities on a best-efforts basis, meaning that we may raise substantially less than the total maximum offering amounts. No refund will be made available to investors if less than all of the securities are sold. Based on our proposed use of proceeds, we will likely need significant additional financing, which we may seek to raise through, among other things, public and private equity offerings and debt financing. Any equity financing will be dilutive to existing stockholders, and any debt financings will likely

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involve covenants restricting our business activities. Additional financing may not be available on acceptable terms, or at all.

USE OF PROCEEDS

We estimate that the net proceeds to us from the sale of the securities offered by this prospectus supplement and the accompanying prospectus will be approximately $1.1 million, after deducting the placement agent s fees (excluding costs of warrants issued to the placement agent) and estimated offering expenses and assuming that we will sell the maximum number of units offered hereby. In addition, if all of the warrants offered by this prospectus supplement are exercised in full for cash (excluding the warrants issued to the placement agent), we will receive net proceeds of approximately $0.3 million. There can be no assurance we will sell any or all of the securities offered hereby, or that any warrants offered hereby that are sold will be exercised. Because there is no minimum offering amount required as a condition to closing this offering, we may sell less than all of the securities offered hereby, which may significantly reduce the amount of proceeds received by us.

We currently intend to use the majority of the net proceeds to fund our operations and to continue the development of SPX-106T for triglycerides, as well as for working capital and general corporate purposes, including the possibility of obtaining by license or acquisition other clinical stage compounds/orphan drugs. At this time we cannot estimate the allocation of the net proceeds of this offering among these anticipated uses. The amounts and timing of the expenditures may vary significantly depending on numerous factors, including the net proceeds to us from the sales of the securities offered under this prospectus supplement and our need for and ability to raise additional capital to advance our products toward commercialization. We reserve the right to change the use of proceeds as a result of certain contingencies, such as those discussed above and any future opportunities to evaluate, negotiate and complete one or more strategic or partnering transactions. Accordingly, our management will have broad discretion in the application of the net proceeds of this offering. Pending use of the net proceeds, we intend to invest the net proceeds in short-term, interest-bearing, investment-grade securities.

DESCRIPTION OF SECURITIES

In this offering, we are offering a maximum of 1,064,815 units, consisting in the aggregate of 1,064,815 shares of common stock and warrants to purchase an aggregate of 212,963 additional shares of common stock. Each unit consists of one share of common stock and one warrant to purchase 0.2 of one share of common stock, the warrant being exercisable at an exercise price of $1.40 per share. Units will not be issued or certificated. The shares of common stock and warrants are immediately separable and will be issued separately. This prospectus supplement also relates to the offering of 212,963 shares of our common stock issuable upon exercise, if any, of the warrants.

Common Stock

A description of the common stock we are offering pursuant to this prospectus supplement is set forth under the heading Description of Capital Stock starting on page 13 of

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the prospectus. As of December 31, 2011, we had 3,094,961 shares of common stock outstanding. In December 2010, we extended the term of our shareholders rights plan through December 31, 2012.

Warrants

The warrants offered in this offering will be issued in registered form pursuant to a securities purchase agreement between each of the purchasers and us. You should review the forms of securities purchase agreement and warrant which will be filed as exhibits to a Current Report on Form 8-K filed with the SEC in connection with this offering, for a complete description of the terms and conditions applicable to warrants. The following is a brief summary of the warrants and is subject in all respects to the provisions contained in such warrants.

Exercisability. Holders may exercise the warrants beginning six (6) months after issuance and at any time thereafter up to the date that is five (5) years after the initial exercise date. The warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise, except in the case of a cashless exercise, as discussed below.

Exercise Price. Each warrant is exercisable for 0.2 of one share of common stock at an exercise price of $1.40 per share of common stock being purchased. The exercise price is subject to appropriate adjustment in the event of stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events affecting our common stock.

Cashless Exercise. If, at any time during the warrant exercisability period, the holder is not permitted to sell shares of common stock issuable upon exercise of the warrant pursuant to the registration statement, or an exemption from registration is not otherwise available, and the fair market value of our common stock exceeds the exercise price of the warrants, the holder may elect to effect a cashless exercise of the warrants, in whole or in part, by surrendering the warrants to us, together with delivery to us of a duly executed exercise notice, and canceling a portion of the relevant warrant in payment of the purchase price payable in respect of the number of shares of our common stock purchased upon such exercise.

Transferability. Subject to applicable securities laws and otherwise set forth in the warrants, the warrants are transferable, in whole or in part upon surrender of the warrants at our principal office, together with an assignment form as provided in the warrants.

Exchange Listing. We do not plan on making an application to list the warrants on any national securities exchange or other nationally recognized trading system. The common stock underlying the warrants is expected to be listed on the NASDAQ Capital Market.

Fundamental Transactions. In the event of any fundamental transaction, as described in the warrants, which generally includes any merger with or into another entity (whether or not we are the surviving entity but excluding a migratory merger effected solely for the purpose of changing our jurisdiction of incorporation), sale of all or substantially all of our assets, tender

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offer or exchange offer, our consummation of a stock purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) or reclassification of our common stock, then upon any subsequent exercise of a warrant, the holder shall have the right to receive, as alternative consideration, for each share of our common stock that would have been issuable upon such exercise immediately prior to the occurrence of such fundamental transaction, the number of shares of common stock of the successor or acquiring corporation or of Spherix, if it is the surviving corporation, and any additional consideration receivable upon or as a result of such transaction by a holder of the number of shares of our common stock for which the warrant is exercisable immediately prior to such event.

Rights as a Stockholder. Except as otherwise provided in the warrants or by virtue of such holder s ownership of shares of our common stock, the holders of the warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise their warrants.

Waivers and Amendments. The provisions of each warrant may be amended or modified or the provisions thereof waived, only with the written consent of us and the holder.

Other Provisions. Unless otherwise specified in the applicable warrant, the holder will not have the right to exercise any portion of the warrant if the holder, together with its affiliates, would beneficially own in excess of 4.9% of the number of shares outstanding immediately after giving effect to the exercise. The holder, upon not less than 61 days prior notice to the Company, may increase or decrease percentage ownership provided that in no event does the amount exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise.

No fractional shares will be issued upon exercise of the warrants, but rather we will pay a cash adjustment in respect of such fraction in an amount equal to such fraction multiplied by the exercise price.

PLAN OF DISTRIBUTION

We are offering shares of common stock and warrants through the placement agent. Subject to the terms and conditions contained in the placement agent agreement, Rodman & Renshaw, LLC has agreed to act as placement agent for the sale of shares of our common stock, par value $0.01 per share, and warrants to purchase shares of our common stock offered in this prospectus supplement. The placement agent is not purchasing or selling any shares of common stock or warrants offered by this prospectus supplement and the accompanying prospectus, but has agreed to use reasonable best efforts to arrange for the sale of all of the shares and warrants offered by this prospectus supplement and the accompanying prospectus.

The placement agent has arranged for the sale to one or more purchasers of the shares of common stock and warrants offered pursuant to this prospectus supplement and the accompanying prospectus through direct purchase agreements between the purchasers and us. We will deliver the shares of common stock being issued to the purchasers electronically upon

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receipt of purchaser funds for the purchase of the shares of our common stock and warrant offered pursuant to this prospectus supplement. The warrants will be issued in registered physical form.

In exchange for these placement agent services, we have agreed to pay the placement agent immediately upon the closing of the placement a cash fee equal to six percent (6%) of the securities offered under this prospectus supplement and accompanying prospectus. At closing, based on the aggregate amount of $1.15 million to be received under this prospectus supplement, the fee amounts to $69,000. We will also reimburse the placement agent for legal and other expenses incurred by it in connection with this offering in an amount equal to 1.0% of gross offering proceeds, but not to exceed $35,000.

The placement agent also will receive warrants to purchase up to 31,944 shares of our common stock, or three percent (3%) of the aggregate number of shares of common stock included in the units that are sold in the offering, with an exercise price of $1.35 per share and an expiration date of February 7, 2014. Such placement agent warrants are initially exercisable six months following issuance. Pursuant to FINRA Rule 5110(g), neither the placement agent warrants nor any warrant shares issued upon exercise of the placement agent warrants shall be sold, transferred, assigned, pledged, or hypothecated, or be the subject of any hedging, short sale, derivative, put, or call transaction that would result in the effective economic disposition of the securities by any person for a period of 180 days immediately following the date of effectiveness or commencement of sales of this offering, except the transfer of any security:

(i) by operation of law or by reason of reorganization of the Company;

(ii) to any FINRA member firm participating in the offering and the officers or partners thereof, if all securities so transferred remain subject to the lock-up restriction set forth above for the remainder of the time period;

(iii) if the aggregate amount of securities of the Company held by the holder of the placement agent warrants or related person do not exceed 1% of the securities being offered; or

(iv) that is beneficially owned on a pro-rata basis by all equity owners of an investment fund, provided that no participating member manages or otherwise directs investments by the fund, and participating members in the aggregate do not own more than 10% of the equity in the fund; or

(v) the exercise or conversion of any security, if all securities received remain subject to the lock-up restriction set forth above for the remainder of the time period.

