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

FORM 10-K

(Mark one)
☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2018

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from __________ to __________

Commission file number 0-5576

SPHERIX INCORPORATED
(Exact name of Registrant as specified in its Charter)

Delaware	52-0849320
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
One Rockefeller Plaza, 11th Floor New York, NY 10020	703-992-9325
(Address of principal executive offices)	(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock ($0.0001 par value per share)	The NASDAQ Capital Market

Securities registered pursuant to Section 12(g) of the Act: None.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. Yes ☒ No ☐

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

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
Emerging growth company	☐		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

The aggregate market value of the voting stock held by non-affiliates of the registrant as of the last business day of the registrant's most recently completed second fiscal quarter ended June 30, 2018: $8,966,900 based upon the closing sale price of our common stock of $1.06 on that date. Common stock held by each officer and director and by each person known to own in excess of 5% of outstanding shares of our common stock has been excluded in that such persons may be deemed to be affiliates. The determination of affiliate status in not necessarily a conclusive determination for other purposes.

There were 8,542,530 shares of the Registrant's Common Stock outstanding as of March 6, 2019.

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PART I

SPECIAL CAUTIONARY NOTICE REGARDING FORWARD LOOKING STATEMENTS

This Annual Report on Form 10-K contains “forward looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”) and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Forward looking statements are often identified by the words “will,” “may,” “believes,” “estimates,” “expects,” “intends,” “plans,” “projects” and words of similar import. Such words and expressions are intended to identify such forward-looking statements, but are not intended to constitute the exclusive means of identifying such statements. Such forward looking statements involve known and unknown risks, uncertainties and other factors, including those described in “Risk Factors” below that may cause our actual results, performance or achievements, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward looking statements. Given these uncertainties, prospective investors are cautioned not to place undue reliance on such forward-looking statements.

All references in this Annual Report on Form 10-K to “we,” “us,” “our” and the “Company” refer to Spherix Incorporated, a Delaware corporation and its consolidated subsidiaries unless the context requires otherwise.

Item 1. BUSINESS.

General

Spherix Incorporated is a technology development company committed to the fostering of innovative ideas. Spherix Incorporated was formed in 1967 as a scientific research company and for much of our history pursued drug development, including through Phase III clinical studies, which were largely discontinued in 2012. In 2012 and 2013, we shifted our focus to being a firm that owns, develops, acquires and monetizes intellectual property assets. Such monetization included, but was not limited to, acquiring IP from patent holders in order to maximize the value of the patent holdings by conducting and managing a licensing campaign, commercializing the IP, or through the settlement and litigation of patents.

Since March 1, 2013, the Company has received limited funds from its IP monetization. In addition to our patent monetization efforts, since the fourth quarter of 2017, we have been transitioning to a technology development company. The Company made no investments in new IP during 2017 and 2018 and started the transition with its investment in Hoth Therapeutics, Inc. during the 3rd quarter of 2017, with its agreement with DatChat, Inc. in March 2018 and with its agreement with CBM Biopharma, Inc. in October 2018.

CBM Biopharma, Inc. Transaction

In October 2018, the Company entered into an agreement and plan of merger, subject to shareholder approval, with CBM BioPharma, Inc. (“CBM”), a pharmaceutical company focusing on the development of cancer treatments, pursuant to which all shares of capital stock of CBM will be converted into the right to receive an aggregate of 15,000,000 shares of the Company’s common stock with CBM continuing as the surviving corporation in the merger.

DatChat Securities Purchase Agreement

In March 2018, the Company entered into an agreement and plan of merger (the “Merger Agreement”), subject to shareholder approval, with DatChat, Inc. (the “DatChat Merger”), a secure messaging application that utilizes blockchain technology, as amended on May 3, 2018. After further negotiations, the Company determined not to pursue a merger with DatChat and on August 8, 2018, entered into a securities purchase agreement (the “Securities Purchase Agreement”) with DatChat pursuant to which the Company and DatChat agreed to terminate the DatChat Merger and each of the parties to the Merger Agreement agreed to release and discharge and hold harmless each of the other parties with respect to the transaction contemplated by the Merger Agreement.

In addition to the termination, under the Securities Purchase Agreement, the Company agreed to make a $1,000,000 strategic investment in DatChat which consisted of (a) a cash payment of $500,000, (b) the forgiveness of prior advances made to DatChat by the Company, and (c) an obligation of the Company to pay certain specific future compensation expenses of DatChat (amounts in clauses (b) and (c) not to exceed a maximum of $500,000 in the aggregate); in exchange for $1,000,000 of restricted shares of DatChat common stock which is equal to 4.37% of the issued and outstanding common stock of DatChat. In the event that DatChat completes a public offering of its securities pursuant to an effective registration statement or a merger, consolidations, transfer or share exchange transaction to pursuant to which DatChat becomes subject to the reporting requirements of the Securities Exchange Act of 1934, DatChat agreed to certain covenants in connection with certain reporting and information disclosure requirements.

Patent Monetization Activities

In July 2013, we acquired 7 patents in the field of mobile communications from Rockstar Consortium US LP ("Rockstar"), which was launched in 2011 by Apple, Inc., Microsoft Corporation, Sony Corporation, Blackberry Limited and LM Ericsson Telephone Company as an intellectual property licensing company to manage a patent portfolio related to the pre-bankruptcy technology and businesses of Nortel Networks ("Nortel").

In September 2013, we acquired North South Holdings, Inc. ("North South") and its 222 patents in the fields of wireless communications, satellite, solar, and radio frequency and 2 patents in the field of pharmaceutical distribution. The 222 patents were originally developed by Harris Corporation, a leader in defense communications and electronics.

In December 2013, we acquired an additional 101 patents and patent applications covering, among other things, internet access and video and data transmission, from Rockstar in consideration for approximately $60 million of our securities consisting of common stock and preferred stock.

We have not generated any significant revenues from our intellectual property monetization platform. We have incurred losses from operations for the years ended December 31, 2018 and 2017 of $6.9 million and $3.8 million, respectively. Our accumulated deficit was $140.1 million at December 31, 2018. In 2018, the Company took a $1,405,000 amortization expense on its patent portfolio and patent rights and an impairment loss of $2,173,000. Therefore, at December 31, 2018, the value of the Company's patent portfolio and patent rights was zero.

Acquisition of shares of Hoth Therapeutics, Inc.

On June 30, 2017, we entered into a Securities Purchase Agreement (the "Purchase Agreement") with Hoth Therapeutics, Inc., a Nevada corporation ("Hoth"), for the purchase of an aggregate of 1,700,000 shares of common stock, par value $0.0001 (the "Shares"), of Hoth, for a purchase price of $675,000. As of December 31, 2018, Hoth had approximately 5 million shares of common stock issued and outstanding, which has been retroactively restated to reflect the 1-for-4 reverse stock split effected by Hoth on December 6, 2018. Hoth is a development stage biopharmaceutical company focused on unique targeted therapeutics for patients suffering from indications such as atopic dermatitis, also known as eczema. Hoth's primary asset is a sublicense agreement with Chelexa Biosciences, Inc. ("Chelexa") pursuant to which Chelexa has granted Hoth an exclusive sublicense to use its BioLexa Platform, a proprietary, patented, drug compound platform developed at the University of Cincinnati. Hoth intends to develop BioLexa's applications in the aesthetic dermatology field to help treat and reduce post-procedure infections, accelerate healing and improve clinical outcomes for patients undergoing procedures. Hoth will be implementing FDA testing procedures for BioLexa. In addition to the Purchase Agreement, the Company and Hoth entered into a Registration Rights Agreement, pursuant to which Hoth is obligated to register for resale on a registration statement on Form S-1 under the Securities Act, all of the shares. Further, the Company, Hoth and Hoth's existing shareholders have entered into a Shareholders Agreement, pursuant to which Spherix shall have a right to appoint one director to the board of directors of Hoth for so long as the Company holds at least 10% of the issued and outstanding common stock of Hoth.

On February 14, 2019, the Company purchased an aggregate of 35,714 shares of the common stock of Hoth in connection with Hoth's initial public offering, which was consummated on February 20, 2019, at a purchase price of $5.60 per share, for an aggregate purchase price of $200,000. Hoth's common stock commenced trading on The Nasdaq Capital Market, on February 15, 2019 under the ticker symbol "HOTH". The Company entered into a lock-up agreement with Hoth pursuant to which the Company has agreed not to sell any shares of Hoth common stock or common stock equivalents until February 20, 2022, which is the 36 month anniversary of the consummation of Hoth's initial public offering, (the "Spherix Securities") until February 20, 2022, which is the 36 month anniversary of the consummation of Hoth's initial public offering, provided, however (i) Spherix may offer, sell, contract to sell, hypothecate, pledge, dividend or distribute to its shareholders or otherwise dispose of, directly or indirectly, up to an aggregate of 10% of the initially issued Spherix Securities, provided further that the recipients of the Spherix Securities shall not be permitted to resell such Spherix Securities until six months after the date of the Initial Public Offering, (ii) beginning 12 months after the date of Hoth's initial public offering, Spherix may offer, sell, contract to sell, hypothecate, pledge, dividend or distribute to its shareholders or otherwise dispose of, directly or indirectly, up to an additional 10% of the initially issued Spherix Securities, (iii) beginning 24 months after the date of Hoth's initial public offering, Spherix may offer, sell, contract to sell, hypothecate, pledge, dividend or distribute to its shareholders or otherwise dispose of, directly or indirectly, up to an additional 10% of the initially issued Spherix Securities and (iv) beginning 36 months after the date of the Hoth initial public offering, Spherix may offer, sell, contract to sell, hypothecate, pledge, dividend or distribute to its shareholders or otherwise dispose of, directly or indirectly, the Spherix Securities without any restrictions.

Mellow Scooters Investment

On November 23, 2018, the Company entered into a Security Purchase Agreement with Mellow Scooters, LLC ("Mellow Scooters"), a leading-edge company that enables anyone to own and operate a personal fleet of electric scooters and dockless bicycles to generate revenue. Mellow Scooters agreed to sell 250 Units to the Company, representing 25% of its issued and outstanding limited liability company membership interests for a subscription price of $106,000. The $106,000 consisted of (a) a cash payment of $30,000, (b) the forgiveness of prior advances made to Mellow Scooters by the Company, and (c) an obligation of the Company to pay certain specific future expenses of Mellow Scooters (amounts in clauses (b) and (c) not to exceed a maximum of $76,000 in the aggregate). As of December 31, 2018, the Company has applied a total of approximately $74,000 prior advances towards its investment in Mellow Scooters, including $71,000 compensation related cost and $3,500 professional fees. The Company also recorded $2,000 payable for professional fees of Mellow Scooter in addition to the $74,000 advances to reach the $76,000 maximum. Mellow Scooters recently launched its operations, focused on the scooter rental market in the Washington, D.C. area via its website www.borrowmellow.com.

March 2018 Shelf Takedown

On March 19, 2018, we closed a public offering of common stock for gross proceeds of approximately $3.0 million. The offering was a shelf takedown off of our registration statement on Form S-3 (File No. 333-222488) and was conducted pursuant to a placement agency agreement (the "Place Agency Agreement") between us and Laidlaw, the sole placement agent, on a best-efforts basis with respect to the offering that was entered into on March 14, 2018. We sold 2,222,222 shares of its common stock in the offering at a purchase price of $1.35 per share. The material terms of the offering are described in a prospectus supplement which was filed by us with the Securities and Exchange Commission pursuant to Rule 424(b) under the Securities Act on March 16, 2018.