The number of placement agent warrants may be reduced to the extent necessary to comply with the overall limit on placement agent compensation of eight percent (8%).

Under no circumstances will the fee, commission or discount received by the placement agent or any other member of FINRA or independent broker-dealer exceed eight percent (8%) of the gross proceeds to us in this offering or any other offering in the United States pursuant to this prospectus supplement and the accompanying prospectus.

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The placement agency agreement with Rodman & Renshaw, LLC will be included as an exhibit to a Current Report on Form 8-K that we will file with the SEC.

Our obligation to issue and sell securities to the purchasers is subject to the conditions set forth in the purchase agreement, which may be waived by us in our discretion. A purchaser s obligation to purchase securities is subject to conditions set forth in the purchase agreement as well, which also may be waived.

From time to time, we may issue shares of our common stock upon exercise of the warrants. These shares may be sold by the holders thereof from time to time. The warrants are not listed on any exchange and an active trading market for the warrants may not develop.

A warrant may be transferred by a holder without our consent upon surrender of the warrant to us, properly endorsed (by the holder executing an assignment in the form attached to the warrant).

We currently anticipate that the sale of 1,064,815 shares of our common stock and accompanying warrants offered in this prospectus supplement will be completed on or about February 7, 2012. We estimate the total expenses of this offering which will be payable by us, excluding the fees payable to the placement agent, will be approximately $50,000.

We have agreed to indemnify the placement agent and purchasers against liabilities under the Securities Act.

This is a brief summary of the material provisions of the placement agency agreement and does not purport to be a complete statement of its terms and conditions. The placement agent agreement with Rodman & Renshaw, LLC, the form of securities purchase agreement we entered into with the purchasers and the form of warrant will be included as exhibits to our Current Report on Form 8-K that will be filed with the SEC in connection with the consummation of this offering.

The placement agent has informed us that it will not engage in transactions that stabilize, maintain or otherwise affect the market price of our securities.

The purchase price per unit and the exercise price for the warrants were determined based on negotiations with the purchasers and discussions with the placement agent based on current market factors.

LEGAL MATTERS

Baxter, Baker, Sidle, Conn & Jones, P.A. of Baltimore, Maryland, our counsel in connection with the offering, has issued an opinion about the validity of the securities being offered.

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EXPERTS

The financial statements and schedules incorporated by reference in this prospectus supplement and the accompanying prospectus have been so incorporated by reference in reliance upon the report of Grant Thornton LLP, independent registered public accountants, upon the authority of said firm as experts in accounting and auditing in giving said reports.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly, and current reports, proxy statements, and other documents with the Securities and Exchange Commission. You may read and copy any document we file at the SEC s public reference room at 100 F Street NE, Washington, D.C. 20549. You should call 1-800-SEC-0330 for more information on the public reference room. The SEC maintains an internet site at http://www.sec.gov where certain information regarding issuers (including Spherix) may be found.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus supplement information we file with the SEC in other documents. This means that we can disclose important information to you by referring to other documents that contain that information. The information may include documents filed after the date of this prospectus supplement which update and supersede the information you read in this prospectus. We incorporate by reference the documents listed below, except to the extent information in those documents is different from the information contained in this prospectus supplement, and all future documents filed with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 until we terminate the offering of these shares (excluding any that are not deemed filed with the SEC, including any information furnished pursuant to Items 9 or 12 of Form 8-K):

Our Annual Report on Form 10-K for the year ended December 31, 2010.

Our Proxy Statement for the Annual Stockholders Meeting held on November 15, 2011.

Our Quarterly Report on Form 10-Q for the periods ended March 31, 2011, June 30, 2011 and September 30, 2011.

Our Current Reports on Form 8-K filed on January 10, 2011, January 12, 2011, January 20, 2011, February 11, 2011, March 21, 2011, March 30, 2011, April 19, 2011, May 6, 2011, May 13, 2011, May 24, 2011, June 15, 2011, July 14, 2011, August 12, 2011, September 7, 2011, October 27, 2011, November 14, 2011, November 16, 2011, December 15, 2011, January 10, 2012 and February 3, 2012.

All documents we file (but not furnish) under Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 after the date of this prospectus supplement and before the termination of the offering are also incorporated by reference and are an important part of this prospectus. Any statement contained in a document incorporated by reference in this prospectus

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supplement shall be modified or suspended for purposes of this prospectus supplement to the extent that a statement contained in this prospectus supplement or in any other subsequently filed document which is incorporated by reference modifies or supersedes such statement.

You may request a copy of these documents (other than an exhibit to the filings unless we have specifically incorporated that exhibit by reference into the filing), at no cost, by writing or telephoning us at:

Spherix Incorporated
6430 Rockledge Drive #503

Bethesda, Maryland 20817
Attention: Katherine M. Brailer, Corporate Secretary
Telephone: (301) 897-2540

You should rely only on the information incorporated by reference or provided in this prospectus or any supplement. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus or any supplement is accurate as of any date other than the date on the front of those documents.

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PROSPECTUS

SPHERIX INCORPORATED

COMMON STOCK

PREFERRED STOCK

WARRANTS

UNITS

From time to time, we may sell any of the securities listed above, either individually or in units.

We will provide specific terms of these securities and the offering in supplements to this prospectus for each offering. Any prospectus supplement may also add, update or change information in this prospectus. This prospectus may not be used to offer or sell securities unless accompanied by a prospectus supplement.

Our common stock is quoted on the NASDAQ Capital Market under the symbol SPEX . On September 18, 2009, the last reported sales price for our common stock on NASDAQ was $2.24 per share.

As of September 18, 2009, the aggregate market value of our outstanding common stock held by non-affiliates was approximately $26.5 million, based on 11,826,036 shares of outstanding common stock held by non-affiliates at a price per share of $2.24, which was the closing price of our common stock on September 18, 2009. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities in a public primary offering in any twelve-month period with a value exceeding one-third of the market value of our common stock held by non-affiliates so long as such aggregate value remains below $75 million.

We have not offered any securities pursuant to General Instruction I.B.6 of Form S-3 during the prior 12-month period that ends on and includes the date of this prospectus.

We may offer securities directly to purchasers or through underwriting syndicates managed or co-managed by one or more underwriters, dealers or agents. The prospectus supplement for each offering of securities will describe the plan of distribution for that offering. For general information about the distribution of the shares, see Plan of Distribution in this prospectus.

Unless the context otherwise requires, the terms we, our, us, the Company and Spherix refer to Spherix Incorporated and its consolidated subsidiaries.

Investing in our common stock is highly speculative and involves a high degree of risk. See Risk Factors beginning on page 6.

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

The date of this Prospectus is October 1, 2009.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, which we refer to as the SEC, using a shelf registration process. Under this shelf registration process, we may, from time to time, sell our securities as described in this prospectus and in a prospectus supplement in one or more offerings for up to a total amount of $50 million.

This prospectus provides you with a general description of our company. Each time we offer securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. We will file each prospectus supplement with the SEC. The prospectus supplement may also add, update or change information contained in this prospectus. You should read both this prospectus and any prospectus supplement together with additional information described under the heading Where You Can Find More Information in this prospectus.

You should rely only on the information contained in this prospectus and the accompanying prospectus supplement and information to which we have referred you, including the information incorporated by reference. We have not authorized anyone to provide you with different information. The information contained in this prospectus is complete and accurate only as of the date on the front cover, but

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the information may have changed since that date. You must not rely on any unauthorized information or representation. This prospectus is not an offer to sell, nor is it seeking an offer to buy, these securities in any jurisdiction where the offer or sale is not permitted.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any prospectus supplement and the documents we incorporate by reference contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Forward looking statements reflect our current views with respect to future events and future forward performance, including in particular statements about our plans, objectives, expectations and prospects. You can identify these statements by forward-looking words such as anticipate, believe, estimate, expect, intend, plan, seek, forecasts, projects, could, may, will, would, hopes, and similar expressions. Although we believe that the expectations and prospects reflected in or suggested by our forward-looking statements are reasonable, those statements involve uncertainties and risks, and we can give no assurance that our plans, objectives, expectations and prospects will be achieved. Important factors that could cause our actual results to differ materially from the results anticipated by the forward-looking statements are contained herein under Risk Factors and elsewhere in this prospectus. Any or all of these factors could cause our actual results and financial or legal status for future periods to differ materially from those expressed or referred to in any forward-looking statements. All written or oral forward-looking statements attributable to us are expressly qualified in their entirety by these cautionary statements. Forward-looking statements speak only as of the date on which they are made and we do not assume any obligation to update or revise any forward-looking statements that we make, whether as a result of new information, future events or otherwise.

We have identified some of the important factors that could cause future events to differ from our current expectations herein and in our most recent Annual Report on Form 10-K filed on March 30, 2009 including, without limitation, under the captions Item 1A. Risk Factors and Item 7. Management s Discussion and Analysis of Financial Condition and Results of Operation, in our Quarterly Reports on Form 10-Q filed on May 15, 2009 and August 14, 2009, together with other documents we file with the SEC and that are incorporated herein by reference, all of which you should review carefully. Although we have attempted to list comprehensively these important factors, we also wish to caution investors that other factors may prove to be important in the future in affecting our operating results. New factors emerge from time to time, and it is not possible for us to predict all of these factors, nor can we assess the impact each factor or combination of factors may have on our business.

PROSPECTUS SUMMARY

This summary does not contain all of the information you should consider before buying our securities. You should read the entire prospectus carefully, especially the Risk Factors section in this prospectus, and our financial statements, related notes and other information incorporated by reference into this prospectus before deciding to invest in our securities.

Company Information

We were founded in 1967 and are incorporated in the State of Delaware. Our principal executive offices are located at 6430 Rockledge Drive #503, Bethesda, Maryland 20817, and our telephone number is (301) 897-2540. Our website is www.spherix.com. The information contained

on our website is not a part of this prospectus. We have included our website address in this prospectus for reference only.

We are engaged in two (2) lines of business, our biotechnology research and development business and our health sciences technical and regulatory consulting business. We have created two wholly-owned subsidiaries, Biospherics Incorporated and Spherix Consulting, Inc., for our two operating businesses. The subsidiaries began operations on January 1, 2009. Spherix now provides management, strategic guidance, business development, marketing and other services to its subsidiaries.

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Biospherics

Biospherics is seeking to develop its low-caloric sweetener as a treatment for Type 2 diabetes. The proceeds of any securities sold hereunder will be used predominately for this development.

Tagatose, a naturally occurring sugar, is a low-calorie, full-bulk sweetener. It is a true sugar that looks, feels and tastes like table sugar. We have discovered and patented a number of health and medical uses for tagatose, which we have branded Naturlose® . We believe tagatose depresses elevations of blood sugar levels by increasing glycogen synthesis while decreasing glycogen utilization resulting in an improvement of blood sugar control and modulation of HbA1c. Tagatose s safety in humans was established in 2001 when it received the designation as Generally Recognized As Safe (GRAS) in foods by the FDA.

We intend to continue to develop Naturlose and simultaneously search for a sale, license, partner, or other strategic alliance to fully take Naturlose through the FDA approval process and to bring Naturlose to market. We are hopeful that as we proceed with our development efforts, incremental successes may afford us the opportunity to achieve such a strategic alliance.

We are conducting two clinical trials, a Phase 3 clinical trial on the efficacy of Naturlose as a treatment for Type 2 diabetes and a Phase 2 Dose Range trial to evaluate the effectiveness of lower doses of Naturlose in treating Type 2 diabetes.

The Phase 3 clinical trial started April 2007. The trial is a multicenter, randomized, double-blind, placebo-controlled trial. During the course of the trial, participants representing the demographic mix in the U.S. will receive doses of Naturlose, three times a day, to test its ability to treat Type 2 diabetes while an equal number of subject will receive a placebo. A minimum of 330 participants must complete the trial in accord with the current protocol (165 using Naturlose and 165 using a placebo).

We anticipate that the earliest the Phase 3 trial could be completed is mid-2010, but many factors could result in delays. If successful, FDA approval would not likely be received before mid-2011 at the earliest. We currently expect to obtain interim analysis results from the Phase 3 trial on approximately 216 patients during the third quarter of 2009, which may provide the Company important preliminary insight into the efficacy of Naturlose as a treatment for Type 2 diabetes. The Phase 3 trial is being conducted at 21 active sites in the U.S. and 24 active sites in India; 451 patients have been randomized.

We are also conducting the Phase 2 Dose Range trial to evaluate whether lower doses of Naturlose are effective in treating Type 2 diabetes. The trial will evaluate three different daily doses which are lower than the daily dose currently in use in the Phase 3 trial. The Dose Range trial is expected to be completed in mid-2010. Preliminary data from the Dose Range study demonstrates reductions of HbA1c levels at doses lower than those used in the current Phase 3 trial.

Management believes the Dose Range interim data, combined with the fact that Naturlose is a naturally occurring compound, provides a strong indication of Naturlose s potential as a treatment option for patients with Type 2 diabetes, as either a stand-alone or adjunct therapy.

In responding to the favorable Dose Range interim results, management is actively pursuing plans to accelerate and significantly increase its commercialization efforts for Naturlose. These plans include the formation of up to three regional Advisory Boards, possibly as soon as October 2009, as well as other commercialization and marketing efforts. We are also considering plans for a Pediatric Phase 2 clinical trial of Naturlose as a treatment for Type 1 diabetes. An effective oral treatment for Type 1 diabetes would have a large market among Type 2 diabetic patients with high insulin resistance and beta cell exhaustion. Management believes that these actions will afford the Company a better opportunity to seek and obtain an appropriate strategic alliance.

Continued progress on the clinical trial of Naturlose as a treatment of Type 2 diabetes and on the other initiatives described above is dependent upon many factors including, but not limited to, our having sufficient funds

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and resources. The Company has not had, and does not expect to have, any meaningful offers to buy or license the rights to use Naturlose as a treatment for Type 2 diabetes until the efficacy of Naturlose has been further established. To complete the Phase 3 trial, then prepare, submit and pursue the FDA NDA, and take the other steps necessary to bring Naturlose to market as a Type 2 diabetes drug, the Company will need to raise additional funds.

Health Sciences

In July 2007, we entered into the Health Sciences business when Claire L. Kruger, CEO and COO, joined us in advance of the anticipated sale of our wholly-owned subsidiary, InfoSpherix Incorporated. The Health Sciences business provides technical and regulatory consulting services to biotechnology and pharmaceutical companies, as well as providing technical support for our own R&D activities.

During 2008 and 2007, Health Sciences provided services to 16 and 10 companies, respectively. We generally provide services on either a fixed-price basis or on a time and expenses basis, charging hourly rates for each staff member involved in a project, based on his or her skills and experience. Our engagement agreements typically provide for monthly billing and payment of our invoices within thirty days of receipt.

The projects range from safety analyses of food ingredients to safety analyses of pharmaceutical manufacturing and dispensing equipment. Many clients are large, well-known companies with a number of successful products on the market. The proliferation of new products in the food and pharmaceutical areas creates a growing need for our regulatory services.

Revenues are primarily derived from services provided in response to client requests or events that occur without notice, and engagements, generally billed as services are performed, are terminable or subject to postponement or delay at any time by clients. Revenues and operating margins for any particular quarter are generally affected by staffing mix, resource requirements, and timing and size of engagements.

Health Sciences is also monitoring and directing the Phase 3 clinical trial of Naturlose for Biospherics.

Health Sciences revenue accounted for 99% of our total revenue in 2008.

The Securities We May Offer

We may offer shares of our common stock, preferred stock, warrants to purchase such securities and units consisting of such securities, with a total value of up to $50 million from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities. The prospectus supplement also may add, update or change information contained in this prospectus or in documents we have incorporated by

reference into this prospectus.

This prospectus may not be used to consummate sales of offered securities unless accompanied by a prospectus supplement.

We may sell the securities directly to investors or through underwriters, dealers or agents. We, and our underwriters or agents, reserve the right to accept or reject all or part of any proposed purchase of securities. If we do offer securities through underwriters or agents, we will include in the applicable prospectus supplement:

- the names of those underwriters or agents;
- applicable fees, discounts and commissions to be paid to them;
- details regarding over-allotment options, if any; and
- the net proceeds to us.

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Stock. We may issue shares of our common stock from time to time.