TheBit Daily LLC Investment

On March 23, 2018, the Company purchased 8.0% of the issued and outstanding limited liability company membership interests of TheBit Daily LLC, a development stage media and education platform focused on the blockchain and cryptocurrency space, for a subscription price of $25,000.

Our principal executive offices are located at One Rockefeller Plaza, New York, NY 10020, our telephone number is (212) 745-1374, and our Internet website address www.spherix.com.

Our common stock trades on the NASDAQ Capital Market under the symbol SPEX.

Available Information

Our principal Internet address is www.spherix.com. We make available free of charge on www.spherix.com our annual, quarterly and current reports, and amendments to those reports, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission ("SEC"). The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC at http://www.sec.gov.

Competition

We encounter significant competition from others seeking to target development stage technology companies in order to acquire interests in intellectual property assets and monetize such assets. This includes an increase in the number of competitors seeking to acquire the same or similar patents and technologies that we may seek to acquire. Most of our competitors have much longer operating histories, and significantly greater financial and human resources, than we do.

We also compete with venture capital firms, strategic corporate buyers and various industry leaders for identifying and targeting technology acquisitions and licensing opportunities. Many of these competitors may have more financial and human resources than we do. As we become more successful, we may find more companies entering the market for similar technology opportunities, which may reduce our market share in one or more technology industries that we currently rely upon to generate future revenue.

Other companies may develop competing technologies that offer better or less expensive alternatives to the patented technologies that we may acquire and/or out-license. Many potential competitors may have significantly greater resources than we do. Technological advances or entirely different approaches developed by one or more of our competitors could render certain of the technologies owned or controlled by our operating subsidiaries obsolete and/or uneconomical.

Intellectual Property and Patent Rights

Our intellectual property is primarily comprised of trade secrets, patented know-how, issued and pending patents, copyrights and technological innovation relating to our past business of patent monetization through litigation activities.

The portfolio we were working with Equitable to monetize pursuant to the Monetization Agreement is comprised of over 290 patents and patent applications (the "Portfolio"). The Portfolio includes both U.S. and foreign patents and pending patent applications in the wireless communications and telecommunication sectors including data, optical and voice technology, antenna technology, Wi-Fi, base station functionality, and cellular.

Most of the patents in the Portfolio are publicly accessible on the Internet website of the U.S. Patent and Trademark Office at www.uspto.gov.

The lives of the patent rights in the Portfolio have a wide duration ranging from 2019 to 2026.

Employees

As of December 31, 2018, we have six full-time employees, none of which are represented by a labor union or covered by a collective bargaining agreement.

Item 1A. RISK FACTORS.

Risks Related to Our Business

Because we have a limited operating history to evaluate our company, the likelihood of our success must be considered in light of the problems, expenses, difficulties, complications and delays frequently encountered by an early-stage company.

Since we have a limited operating history in our current business of technology development, it will make it difficult for investors and securities analysts to evaluate our business and prospects. You must consider our prospects in light of the risks, expenses and difficulties we face as an early stage company with a limited operating history. Investors should evaluate an investment in our securities in light of the uncertainties encountered by early stage companies in an intensely competitive industry. The technology development industry is intensely competitive and there can be no assurance that our efforts to identify and target development stage technology companies with intellectual property we can acquire or license will be successful or that we will be able to become profitable.

We continue to incur operating losses and may not achieve profitability.

Our loss from operations for the years ended December 31, 2018 and 2017 was $6.9 million and $3.8 million, respectively. Our net income for the years ended December 31, 2018 was $2.0 and net loss for the years ended December 31, 2017 was $3.3 million. Our accumulated deficit was $139.78 million at December 31, 2018. We recognized $28,000 and $1.2 million in revenue in 2018 and 2017, respectively. Our ability to become profitable depends upon our ability to generate revenue from the monetization of intellectual property. We do not know when, or if, we will generate any revenue from such monetization. Even though our revenue may increase, we expect to incur significant additional losses while we grow and expand our business. We cannot predict if and when we will achieve profitability. Our failure to achieve and sustain profitability could negatively impact the market price of our common stock.

We expect to need additional capital to fund our growing operations and if we are unable to obtain sufficient capital, we may be forced to limit the scope of our operations.

We expect that for our business to grow we will need additional working capital. If adequate additional debt and/or equity financing is not available on reasonable terms or at all, we may not be able to continue to expand our business or pay our outstanding obligations, and we will have to modify our business plans accordingly. These factors would have a material adverse effect on our future operating results and our financial condition.

If we reach a point where we are unable to raise needed additional funds to continue as a going concern, we will be forced to cease our activities and dissolve the Company. In such an event, we will need to satisfy various creditors and other claimants, severance, lease termination and other dissolution-related obligations and we may not have sufficient funds to pay to our stockholders.

If we fail to maintain an effective system of internal controls over financial reporting, we may not be able to accurately report our financial results or prevent fraud and our business may be harmed and our stock price may be adversely impacted.

Effective internal controls over financial reporting are necessary for us to provide reliable financial reports and to effectively prevent fraud. Any inability to provide reliable financial reports or to prevent fraud could harm our business. The Sarbanes-Oxley Act of 2002 requires management to evaluate and assess the effectiveness of our internal control over financial reporting. In order to continue to comply with the requirements of the Sarbanes-Oxley Act, we are required to continuously evaluate and, where appropriate, enhance our policies, procedures and internal controls. If we fail to maintain the adequacy of our internal controls over financial reporting, we could be subject to litigation or regulatory scrutiny and investors could lose confidence in the accuracy and completeness of our financial reports. We cannot assure you that in the future we will be able to fully comply with the requirements of the Sarbanes-Oxley Act or that management will conclude that our internal control over financial reporting is effective. If we fail to fully comply with the requirements of the Sarbanes-Oxley Act, our business may be harmed and our stock price may decline.