Each holder of common stock is entitled to one vote for each share held on all other matters to be voted upon by the shareholders and there are no cumulative voting rights. Subject to preferences that may be applicable to any outstanding preferred stock, holders of common stock are entitled to receive ratably the dividends, if any, that are declared from time to time by the board of directors out of funds legally available for that purpose. In the event of a liquidation, dissolution or winding up of the Company, the holders of common stock are entitled to share in our assets remaining after the payment of liabilities and the satisfaction of any liquidation preference granted to the holders of any outstanding shares of preferred stock. Holders of common stock have no preemptive or conversion rights or other subscription rights. 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.

We may issue shares of preferred stock from time to time. We will fix the rights, preferences and privileges of the preferred stock of each series that we sell under this prospectus and applicable prospectus supplements in the certificate of designation relating to that series. We will incorporate by reference into the registration statement of which this prospectus is a part the form of any certificate of designation that describes the terms of the series of preferred stock that we are offering before the issuance of the related series of preferred stock. We urge you to read the prospectus supplements related to the series of preferred stock being offered, as well as the complete certificate of designation that contains the terms of the applicable series of preferred stock.

Warrants. We may issue warrants for the purchase of common stock and/or preferred stock in one or more series, from time to time. We may issue warrants independently or together with common stock and/or preferred stock, and the warrants may be attached to or separate from those securities.

The warrants will be evidenced by a warrant certificate issued under one or more warrant agreements. In this prospectus, we have summarized certain general features of the warrants. We urge you, however, to read the prospectus supplements related to the series of warrants being offered, as well as the complete warrant agreements that contain the terms of the warrants. Complete warrant agreements containing the terms of warrants being offered will be incorporated by reference into the registration statement of which this prospectus is a part from prospectus supplements or other reports we file with the Securities and Exchange Commission.

Units. We may issue, in one or more series, units consisting of common stock, preferred stock, and/or warrants for the purchase of common stock and/or preferred stock, in any combination. In this prospectus, we have summarized certain general features of the units. We urge you, however, to read the prospectus supplement related to the series of units being offered, as well as the complete unit agreement that contains the terms or the units. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of unit agreement and any supplemental agreements that describe the terms of the series of units we are offering before the issuance of the related series of units.

RISK FACTORS

An investment in our securities involves a high degree of risk and should be considered only by those persons who are able to afford a loss of their entire investment. There are important factors that could cause our actual results, level of activity, performance or achievements to differ materially from the results, level of activity, performance or achievements expressed or implied by any forward-looking statement. In particular, you should consider the numerous risks outlined below. Those risk factors are not exhaustive. Other sections of this prospectus, any prospectus supplement and the documents incorporated by reference may include additional factors which could adversely impact our business and financial performance. Moreover, we operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time, and it is not possible for our management to predict all risk factors, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. In evaluating our business, prospective investors should carefully consider the risk factors in addition to the other information included or incorporated by reference in this prospectus.

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OUR DRUG CANDIDATE IS STILL IN DEVELOPMENT AND REMAINS SUBJECT TO CLINICAL TESTING AND REGULATORY APPROVAL. THIS PROCESS IS HIGHLY UNCERTAIN AND WE MAY NEVER BE ABLE TO COMMERCIALIZE NATURLOSE. We have limited our biotech efforts to attempting to commercialize one single product, Naturlose as a treatment for Type 2 diabetes. We are engaged in a Phase 3 clinical trial and are devoting nearly all of our available resources to this singular effort. If we are not successful, we will likely need to cease all operations.

WE DO NOT CURRENTLY HAVE THE RESOURCES TO BECOME A FULL SCALE BIOTECHNOLOGY COMPANY AND WE MAY NOT BE ABLE TO ATTRACT A NECESSARY BUYER/LICENSEE/PARTNER/STRATEGIC PARTNER BEFORE WE EXPEND ALL OF OUR FUNDS. We intend to continue to develop Naturlose as a viable Type 2 diabetes treatment and to continuously seek a sale, license, or partner. Our hope and expectation is that as we proceed with the development, incremental successes may allow us to negotiate a favorable transaction. There can be no assurance, however, that we will have such incremental successes, or that even if we achieve them, we will attract a buyer, licensee or partner. We have limited resources. As of June 30, 2009, our cash and short-term investments were reduced to approximately $7.9 million. We currently expect that we will have cash to fund our current operations into the second quarter of 2010. We will need to raise additional funds to continue our development operations and we may not be able to do so in a timely fashion.

CLINICAL TESTS ARE A LONG, EXPENSIVE AND UNCERTAIN PROCESS. IF NATURLOSE DOES NOT RECEIVE THE NECESSARY REGULATORY APPROVALS, WE WILL BE UNABLE TO COMMERCIALIZE NATURLOSE. We have not received, any may never receive, regulatory approval for the commercial sale of Naturlose. Clinical trials are a long, expensive and uncertain process. Satisfaction of regulatory requirements typically depends on the nature, complexity and novelty of the product, and requires the expenditure of substantial resources. Data obtained from clinical trials can be interpreted in different ways, which could delay, limit or prevent regulatory approval. Negative or inconclusive results or medical events during a clinical trial could cause us to delay or terminate our development efforts.

Furthermore, interim results of preclinical or clinical studies do not necessarily predict their final results. Clinical trials have a high risk of failure. A number of companies in the pharmaceutical industry, including biotechnology companies, have suffered significant setbacks in advanced clinical trials, even after achieving what appeared to be promising results in earlier trials. If we experience delays in the testing or approval process or if we need to perform more or larger clinical trials than originally planned, our financial results and the commercial prospects for Naturlose may be materially impaired. In addition, we have limited experience in conducting and managing the clinical trials necessary to obtain regulatory approval in the United States and abroad and, accordingly, may encounter unforeseen problems and delays in the approval process.

REGULATORY AUTHORITIES MAY NOT APPROVE OUR PRODUCT EVEN IF IT MEETS SAFETY AND EFFICACY ENDPOINTS IN CLINICAL TRIALS. The FDA and foreign regulatory agencies can delay, limit or deny marketing approval for many reasons, including:

- a product candidate may not be considered safe or effective;
- the manufacturing processes or facilities we have selected may not meet the applicable requirements; and
- changes in approval policies or adoption of new regulations may require additional work on our part.

Any delay in, or failure to receive or maintain, approval for Naturlose could prevent us from ever generating meaningful revenues.

Naturlose may not be approved even if it achieves endpoints in clinical trials. Regulatory agencies, including the FDA, or their advisors may disagree with our trial design and our interpretations of data from preclinical studies and clinical trials. Regulatory agencies may change requirements for approval even after a clinical trial design has been approved. Regulatory agencies may also approve a product candidate for fewer or more limited indications than requested, or may grant approval subject to the performance of post-marketing studies.

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In addition, regulatory agencies may not approve the labeling claims that are necessary or desirable for the successful commercialization of Naturlose.

OUR FINANCIAL RESOURCES ARE LIMITED AND WE WILL NEED TO RAISE ADDITIONAL CAPITAL IN THE FUTURE TO CONTINUE OUR BUSINESS. WE MAY NOT BE ABLE TO OBTAIN ADDITIONAL FINANCING IF NEEDED. As of June 30, 2009, the Company had cash and short-term investments of approximately $7.9 million and expects to expend all or nearly all of this amount within the next twelve (12) months. Our future capital requirements will depend on many factors, including the progress of the clinical trials and commercialization of Naturlose, as well as general and administrative costs. We will need to raise additional capital to continue our business beyond this period. The current economic downturn and its impact on the stock markets will most likely have a negative impact on our efforts to raise additional capital. We cannot ensure that additional funding will be available or, if it is available, that it can be obtained on terms and conditions we will deem acceptable. Any additional funding derived from the sale of equity securities is likely to result in significant dilution to our existing stockholders. These matters involve risks and uncertainties that may prevent us from raising additional capital or may cause the terms upon which we raise additional capital, if additional capital is available, to be less favorable to us than would otherwise be the case.

UNSTABLE MARKET CONDITIONS MAY HAVE SERIOUS ADVERSE CONSEQUENCES ON OUR BUSINESS. The recent economic downturn and market instability has made the business climate more volatile and more costly. Our general business strategy may be adversely affected by unpredictable and unstable market conditions, including:

- one or more of our current service providers, manufacturers and other partners may encounter difficulties during challenging economic times, which would directly affect our ability to attain our goals on schedule and on budget;
- demand for our consulting services may decrease resulting in a decrease in revenue;
- our ability to collect on trade receivables may be negatively impacted by slow payments or bad debt;
- our efforts to raise additional capital may be negatively impacted;
- additional funding may not be available or, if it is available, may not be on terms and conditions we deem acceptable;
- any additional funding derived from the sale of equity securities is likely to result in significant dilution to our existing stockholders; and
- failure to secure the necessary financing in a timely manner and on favorable terms could have a material adverse effect on our business strategy, financial performance, and stock price and could require us to delay or abandon the clinical development plans.