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, 2018, our internal control over financial reporting was not effective, due to our lack of segregation of duties, and lack of controls in place to ensure that all material transactions and developments impacting the financial statements are reflected. We can provide no assurance as to conclusions of management with respect to the effectiveness of our internal control over financial reporting in the future.

Our independent auditors have expressed substantial doubt about our ability to continue as a going concern.

Due to our net losses, negative cash flow and negative working capital, in their report on our audited financial statements for the years ended December 31, 2018 and 2017, our independent auditors included an explanatory paragraph regarding substantial doubt about our ability to continue as a going concern.

We may seek to internally develop additional new inventions and intellectual property, which would take time and be costly. Moreover, the failure to obtain or maintain intellectual property rights for such inventions would lead to the loss of our investments in such activities.

Part of our business may include the internal development of new inventions or intellectual property that we will seek to monetize. For example, as a result of our acquisition of certain shares of common stock of Hoth Therapeutics, Inc. (“Hoth”) in June 2017, we have indirectly acquired certain sublicensing rights for BioLexa products developed by Chelexa Biosciences, Inc., for the treatment of eczema. Hoth is developing BioLexa’s applications in the aesthetic dermatology field to help treat and reduce post-procedure infections, accelerate healing and improve clinical outcomes for patients undergoing procedures and also intends to implement FDA testing procedures for BioLexa. Should we choose to assist in the development of BioLexa’s applications and/or internally develop any other inventions or intellectual property, such aspect of our business will require significant capital and will take time to achieve. Such activities may also distract our management team from its present business initiatives, which could have a material and adverse effect on our business. There is also the risk that our initiatives in this regard would not yield any viable new inventions or technology, which would lead to a loss of our investments in time and resources in such activities.

In addition, even if we are able to internally develop new inventions, in order for those inventions to be viable and to compete effectively, we would need to develop and maintain, and we would heavily rely upon, a proprietary position with respect to such inventions and intellectual property. However, there are significant risks associated with any such intellectual property we may develop principally, including the following:

- patent applications we may file may not result in issued patents or may take longer than we expect to result in issued patents;
- we may be subject to interference proceedings;
- we may be subject to opposition proceedings in the U.S. or foreign countries;
- any patents that are issued to us may not provide meaningful protection;
- we may not be able to develop additional proprietary technologies that are patentable;
- other companies may challenge patents issued to us;

- other companies may have independently developed and/or patented (or may in the future independently develop and patent) similar or alternative technologies, or duplicate our technologies;
- other companies may design around technologies we have developed; and
- enforcement of our patents could be complex, uncertain and very expensive.

We cannot be certain that patents will be issued as a result of any future applications, or that any of our patents, once issued, will provide us with adequate protection from competing products. For example, issued patents may be circumvented or challenged, declared invalid or unenforceable, or narrowed in scope. In addition, since publication of discoveries in scientific or patent literature often lags behind actual discoveries, we cannot be certain that we will be the first to make our additional new inventions or to file patent applications covering those inventions. It is also possible that others may have or may obtain issued patents that could prevent us from commercializing our products or require us to obtain licenses requiring the payment of significant fees or royalties in order to enable us to conduct our business. As to those patents that we may license or otherwise monetize, our rights will depend on maintaining our obligations to the licensor under the applicable license agreement, and we may be unable to do so. Our failure to obtain or maintain intellectual property rights for our inventions would lead to the loss our business.

Moreover, patent application delays could cause delays in recognizing revenue from our internally generated patents and could cause us to miss opportunities to license patents before other competing technologies are developed or introduced into the market.

Our ability to raise additional capital may be adversely affected by certain of our agreements.

Our ability to raise additional capital for use in our operating activities may be adversely impacted by the terms of a securities purchase agreement, dated as of July 15, 2015 (the "Securities Purchase Agreement"), between us and the investors who purchased securities in our July 2015 offering of our common stock and warrants for the purchase of our common stock. The Securities Purchase Agreement provides that, until the warrants issued thereunder are no longer outstanding, we will not effect or enter into a variable rate transaction, which includes issuances of securities whose prices or conversion prices may vary with the trading prices of or quotations for the shares of our common Stock at any time after the initial issuance of such securities, as well as the entry into agreements where our stock would be issued at a future-determined price. These warrants may remain outstanding as late as January 22, 2021, when the warrants expire in accordance with their terms. These restrictions may have an adverse impact on our ability to raise additional capital, or to use our cash to make certain payments that we are contractually obligated to make.

We are exploring and evaluating strategic alternatives and there can be no assurance that we will be successful in identifying, or completing any strategic alternative or that any such strategic alternative will yield additional value for shareholders.

Our management and Board of Directors has commenced a review of strategic alternatives which could result in, among other things, a sale, a merger, consolidation or business combination, asset divestiture, partnering or other collaboration agreements, or potential acquisitions or recapitalizations, in one or more transactions, or continuing to operate with our current business plan and strategy. For example, on October 10, 2018, we entered into an agreement and plan of merger with CBM Biopharma, Inc. ("CBM"), pursuant to which all shares of capital stock of CBM will be converted into 15,000,000 shares of the Company's common stock. CBM is a privately pharmaceutical company focused on the development of cancer treatments. There can be no assurance that the exploration of strategic alternatives will result in the identification or consummation of any transaction, and there can be no assurance that the transaction with CBM will close. In addition, we may incur substantial expenses associated with identifying and evaluating potential strategic alternatives. The process of exploring strategic alternatives may be time consuming and disruptive to our business operations and if we are unable to effectively manage the process, our business, financial condition and results of operations could be adversely affected. We also cannot assure you that any potential transaction or other strategic alternative, if identified, evaluated and consummated, will provide greater value to our shareholders than that reflected in the current stock price. Any potential transaction would be dependent upon a number of factors that may be beyond our control, including, among other factors, market conditions, industry trends, the interest of third parties in our business and the availability of financing to potential buyers on reasonable terms.

Our acquisitions of patent assets may be time consuming, complex and costly, which could adversely affect our operating results.

Identifying and targeting development stage technology companies and acquiring their patents or other intellectual property assets, which are critical to our business plan, are often time consuming, complex and costly to consummate. We may elect to not pursue any additional patents while we focus our efforts on monetizing our existing assets. We may utilize many different transaction structures in our acquisitions and the terms of such acquisition agreements tend to be heavily negotiated. As a result, we expect to incur significant operating expenses and will likely be required to raise capital during the negotiations even if the acquisition is ultimately not consummated, or if we determine to acquire additional patents or other assets. Even if we are able to identify a particular target, there is no guarantee that we will generate sufficient revenue related to such target's underlying intellectual property assets to offset the acquisition costs, and we may be required to pay significant amounts of deferred purchase price if we monetize those patents above certain thresholds. While we will seek to conduct confirmatory due diligence on the patent assets we are considering for acquisition, we may acquire patent assets from a seller who does not have complete analysis of infringements or claims, have valid or sole title or ownership to those assets, or otherwise provides us with flawed ownership rights, including invalid or unenforceable assets. In those cases, we may be required to spend significant resources to defend our interest in the patent assets and, if we are not successful, our acquisition may be worthless, in which case we could lose part or all of our investment in the assets.

We may also identify targets with patent or other intellectual property assets that cost more than we are prepared to spend with our own capital resources. We may incur significant costs to organize and negotiate a structured acquisition that does not ultimately result in an acquisition of any patent assets or, if consummated, proves to be unprofitable for us. Acquisitions involving issuance of our securities could be dilutive to existing stockholders and could be at prices lower than those prices reflected in the trading markets. These higher costs could adversely affect our operating results and, if we incur losses, the value of our securities will decline. The integration of acquired assets may place a significant burden on management and our internal resources. The diversion of management attention and any difficulties encountered in the integration process could harm our business.

As we are targeting technology companies in the development stage, their patents and technologies are in the early stages of adoption. Demand for some of these technologies will likely be untested and may be subject to fluctuation based upon the rate at which our licensees or others adopt our patents and technologies in their products and services. As a result, there can be no assurance as to whether technologies we acquire or develop will have value that can be realized through licensing or other activities.

We are exploring and evaluating strategic alternatives and there can be no assurance that we will be successful in identifying, or completing any strategic alternative or that any such strategic alternative will yield additional value for shareholders.

Our management and Board of Directors has commenced a review of strategic alternatives which could result in, among other things, a sale, a merger, consolidation or business combination, asset divestiture, partnering or other collaboration agreements, or potential acquisitions or recapitalizations, in one or more transactions, or continuing to operate with our current business plan and strategy. For example, on October 10, 2018, we entered into an agreement and plan of merger with CBM Biopharma, Inc. (“CBM”), pursuant to which all shares of capital stock of CBM will be converted into 15,000,000 shares of the Company’s common stock. CBM is a privately pharmaceutical company focused on the development of cancer treatments. There can be no assurance that the exploration of strategic alternatives will result in the identification or consummation of any transaction, and there can be no assurance that the transaction with CBM will close. In addition, we may incur substantial expenses associated with identifying and evaluating potential strategic alternatives. The process of exploring strategic alternatives may be time consuming and disruptive to our business operations and if we are unable to effectively manage the process, our business, financial condition and results of operations could be adversely affected. We also cannot assure you that any potential transaction or other strategic alternative, if identified, evaluated and consummated, will provide greater value to our shareholders than that reflected in the current stock price. Any potential transaction would be dependent upon a number of factors that may be beyond our control, including, among other factors, market conditions, industry trends, the interest of third parties in our business and the availability of financing to potential buyers on reasonable terms.

We may be unsuccessful at integrating future acquisitions.

If we find appropriate opportunities in the future, we may acquire businesses to strategically increase the number of patents in our portfolio and pursue monetization. For example, on June 30, 2017, we acquired a stake in Hoth Therapeutics, Inc. (“Hoth”), a development stage biopharmaceutical company focused on unique targeted therapeutics for patients suffering from indications such as atopic dermatitis, also known as eczema. Hoth has a sublicense from Chelexa Biosciences, Inc. to use Chelexa’s BioLexa products for the treatment of eczema and such sublicense includes the right to further sublicense to third parties to make, use, have made, import, offer for sale and sell BioLexa products. There can be no guarantee that Hoth will be successful in its efforts to monetize its sublicense agreement with Chelexa. In addition, on March 12, 2018, we entered into an agreement and plan of merger with DatChat, pursuant to which we were going to acquire 100% ownership of DatChat, which is a privately held personal privacy platform focused on encrypted communication, internet security and digital rights management, which we subsequently terminated on August 8, 2018. Most recently, on October 10, 2018, we entered into an agreement and plan of merger with CBM, pursuant to which CBM will be the surviving corporation in the merger. There can be no guarantee that we will be successful in closing the transaction contemplated by the agreement with CBM or that we will be successful in managing the operations of CBM, which is in the early stages of development of cancer treatments.

As we acquire businesses or substantial stakes in certain businesses, the process of integration may produce unforeseen operating difficulties and expenditures, fail to result in expected synergies or other benefits and absorb significant attention of our management that would otherwise be available for the ongoing development of our business. In addition, in the event of any future acquisitions, we may record a portion of the assets we acquire as goodwill, other indefinite-lived intangible assets or finite-lived intangible assets. We do not amortize goodwill and indefinite-lived intangible assets, but rather review them for impairment on an annual basis or whenever events or changes in circumstances indicate that their carrying value may not be recoverable. The recoverability of goodwill and indefinite-lived intangible assets is dependent on our ability to generate sufficient future earnings and cash flows. Changes in estimates, circumstances or conditions, resulting from both internal and external factors, could have a significant impact on our fair valuation determination, which could then have a material adverse effect on our business, financial condition and results of operations. We cannot guarantee that we will be able to identify suitable acquisition opportunities, consummate any pending or future acquisitions or that we will realize any anticipated benefits from any such acquisitions.