IF CLINICAL TRIALS OF NATURLOSE ARE PROLONGED, DELAYED OR SUSPENDED, IT MAY TAKE SIGNIFICANTLY LONGER AND COST SUBSTANTIALLY MORE TO OBTAIN APPROVAL FOR OUR DRUG CANDIDATE AND ACHIEVE PROFITABILITY, IF AT ALL. We have already encountered several challenges which have delayed our Phase 3 trial. Each delay makes it more likely that we will need interim financing to complete the Phase 3 trial. We cannot predict whether we will encounter additional problems with our trial that will cause us or regulatory authorities to delay or suspend the clinical trial, or delay the analysis of data from the ongoing trial. Any of the following could delay the clinical development of Naturlose as a drug:

- ongoing discussions with the FDA regarding the scope or design of our trial;
- delays in receiving, or the inability to obtain, required approvals from reviewing entities at clinical sites selected for participation in our trial;
- delays in enrolling patients into the trial;
- a lower than anticipated retention rate of patients in the trial;
- the need to repeat the trial as a result of inconclusive or negative results or unforeseen complications in testing;
- inadequate supply or deficient quality of materials necessary to conduct our trial;
- serious and unexpected drug-related side effects experienced by participants in our clinical trials;
- the placement by the FDA of a clinical hold on a trial; or

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- any restrictions on or post-approval commitments with regard to any regulatory approval we ultimately obtain that render the drug candidate not commercially viable.

WE CURRENTLY RELY ON THIRD PARTIES TO CONDUCT PORTIONS OF OUR TRIAL, AND THOSE THIRD PARTIES MAY NOT PERFORM SATISFACTORILY. We rely on third parties to enroll qualified patients, conduct our trial, provide services in connection with such trial, and coordinate and oversee significant aspects of the trial. Our reliance on these third parties for clinical development activities reduces our control over these activities. Accordingly, these third party contractors may not complete activities on schedule, or may not conduct our trial in accordance with regulatory requirements or the trial design. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may be required to replace them or we may be required to provide these services with our own personnel. Although we believe there are a number of third party contractors we could engage to continue these activities, replacing a third party contractor may result in a delay or affect the trial. If this were to occur, our efforts to obtain regulatory approvals for and commercialize our drug candidate may be delayed.

WE DO NOT HAVE INTERNAL MANUFACTURING CAPABILITIES, AND IF WE FAIL TO DEVELOP AND MAINTAIN SUPPLY RELATIONSHIPS WITH OUTSIDE MANUFACTURERS, WE MAY BE UNABLE TO DEVELOP OR COMMERCIALIZE NATURLOSE. Our ability to develop and commercialize Naturlose will depend in part on our ability to arrange for other parties to manufacture Naturlose at a competitive cost, in accordance with regulatory requirements and in sufficient quantities for clinical testing and eventual commercialization. If we are unable to enter into or maintain commercial-scale manufacturing agreements on acceptable terms, or if we are unable to successfully bridge material from a manufacturer to the Arla material used in the trials, the development and commercialization of Naturlose could be delayed, which would adversely affect our ability to generate revenues and would increase our expenses.

FAILURE TO OBTAIN REGULATORY APPROVAL IN FOREIGN JURISDICTIONS WOULD PREVENT MARKETING OF NATURLOSE. We expect to have Naturlose marketed both inside and outside of the United States. In order to market Naturlose in the European Union and many other foreign jurisdictions, we must obtain separate regulatory approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ from that required to obtain FDA approval. The foreign regulatory approval process may include all of the risks associated with obtaining FDA approval. We may not obtain foreign regulatory approvals on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries, and approval by one foreign regulatory authority does not ensure approval by regulatory authorities in other foreign countries or by the FDA. We and our collaborators may not be able to file for regulatory approvals and may not receive necessary approvals to commercialize our products in any market. The failure to obtain these approvals could materially adversely affect our business, financial condition and results of operations.

EVEN IF OUR CLINICAL TRIALS ARE SUCCESSFUL, WE MAY NOT HAVE A COMMERCIALLY VIABLE DRUG OR PRODUCT. We have a number of hurdles to overcome to have a commercially viable drug or product even assuming our clinical trials are successful, including:

- We must secure one or more manufacturers for Naturlose and we must bridge the materials supplied by the manufacturer(s) to the previously supplied Arla materials to gain FDA approval.

- We must demonstrate that the product will be accepted in the market place. Even if the clinical trial is successful, the market may not accept a drug which must be consumed in powder form, three times a day, and in the quantities used in our trial.

IF PHYSICIANS AND PATIENTS DO NOT ACCEPT NATURLOSE, WE MAY NOT BE ABLE TO GENERATE SIGNIFICANT REVENUES FROM PRODUCT SALES. Even if we obtain regulatory approval for Naturlose, it may not gain market acceptance among physicians, patients and the medical community for a variety of reasons including:

- timing of market introduction of competitive drugs;
- lower demonstrated clinical safety and efficacy compared to other drugs;

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- lack of cost-effectiveness;
- lack of availability of reimbursement from managed care plans and other third-party payors;
- inconvenient and/or difficult administration;
- prevalence and severity of adverse side effects;
- potential advantages of alternative treatment methods;
- safety concerns with similar drugs marketed by others;
- the reluctance of the target population to try new therapies and of physicians to prescribe these therapies; and
- ineffective sales, marketing and distribution support.

If Naturlose fails to achieve market acceptance, we would not be able to generate significant revenue or achieve profitability.

BIOTECHNOLOGY BUSINESS HAS A SUBSTANTIAL RISK OF PRODUCT LIABILITY CLAIMS. THE DEFENSE OF ANY PRODUCT LIABILITY CLAIM BROUGHT AGAINST US WILL DIVERT MANAGEMENT TIME AND REQUIRE SIGNIFICANT EXPENSE. We could be exposed to significant potential product liability risks that are inherent in the development, manufacture, sales and marketing of drugs and related products. Our insurance may not, however, provide adequate coverage against potential liabilities. Furthermore, product liability insurance is becoming increasingly expensive. As a result, we may be unable to maintain current amounts of insurance coverage or obtain additional or sufficient insurance at a reasonable cost to protect against losses that could have a material adverse effect on us. If a claim is brought against us, we might be required to pay legal and other expenses to defend the claim, as well as uncovered damage awards resulting from a claim brought successfully against us. Furthermore, whether or not we are ultimately successful in defending any such claims, we might be required to redirect significant financial and managerial resources to such defense, and adverse publicity is likely to result.

OUR PATENT PROTECTION MAY NOT BE SUFFICIENT TO PROTECT US. Our current use patent for Naturlose as a treatment for Type 2 diabetes expires in 2012. We are exploring the prospects of extending the life of the patent of Naturlose for up to an additional three years. In order for the Company s request for an extension to be considered, FDA approval is needed prior to the patent s expiration in 2012. There is no assurance, however, that this effort will be successful.

WE HAVE SUSTAINED LOSSES IN THE PAST AND WE MAY SUSTAIN LOSSES IN THE FUTURE. We have incurred losses from continuing operations in prior years, including 2008 and 2007. Our net losses from continuing operations before taxes for the years ended December 31, 2008 and 2007 were $6.2 million and $9.3 million, respectively. We expect to incur substantial losses in 2009 and thereafter until we find a purchaser/licensee. We may not return to profitable operations.

WE MAY NOT BE ABLE TO RETAIN OUR KEY EXECUTIVES AND PERSONNEL. As a small company, our success depends on the services of key employees in executive and other positions. The loss of the services of one or more of such employees could have a material

adverse effect on us.

WE FACE INTENSE COMPETITION BY COMPETITORS. Our competitors in the biotechnology products business are numerous. Many of our competitors have significantly greater financial, marketing and distribution resources than we do. Our competitors may succeed in developing or marketing biotechnology products that are more effective than ours.

WE FACE EVOLVING REGULATION OF CORPORATE GOVERNANCE AND PUBLIC DISCLOSURE THAT MAY RESULT IN ADDITIONAL EXPENSES AND CONTINUING UNCERTAINTY. Changing laws, regulations and standards relating to corporate governance and public disclosure, including the Sarbanes-Oxley Act of 2002, new SEC regulations and NASDAQ Stock Market LLC rules are creating uncertainty for public companies. We are presently evaluating and monitoring developments with respect to new and proposed rules and cannot predict or estimate the amount of the additional costs we may incur or the timing of these costs. For example, compliance with the internal control requirements of Section 404 of the Sarbanes-Oxley Act has to date required the commitment of significant resources to document and test the adequacy

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of our internal control over financial reporting. While our assessment, testing and evaluation of the design and operating effectiveness of our internal control over financial reporting resulted in our conclusion that, as of December 31, 2008, our internal control over financial reporting was effective, we can provide no assurance as to conclusions of management or by our independent registered public accounting firm with respect to the effectiveness of our internal control over financial reporting in the future. These new or changed laws, regulations and standards are subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices. We are committed to maintaining high standards of corporate governance and public disclosure. As a result, we intend to invest the resources necessary to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management time and attention from revenue-generating activities to compliance activities. If our efforts to comply with new or changed laws, regulations and standards differ from the activities intended by regulatory or governing bodies, due to ambiguities related to practice or otherwise, regulatory authorities may initiate legal proceedings against us, which could be costly and time-consuming, and our reputation and business may be harmed.

RISKS RELATED TO OWNERSHIP OF OUR COMMON STOCK

THE PRICE OF SPHERIX S COMMON STOCK HAS BEEN HIGHLY VOLATILE DUE TO SEVERAL FACTORS WHICH WILL CONTINUE TO AFFECT THE PRICE OF OUR STOCK. Our common stock has traded as low as $0.20 and as high as $2.67 between January 1, 2008 and September 18, 2009. Some of the factors leading to this volatility include:

- relatively small amounts of our stock trading on any given day;
- fluctuations in our operating results;
- announcements of technological innovations or new products which we or our competitors make;
- developments with respect to patents or proprietary rights; and
- recent economic downturn and market instability.

OUR COMMON STOCK WILL BE DELISTED FROM THE NASDAQ CAPITAL MARKET SYSTEM IF WE FAIL TO COMPLY WITH CONTINUED LISTING STANDARDS. Our common stock is currently traded on the Nasdaq Capital Market under the symbol SPEX. If we fail to meet any of the continued listing standards of the Nasdaq Capital Market, our common stock could be delisted from the Nasdaq Capital Market. These continued listing standards include specifically enumerated criteria, such as:

- a $1.00 minimum closing bid price;
- shareholders equity of $2.5 million;
- 500,000 shares of publicly-held common stock with a market value of at least $1 million;

- 300 round-lot stockholders; and

- compliance with Nasdaq s corporate governance requirements, as well as additional or more stringent criteria that may be applied in the exercise of Nasdaq s discretionary authority.

In the future, if our common stock were to fail to meet the minimum bid price requirement or any of the other listing requirements it could be delisted from the Nasdaq Capital Market. In that case trading of our common stock most likely will be conducted in the over-the-counter market (OTC) Bulletin Board market, an electronic bulletin board established for unlisted securities. Such delisting could also adversely affect our ability to obtain financing for the continuation of our operations and could result in the loss of confidence by investors, suppliers and employees.

DIVIDENDS ON OUR COMMON STOCK ARE NOT LIKELY. We intend to retain future earnings, if any, in order to provide funds for use in the operation and expansion of our business and for further research and development. Accordingly, we do not anticipate paying cash dividends on our common stock in the foreseeable future. Investors must look solely to appreciation in the market price of the shares of our common stock to obtain a return on their investment.

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BECAUSE OF THE RIGHTS AGREEMENT AND ANTI-TAKEOVER PROVISIONS IN OUR CERTIFICATE OF INCORPORATION AND BYLAWS, A THIRD PARTY MAY BE DISCOURAGED FROM MAKING A TAKEOVER OFFER WHICH COULD BE BENEFICIAL TO OUR STOCKHOLDERS. In 2001, we adopted a shareholder rights plan. The effect of this rights plan and of certain provisions of our Certificate of Incorporation, By-Laws, and the anti-takeover provisions of the Delaware General Corporation Law, could delay or prevent a third party from acquiring us or replacing members of our board of directors, even if the acquisition or the replacements would be beneficial to our stockholders. These factors could also reduce the price that certain investors might be willing to pay for shares of the common stock and result in the market price being lower than it would be without these provisions.

INSIDERS OWN A SIGNIFICANT PORTION OF OUR COMMON STOCK, WHICH COULD LIMIT OUR STOCKHOLDERS ABILITY TO INFLUENCE THE OUTCOME OF KEY TRANSACTIONS. As of December 31, 2008, our officers and directors and their affiliates owned approximately 18% of the outstanding shares of our common stock. As a result, our officers and directors are able to exert considerable influence over the outcome of any matters submitted to a vote of the holders of our common stock, including the election of our Board of Directors. The voting power of these stockholders could prevent or frustrate attempts to effect a transaction that is in the best interests of the other stockholders and could also discourage others from seeking to purchase our common stock, which might depress the price of our common stock.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly, and current reports, proxy statements, and other documents with the Securities and Exchange Commission. You may read and copy any document we file at the SEC s public reference room at 100 F Street NE, Washington, D.C. 20549. You should call 1-800-SEC-0330 for more information on the public reference room. The SEC maintains an internet site at http://www.sec.gov where certain information regarding issuers (including Spherix) may be found.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus information we file with the SEC in other documents. This means that we can disclose important information to you by referring to other documents that contain that information. The information may include documents filed after the date of this prospectus which update and supersede the information you read in this prospectus. We incorporate by reference the documents listed below, except to the extent information in those documents is different from the information contained in this prospectus, and all future documents filed with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 until we terminate the offering of these shares (excluding any that are not deemed filed with the SEC, including any information furnished pursuant to Items 9 or 12 of Form 8-K):

Our Annual Report on Form 10-K for the year ended December 31, 2008.

Our Proxy Statement for the Annual Stockholders Meetings held on November 14, 2008 and May 13, 2008, and the Annual Stockholders Meeting to be held on November 17, 2009.

Our Quarterly Report on Form 10-Q for the periods ended March 31, 2009 and June 30, 2009.

Our Current Reports on Form 8-K filed on March 26, 2009, March 30, 2009, April 17, 2009, April 27, 2009, May 14, 2009, May 15, 2009, May 22, 2009, June 23, 2009, August 17, 2009, and September 3, 2009.

All documents we file (but not furnish) under Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 after the date of this prospectus and before the termination of the offering are also incorporated by reference and are an important part of this prospectus. Any statement contained in a document incorporated by reference in this prospectus shall be modified or suspended for purposes of this prospectus to the extent that a statement contained in this prospectus or in any other subsequently filed document which is incorporated by reference modifies or supersedes such statement.

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You may request a copy of these documents (other than an exhibit to the filings unless we have specifically incorporated that exhibit by reference into the filing), at no cost, by writing or telephoning us at:

Spherix Incorporated
6430 Rockledge Drive #503
Bethesda, Maryland 20817
Attention: Katherine M. Brailer, Corporate Secretary
Telephone: (301) 897-2540

You should rely only on the information incorporated by reference or provided in this prospectus or any supplement. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus or any supplement is accurate as of any date other than the date on the front of those documents.

Our common stock is listed on The NASDAQ Capital Market and such reports, proxy statements and other information concerning us may be inspected at the office of The NASDAQ Stock Market, 1735 K Street, N.W., Washington, DC 20006.

This prospectus is part of a registration statement that we filed with the SEC (Registration No. 333-161531). The registration statement contains more information than this prospectus regarding Spherix and its securities, including certain exhibits and schedules. You can get a copy of the registration statement from the SEC at the address listed above or from its internet site.

USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds from the sale of the securities offered hereby. Unless otherwise indicated in any prospectus supplement, we intend to use the net proceeds from the sale of the securities under this prospectus for general corporate purposes, including clinical trial expenses, research and development expenses, and general and administrative expenses. Pending their application, we expect to invest the net proceeds in investment-grade, interest-bearing instruments.

GENERAL DESCRIPTION OF SECURITIES WE MAY OFFER

We may offer securities as described below from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of the offering. This prospectus provides you with a general description of the securities we may offer. In connection with each offering, we will provide a prospectus supplement that will describe the specific securities, amounts, prices and the terms under which they are being offered. The prospectus supplement also may add, update or change information contained in this prospectus or in documents we have incorporated by reference. However, no prospectus supplement will offer a security that is not included in the registration statement of which this prospectus is a part at the time of its effectiveness or offer a security of a type that is not described in this prospectus.