If the CBM merger is completed, the Company may not be able to successfully integrate the business of CBM and realize the anticipated benefits of the merger.

Realization of the anticipated benefits in the merger with CBM will depend on our ability to successfully integrate our businesses and operations with CBM. We will be required to devote significant management attention and resources to integrating its business practices, operations, and support functions. The process of integrating CBM's operations could cause an interruption of, or loss of momentum in, our business and financial performance, and in CBM's business and financial performance as well. The diversion of management's attention and any delays or difficulties encountered in connection with the merger and the integration of the two companies' operations could have an adverse effect on the business, financial results.

Our stockholders will have a reduced ownership and voting interest after the merger and will exercise less influence over our management and policies than they did prior to the Merger.

Our stockholders currently have the right to vote in the election of our board of directors on other matters affecting us. When, and if the merger occurs, because of the issuance of shares of common stock to the CBM shareholders, our current stockholders will hold a percentage ownership of the post-merger company that is much smaller than the stockholder's current percentage ownership of ours. Because of this, our current stockholders will have less influence over the management and policies of the Company than they now have after the consummation of the merger.

The merger with CBM is subject to certain conditions to closing that could result in the merger not being completed or being delayed, either of which could negatively impact its stock price and future business and results of operations. In the event that this Agreement is terminated by the Company pursuant to certain sections of the Agreement, then the Company may be required to deliver to CBM certificate(s) representing an aggregate of 400,000 shares of the Company's Common Stock within two (2) business days of termination.

Completion of the merger is subject to a number of customary conditions, including, but not limited to, the approval of the merger Agreement by our stockholders. In addition, if any governmental authority shall have enacted, issued, promulgated or enforced any law or order which has the effect of making the transactions or agreements contemplated by the Merger Agreement illegal or which otherwise prevents or prohibits consummation of the transactions contemplated by the Merger Agreement, CBM may elect not to consummate the Merger. There is no assurance that we will satisfy the conditions necessary for completion of the merger. If any of the conditions to the merger are not satisfied or, where waiver is permissible, waived, the merger will not be consummated. Failure to complete the merger would prevent us from realizing the anticipated benefits of the merger. We have already and expect to continue to incur significant costs associated with transaction fees, professional services, taxes and other costs related to the merger. In the event that the merger is not completed, we will remain liable for these costs and expenses. In addition, the current market price of our common stock may reflect a market assumption that the merger will occur, and a failure to complete the merger could result in a negative perception by the market of ours generally and a resulting decline in the market price of the our common stock. The market price may also decline if the market disapproves of the Merger. Any delay in the consummation of the merger or any uncertainty about the consummation of the merger could also negatively impact our stock price and future business and results of operations. The merger may not be consummated, there may be a delay in the consummation of the merger or the merger may not be consummated on the terms contemplated by the Merger Agreement.

We may be unsuccessful at integrating future acquisitions.

If we find appropriate opportunities in the future, we may acquire businesses to strategically increase the number of patents in our portfolio and pursue monetization. For example, on June 30, 2017, we acquired a stake in Hoth Therapeutics, Inc. ("Hoth"), a development stage biopharmaceutical company focused on unique targeted therapeutics for patients suffering from indications such as atopic dermatitis, also known as eczema. Hoth has a sublicense from Chelexa Biosciences, Inc. to use Chelexa's BioLexa products for the treatment of eczema and such sublicense includes the right to further sublicense to third parties to make, use, have made, import, offer for sale and sell BioLexa products. There can be no guarantee that Hoth will be successful in its efforts to monetize its sublicense agreement with Chelexa. In addition, on March 12, 2018, we entered into an agreement and plan of merger with DatChat, Inc. ("DatChat"), pursuant to which we were going to acquire 100% ownership of DatChat, which is a privately held personal privacy platform focused on encrypted communication, internet security and digital rights management, which we subsequently terminated on August 8, 2018. Most recently, on October 10, 2018, we entered into an agreement and plan of merger with CBM, pursuant to which CBM will be the surviving corporation in the merger. There can be no guarantee that we will be successful in closing the transaction contemplated by the agreement with CBM or that we will be successful in managing the operations of CBM, which is in the early stages of development of cancer treatments.

As we acquire businesses or substantial stakes in certain businesses, the process of integration may produce unforeseen operating difficulties and expenditures, fail to result in expected synergies or other benefits and absorb significant attention of our management that would otherwise be available for the ongoing development of our business. In addition, in the event of any future acquisitions, we may record a portion of the assets we acquire as goodwill, other indefinite-lived intangible assets or finite-lived intangible assets. We do not amortize goodwill and indefinite-lived intangible assets, but rather review them for impairment on an annual basis or whenever events or changes in circumstances indicate that their carrying value may not be recoverable. The recoverability of goodwill and indefinite-lived intangible assets is dependent on our ability to generate sufficient future earnings and cash flows. Changes in estimates, circumstances or conditions, resulting from both internal and external factors, could have a significant impact on our fair valuation determination, which could then have a material adverse effect on our business, financial condition and results of operations. We cannot guarantee that we will be able to identify suitable acquisition opportunities, consummate any pending or future acquisitions or that we will realize any anticipated benefits from any such acquisitions.

Any failure to maintain or protect our patent assets or other intellectual property rights could significantly impair our return on investment from such assets and harm our brand, our business and our operating results.