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

DESCRIPTION OF CAPITAL STOCK

The following is a description of our capital stock, including our common stock, and other securities and the material provisions of our certificate of incorporation, bylaws and other agreements. The following is only a summary and is qualified by applicable law and by the provisions of our certificate of incorporation, bylaws and other agreements, copies of which are available as set forth under the captions Where You Can Find More Information and Information We Have Incorporated by Reference.

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General

Under our certificate of incorporation, we have 52,000,000 shares of authorized capital stock, of which 50,000,000 shares have been classified as common stock, $0.005 par value per share, and 2,000,000 shares have been classified as preferred stock, $0.01 par value per share. As of September 18, 2009, there were 14,389,778 shares of common stock outstanding and no outstanding shares of preferred stock.

Common Stock

Subject to the rights of the preferred stock, holders of common stock are entitled to receive such dividends as are declared by our board of directors out of funds legally available for the payment of dividends. We presently intend to retain any earnings to fund the development of our business. Accordingly, we do not anticipate paying any dividends on our common stock for the foreseeable future. Any future determination as to declaration and payment of dividends will be made at the discretion of our board of directors.

In the event of the liquidation, dissolution, or winding up of Spherix, each outstanding share of our common stock will be entitled to share equally in any of our assets remaining after payment of or provision for our debts and other liabilities.

Holders of common stock are entitled to one vote per share on matters to be voted upon by stockholders. There is no cumulative voting for the election of directors, which means that the holders of shares entitled to exercise more than fifty percent (50%) of the voting rights in the election of directors are able to elect all of the directors.

Holders of common stock have no preemptive rights to subscribe for or to purchase any additional shares of common stock or other obligations convertible into shares of common stock which we may issue after the date of this prospectus.

All of the outstanding shares of common stock are fully paid and non-assessable. Holders of our common stock are not liable for further calls or assessments.

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.

This prospectus also relates to preferred stock purchase rights attached to our common stock. References in this prospectus to common stock shall be deemed to include the preferred stock purchase rights attached hereto.

Preferred Stock

Our certificate of incorporation authorizes 2,000,000 shares of preferred stock. Our board of directors is authorized, without further stockholder action, to establish various series of such preferred stock from time to time and to determine the rights, preferences and privileges of any unissued series including, among other matters, any dividend rights, dividend rates, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms, the number of shares constituting any such series, and the description thereof and to issue any such shares. Although there is no current intent to do so, our board of directors may, without stockholder approval, issue shares of a class or series of preferred stock with voting and conversion rights which could adversely affect the voting power of the holders of the common stock. As of the date of this prospectus, there were no shares of preferred stock designated or outstanding. In connection with our adoption of the stockholder rights plan described below, our board of directors designated 500,000 shares of our preferred stock as Series A Junior Participating Preferred Stock.

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One of the effects of the preferred stock may be to enable the board of directors to render more difficult or to discourage an attempt to obtain control of Spherix by means of a merger, tender offer, proxy contest or otherwise, and thereby to protect the continuity of the management.

In 2001, we adopted a stockholder rights plan in which rights to purchase shares of Series A Junior Participating Preferred Stock (Series A Preferred Stock) were distributed as a dividend at the rate of one right for each share of common stock held as of the close of business on March 1, 2001. The rights are designed to guard against partial tender offers and other abusive and coercive tactics that might be used in an attempt to gain control of Spherix or to deprive our stockholders of their interest in the long-term value of Spherix. These rights seek to achieve these goals by forcing a potential acquirer to negotiate with our board of directors (or go to court to try to force the Board of Directors to redeem the rights), because only the Board of Directors can redeem the rights and allow the potential acquirer to acquire our shares without suffering very significant dilution. However, these rights also could deter or prevent transactions that stockholders deem to be in their interests, and could reduce the price that investors or an acquirer might be willing to pay in the future for shares of our common stock.

Each right entitles the registered holder to purchase one one-hundredth of a share (a Unit) of our Series A Preferred Stock at a price of $16.00 per Unit, subject to adjustment. Each Unit of Series A Preferred Stock will be entitled to an aggregate dividend of 100 times the dividend declared per share of common stock. In the event of liquidation, the holders of the Units of Series A Preferred Stock will be entitled to an aggregate payment of 100 times the payment made per share of common stock. Each Unit of Series A Preferred Stock will have 100 votes, voting together with the common stock. Finally, in the event of any merger, consolidation or other transaction in which shares of common stock are exchanged, each Unit of Series A Preferred Stock will be entitled to receive 100 times the amount received per share of common stock. These rights are protected by customary anti-dilution provisions.

The rights will be exercisable only if a person or group acquires ten percent (10%) or more of our common stock (subject to certain exceptions stated in the plan) or announces a tender offer the consummation of which would result in ownership by a person or group of ten percent (10%) or more of our common stock. Our board of directors may redeem the rights at a price of $.001 per right. The rights will expire at the close of business on December 31, 2010 unless the expiration date is extended or unless the rights are earlier redeemed or exchanged by Spherix.

Options

As of June 30, 2009, there were options held by our employees and others to purchase an aggregate of 39,000 shares of common stock, exercisable at a weighted average exercise price of $2.59 per share. We currently have 857,000 options/restricted stock available for grant under our option plan.

The exercise price of the warrants may be paid in cash or in shares of common stock.

Limitations on Directors Liability

Our certificate of incorporation and bylaws contain provisions indemnifying our directors and officers to the fullest extent permitted by Delaware law.

In addition, as permitted by Delaware law, our certificate of incorporation provides that no director will be liable to us or our stockholders for monetary damages for breach of the director s fiduciary duty as a director. The effect of this provision is to restrict our rights and the rights of our stockholders in derivative suits to recover monetary damages against a director for breach of the director s fiduciary duty as a director, except that a director will be personally liable for:

- any breach of his or her duty of loyalty to us or our stockholders;
- acts or omissions not in good faith which involve intentional misconduct or a knowing violation of law;
- the payment of dividends or the redemption or purchase of stock in violation of Delaware law; or

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- any transaction from which the director derived an improper personal benefit.

This provision does not affect a director s liability under the federal securities laws.

To the extent that our directors, officers and controlling persons are indemnified under the provisions contained in our certificate of incorporation or Delaware law against liabilities arising under the Securities Act of 1933, we have been advised that in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act of 1933 and is therefore unenforceable.

Provisions of Our Certificate of Incorporation and Delaware Law that May Have an Anti-Takeover Effect

Certain provisions set forth in our certificate of incorporation and Delaware law, which are summarized below, may have an anti-takeover effect and may delay, deter or prevent a tender offer or takeover attempt that a stockholder might consider to be in the stockholder s best interests, including attempts that might result in a premium being paid over the market price for the shares held by stockholders.

Delaware Takeover Statute

Section 203 of the Delaware General Corporation Law (DGCL) prohibits a Delaware corporation that is a public company from engaging in any business combination (as defined below) with any interested stockholder (defined generally as an entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with such entity or person) for a period of three years following the date that such stockholder became an interested stockholder, unless:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding those shares owned by persons who are directors and also officers and by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- on or subsequent to such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66-2/3% of the outstanding voting stock that is not owned by the interested stockholder.

Section 203 of the Delaware General Corporation Law defines business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;

- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;

- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;

- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or

- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

Undesignated Preferred Stock

Our certificate of incorporation contains provisions that permit our board of directors to issue, without any further vote or action by our stockholders, up to 2,000,000 shares of preferred stock in one or more series and, with respect to each such series, to fix the number of shares constituting the series and the designation of the series, any voting powers of the shares of the series, and any preferences and relative, participating, optional and other special rights and any qualifications, limitations or restrictions, of the shares of such series. Our board could authorize the

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issuance of shares of preferred stock that could have the effect of delaying, deferring or preventing a transaction or change in control that might involve a premium price for shares of our common stock or otherwise be in their interests.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer and Trust Company, LLC, whose address is 59 Maiden Lane, Plaza Level, New York, NY 10038.

Listing

Our common stock is listed on the Nasdaq Capital Market under the symbol SPEX . We have not applied to list our common stock on any other exchange or quotation system.

DESCRIPTION OF WARRANTS

The following description, together with the additional information we include in any applicable prospectus supplements, summarizes the material terms and provisions of the warrants that we may offer under this prospectus, which may consist of warrants to purchase common stock and/or preferred stock in one or more series. Warrants may be offered independently or together with common stock and/or preferred stock offered by any prospectus supplement, and may be attached to or separate from those securities. While the terms we have summarized below will generally apply to any future warrants we may offer under this prospectus, we will describe the particular terms of any warrants that we may offer in more detail in the applicable prospectus supplement. The terms of any warrants we offer under a prospectus supplement may differ from the terms we describe below.