Our ability to operate our new line of business and compete in the intellectual property market largely depends on the superiority, uniqueness and value of our acquired patent assets and other intellectual property. To protect our proprietary rights, we will rely on a combination of patent, trademark, copyright and trade secret laws, confidentiality agreements with our employees and third parties, and protective contractual provisions. No assurances can be given that any of the measures we undertake to protect and maintain our assets will have any measure of success.

We are required to spend significant time and resources to maintain the effectiveness of our assets by paying maintenance fees and making filings with the USPTO. We may acquire patent assets, including patent applications, which require us to spend resources to prosecute the applications with the USPTO prior to issuance of patents. Further, there is a material risk that patent related claims (such as, for example, infringement claims (and/or claims for indemnification resulting therefrom), unenforceability claims, or invalidity claims) will be asserted or prosecuted against us, and such assertions or prosecutions could materially and adversely affect our business. For instance, in connection with *inter partes* review in our now-settled litigations with VTech and Uniden, the Patent Trial and Appeals Board has found that certain portions of the claims relating to certain of our patents are invalid. Regardless of whether any such claims are valid or can be successfully asserted, defending such claims could cause us to incur significant costs and could divert resources away from our other activities.

Despite our efforts to protect our intellectual property rights, any of the following or similar occurrences may reduce the value of our intellectual property:

- our applications for patents, trademarks and copyrights may not be granted and, if granted, may be challenged or invalidated;
- issued trademarks, copyrights, or patents may not provide us with any competitive advantages when compared to potentially infringing other properties;
- our efforts to protect our intellectual property rights may not be effective in preventing misappropriation of our technology; or
- our efforts may not prevent the development and design by others of products or technologies similar to or competitive with, or superior to those we acquire and/or prosecute.

Moreover, we may not be able to effectively protect our intellectual property rights in certain foreign countries where we may do business or enforce our patents against infringers in foreign countries. If we fail to maintain, defend or prosecute our patent assets properly, the value of those assets would be reduced or eliminated, and our business would be harmed.

We may be unable to issue securities under our shelf registration statement, which may have an adverse effect on our liquidity.

We have filed a shelf registration statement on Form S-3 with the SEC. The registration statement, which has been declared effective, was filed in reliance on Instruction I.B.6. of Form S-3, which imposes a limitation on the maximum amount of securities that we may sell pursuant to the registration statement during any twelve-month period. At the time we sell securities pursuant to the registration statement, the amount of securities to be sold plus the amount of any securities we have sold during the prior twelve months in reliance on Instruction I.B.6. may not exceed one-third of the aggregate market value of our outstanding common stock held by non-affiliates as of a day during the 60 days immediately preceding such sale as computed in accordance with Instruction I.B.6. Whether we sell securities under the registration statement will depend on a number of factors, including availability of our existing S-3 under the 1/3 limitation calculations set forth in Instruction I.B.6 of Form S-3, the market conditions at that time, our cash position at that time and the availability and terms of alternative sources of capital. Furthermore, Instruction I.B.6. of Form S-3 requires that the issuer have at least one class of common equity securities listed and registered on a national securities exchange. If we are not able to maintain compliance with applicable NASDAQ rules, we will no longer be able to rely upon that Instruction. If we cannot sell securities under our shelf registration, we may be required to utilize more costly and time-consuming means of accessing the capital markets, which could materially adversely affect our liquidity and cash position.

Risks Related to Ownership of Our Common Stock

We face evolving regulation of corporate governance and public disclosure that may result in additional expenses and continuing uncertainty.

As a public company, we incur significant legal, accounting and other expenses. The Sarbanes-Oxley Act of 2002, or SOX, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of The NASDAQ Global Market and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel devote a substantial amount of time towards maintaining compliance with these requirements. These rules, regulations and standards are subject to varying interpretations, 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 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, regulatory authorities may initiate legal proceedings against us, which could be costly and time-consuming, and our reputation and business may be harmed.

Our common stock may be delisted from The NASDAQ Capital Market 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;
- stockholders' 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 November 27, 2018, we received a deficiency notice from The Nasdaq Stock Market ("Nasdaq") informing the Company that its common stock, par value $0.0001 per share, failed to comply with the $1.00 minimum bid price required for continued listing on The Nasdaq Capital Market under Nasdaq Listing Rule 5550(a)(2). Nasdaq's letter advised the Company that, based upon the closing bid price during the period from October 15, 2018 to November 26, 2018, the Company no longer meets this test.

Pursuant to Nasdaq Marketplace Rule 5810(c)(3)(A), the Company has been provided an initial compliance period of 180 calendar days, or until May 28, 2019, to regain compliance with the minimum bid price requirement. To regain compliance, the closing bid price of the Company's common stock must meet or exceed $1.00 per share for a minimum of 10 consecutive business days prior to May 28, 2019.

In addition, on January 11, 2019, the Company received written notice (the "Notice") from the Listing Qualifications Department (the "**Staff**") of Nasdaq indicating that, based upon the Company's non-compliance with Nasdaq Listing Rule 5620(a), which requires an issuer to hold an annual meeting of shareholders no later than one year after the end of the Company's fiscal year-end (the "**Annual Meeting Rule**"), the Company would be required to submit a plan to regain compliance with the Annual Meeting Rule for the Staff's consideration by no later than February 25, 2019. The Notice has no immediate impact on the Company's listing or trading in the Company's securities on Nasdaq.

The Company has been provided an extension of up to 180 calendar days from the Company's fiscal year end, through July 1, 2019, to evidence compliance with the Annual Meeting Rule. As announced to the Company's stockholders on a Current Report on Form 8-K filed on February 6, 2019, the Company has established April 15, 2019 as the date of the Company's 2019 annual meeting of stockholders.

There can be no assurance that we will be able to regain compliance and remain in compliance in the future. In particular, our share price may continue to decline for a number of reasons, including many that are beyond our control. See "*Our share price may be volatile and there may not be an active trading market for our common stock*".