We will issue the warrants under a warrant agreement which we will enter into. We use the term warrant agreement to refer to any of those warrant agreements.

The following summaries of material provisions of the warrants and the warrant agreements are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement applicable to a particular series of warrants. We urge you to read the applicable prospectus supplements related to the warrants that we sell under this prospectus, as well as the complete warrant agreements that contain the terms of the warrants.

General

We will describe in the applicable prospectus supplement the terms relating to a series of warrants. If warrants are offered, the prospectus supplement will describe the following terms, to the extent applicable:

- the offering price and the aggregate number of warrants offered;
- the total number of shares that can be purchased if a holder of the warrants exercises them and, in the case of warrants for preferred stock, the designation, total number and terms of the series of preferred stock that can be purchased upon exercise;
- the designation and terms of any series of preferred stock with which the warrants are being offered and the number of warrants being offered with each share of common stock or preferred stock;
- the date on and after which the holder of the warrants can transfer them separately from the related common stock or series of preferred stock;
- the number of shares of common stock or preferred stock that can be purchased if a holder exercises the warrant and the price at which such common stock or preferred stock may be purchased upon exercise, including, if applicable, any provision for changes to or adjustments in the exercise price and in the securities or other property receivable upon exercise;
- the terms of any rights to redeem or call, or accelerate the expiration of, the warrants;
- the date on which the right to exercise the warrants begins and the date on which the right expires;
- federal income tax consequences of holding or exercising the warrants; and
- any other specific terms, preferences, rights or limitations of, or restrictions on, the warrants.

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If the warrants offered are attached to common stock and/or preferred stock, the prospectus supplement will also describe the date on and after which the holder of the warrants can transfer them separately from the related common stock and/or series of preferred stock.

Until any warrants are exercised, holders of the warrants will not have any rights of holders of the underlying common stock and/or preferred stock, including any rights to receive dividends or to exercise any voting rights.

Exercise of Warrants

Each holder of a warrant is entitled to purchase the number of shares of common stock or preferred stock, as the case may be, at the exercise price described in the applicable prospectus supplement. After the close of business on the day when the right to exercise terminates (or a later date if we extend the time for exercise), unexercised warrants will become void.

A holder of warrants may exercise them by following the general procedure outlined below:

- delivering to us the payment required by the applicable prospectus supplement to purchase the underlying security;
- properly completing and signing the reverse side of the warrant certificate representing the warrants; and
- delivering the warrant certificate representing the warrants to us with five (5) business days of the warrant agent receiving payment of the exercise price.

If you comply with the procedures described above, your warrants will be considered to have been exercised when we receive payment of the exercise price, subject to the transfer books for the securities issuable upon exercise of the warrant not being closed on such date. After you have completed those procedures and subject to the foregoing, we will, as soon as practicable, issue and deliver to you the common stock or preferred stock that you purchased upon exercise. If you exercise fewer than all of the warrants represented by a warrant certificate, a new warrant certificate will be issued to you for the unexercised amount of warrants. Holders of warrants will be required to pay any tax or governmental charge that may be imposed in connection with transferring the underlying securities in connection with the exercise of the warrants.

Amendments and Supplements to the Warrant Agreements

We may amend or supplement a warrant agreement without the consent of the holders of the applicable warrants to cure ambiguities in the warrant agreement, to cure or correct a defective provision in the warrant agreement, or to provide for other matters under the warrant agreement that we and the warrant agent deem necessary or desirable, so long as, in each case, such amendments or supplements do not materially adversely affect the interests of the holders of the warrants.

Warrant Adjustments

Unless the applicable prospectus supplement states otherwise, the exercise price of, and the number of securities covered by, a common stock warrant or preferred stock warrant will be adjusted proportionately if we subdivide or combine our common stock or preferred stock, as applicable.

Except as state above or as otherwise set forth in the applicable prospectus supplement, the exercise price and number of securities covered by a common stock warrant and preferred stock warrant, and the amounts of other securities or property to be received, if any, upon exercise of those warrants, will not be adjusted or provided for if we issue those securities or any securities convertible into or exchangeable for those securities, or securities carrying the right to purchase those securities or securities convertible into or exchangeable for those securities.

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DESCRIPTION OF UNITS

We may issue, in one more series, units consisting of common stock, preferred stock and/or warrants for the purchase of common stock and/or preferred stock, in any combination. While the terms we have summarized below will apply generally to any units that we may offer under this prospectus, we will describe the particular terms of any series of units in more detail in the applicable prospectus supplement. The terms of any units offered under a prospectus supplement may differ from the terms described below.

We will file as exhibits to a prospectus supplement, or will incorporate by reference from reports that we file with the SEC, the form of unit agreement that describes the terms of the series of units we are offering, and any supplement agreements, before the issuance of the related series of units. The following summaries of material terms and provisions of the units are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement and any supplemental agreements applicable to a particular series of units. We urge you to read the applicable prospectus supplement related to the particular series of units that we may offer under this prospectus and the complete unit agreement and any supplemental agreements that contain the terms of the units.

General

Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued 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.

We will describe in the applicable prospectus supplement the terms of the series of units, including:

- the designation and terms of the units, including whether and under what circumstances the securities comprising the units may be held or transferred separately;
- any provisions of the governing unit agreement that differ from those described below; and
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or the securities comprising the units.

The provisions described in this section, as well as those described under Description of Capital Stock, and Description of Warrants, will apply to each unit and to any common stock, preferred stock or warrant included in each unit, respectively.

Issuance in Series

We may issue units in such amounts and in such distinct series as we determine.

PLAN OF DISTRIBUTION

We may sell the securities being offered pursuant to this prospectus:

- directly to purchasers;
- to or through underwriters;
- through dealers or agents; or
- through a combination of methods.

We may distribute the securities from time to time in one or more transactions at a fixed price or prices, which may be changed, at market prices prevailing at the time of sale, at prices related to the prevailing market prices or at negotiated prices.

The prospectus supplement with respect to the securities being offered will set forth the terms of the offering, including the names of the underwriters, dealers or agents, if any, the purchase price of the securities, the

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net proceeds to us, any underwriting discounts and other items constituting underwriters compensation and any discounts or concessions allowed or reallowed or paid to dealers.

If underwriters are used in an offering, we will sign an underwriting agreement with the underwriters and will specify the name of each underwriter and the terms of the transaction (including any underwriting discounts and other terms constituting compensation of the underwriters and any dealers) in a prospectus supplement. If an underwriting syndicate is used, the managing underwriter(s) will be specified on the cover of the prospectus supplement. If underwriters are used in the sale, the offered securities will be acquired by the underwriters for their own accounts and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. Any public offering price and any discounts or concessions allowed or reallowed or paid to dealers may be changed from time to time. Unless otherwise set forth in the prospectus supplement, the obligations of the underwriters to purchase the offered securities will be subject to conditions precedent, and the underwriters will be obliged to purchase all of the offered securities if any are purchased.

If dealers are used in an offering, we will sell the securities to the dealers as principals. The dealers then may resell the securities to the public at varying prices which they determine at the time of resale. The names of the dealers and the terms of the transaction will be specified in a prospectus supplement.

The securities may be sold directly by us or through agents we designate. If agents are used in an offering, the names of the agents and the terms of the agency will be specified in a prospectus supplement. Unless otherwise indicated in a prospectus supplement, the agents will act on a best-efforts basis for the period of their appointment.

Dealers and agents named in a prospectus supplement may be deemed to be underwriters (within the meaning of the Securities Act of 1933) of the securities described therein. In addition, 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 of 1933 with respect to any resales thereof.

Underwriters, dealers and agents may be entitled to indemnification by us against specific civil liabilities, including liabilities under the Securities Act of 1933 or to contribution with respect to payments which the underwriters or agents may be required to make in respect thereof, under underwriting or other agreements. Certain underwriters, dealers or agents and their associations may engage in transactions with, and perform services for us in the ordinary course of business.

LEGAL MATTERS

Baxter, Baker, Sidle, Conn & Jones, P.A. of Baltimore, Maryland, our counsel in connection with the offering, has issued an opinion about the validity of the securities being offered.

EXPERTS

The financial statements and schedules incorporated by reference in this prospectus and elsewhere in the registration statement have been so incorporated by reference in reliance upon the report of Grant Thornton LLP, independent registered public accountants, upon the authority of said firm as experts in accounting and auditing in giving said reports.

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PROSPECTUS

October 1, 2009