If we fail to comply with NASDAQ's continued listing standards, we may be delisted and our common stock will trade, if at all, only on the over-the-counter market, such as the OTC Bulletin Board or OTCQX market, and then only if one or more registered broker-dealer market makers comply with quotation requirements. In addition, delisting of our common stock could depress our stock price, substantially limit liquidity of our common stock and materially adversely affect our ability to raise capital on terms acceptable to us, or at all. Further, delisting of our common stock would likely result in our common stock becoming a "penny stock" under the Exchange Act.

Our share price may be volatile and there may not be an active trading market for our common stock.

There can be no assurance that the market price of our common stock will not decline below its present market price or that there will be an active trading market for our common stock. The market prices of technology or technology related companies have been and are likely to continue to be highly volatile. Fluctuations in our operating results and general market conditions for technology or technology related stocks could have a significant impact on the volatility of our common stock price. We have experienced significant volatility in the price of our common stock. From January 1, 2017 through December 31, 2018, the share price of our common stock (on a split-adjusted basis) ranged from a high of $3.92 to a low of $0.57. The reason for the volatility in our stock is not well understood and may continue. Factors that may have contributed to such volatility include, but are not limited to:

- introduction of new technologies by us or our competitors;
- government regulations and laws;
- public sentiment relating to our industry;
- developments in patent or other proprietary rights;
- the number of shares issued and outstanding;
- the number of shares trading on an average trading day;
- performance of companies in the non-performing entity space generally;
- announcements regarding other participants in the technology and technology related industries, including our competitors;
- block sales of our shares by stockholders to whom we have sold stock in private placements, or the cessation of transfer restrictions with respect to those shares; and
- market speculation regarding any of the foregoing.

We could fail in future financing efforts or be delisted from The NASDAQ Capital Market if we fail to receive stockholder approval when needed.

We are required under the NASDAQ rules to obtain stockholder 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 and acquisitions of assets 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 stockholder approval for such an issuance. If we are unable to obtain financing due to stockholder approval difficulties, such failure may have a material adverse effect on our ability to continue operations.

Our shares of common stock are thinly traded and, as a result, stockholders may be unable to sell at or near ask prices, or at all, if they need to sell shares to raise money or otherwise desire to liquidate their shares.

Our common stock has been "thinly-traded" meaning that the number of persons interested in purchasing our common stock at or near ask prices at any given time may be relatively small or non-existent. This situation is attributable to a number of factors, including the fact that we are a small company that is relatively unknown to stock analysts, stock brokers, institutional investors and others in the investment community that generate or influence sales volume, and that even if we came to the attention of such persons, they tend to be risk-averse and would be reluctant to follow an unproven company such as ours or purchase or recommend the purchase of our shares until such time as we become more seasoned and viable. Our trading volumes are further adversely affected by the 1-for-19 reverse stock split that was effective as of March 4, 2016. In addition, we believe that due to the limited number of shares of our common stock outstanding, an options market has not been established for our common stock, limiting the ability of market participants to hedge or otherwise undertake trading strategies available for larger companies with broader shareholder bases which prevents institutions and others from acquiring or trading in our securities. Consequently, there may be periods of several days or more when trading activity in our shares is minimal or non-existent, as compared to a seasoned issuer which has a large and steady volume of trading activity that will generally support continuous sales without an adverse effect on share price. We cannot give stockholders any assurance that a broader or more active public trading market for our common shares will develop or be sustained, or that current trading levels will be sustained.

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 that could be beneficial to our stockholders.

Effective as of January 24, 2013, we adopted a shareholder rights plan which was amended and restated as of June 9, 2017. 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, or make more costly any attempt to acquire control of the Company, even if the acquisition or the Board designees 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.

Dividends on our common stock are not likely.

During the last five years, we have not paid cash dividends on our common stock, and we do not anticipate paying cash dividends on our common stock in the foreseeable future. Investors must look solely to the potential for appreciation in the market price of the shares of our common stock to obtain a return on their investment.

If we fail to retain our key personnel, we may not be able to achieve our anticipated level of growth and our business could suffer.

Our future depends, in part, on our ability to attract and retain key personnel and the continued contributions of our executive officers, each of whom may be difficult to replace. In particular, Anthony Hayes, our Chief Executive Officer, is important to the management of our business and operations and the development of our strategic direction. The loss of the services of any such individual and the process to replace any key personnel would involve significant time and expense and may significantly delay or prevent the achievement of our business objectives.

Item 1B. UNRESOLVED STAFF COMMENTS.

As a smaller reporting company, we are not required to provide the information required by this item.

Item 2. PROPERTIES.

Our main office is located in New York, New York where we lease one office with a monthly payment of approximately $3,200. We also lease space in Longview, Texas, on a month to month basis, for approximately $2,000 per month, and in Williamsburg, Virginia, on a month to month basis, for approximately $500 per month. We believe that the New York, Texas and Virginia facilities are sufficient to meet our needs. We leased office space in Bethesda, Maryland under a lease with monthly payments of $15,107 that expired on March 31, 2018, which we did not renew.

Item 3. LEGAL PROCEEDINGS.

In the past, in the ordinary course of business, we actively pursued legal remedies to enforce our intellectual property rights and to stop unauthorized use of our technology. Other than ordinary routine litigation incidental to the business and other than as set forth below, which related to litigation to our former business model, we know of no material, active or pending legal proceedings against us, except for those described below.

Optic153 LLC Litigations

Under our Monetization Agreement with Equitable, Optic 153 LLC, an Equitable subsidiary, has filed the following litigations relating patents acquired under the terms of settlement of one of our prior litigations:

- On March 15, 2018, litigation against Lumentum Operations LLC, Case No. 1:18-cv-00406-VAC-CJB, in the in the U.S. District Court for the District of Delaware, related to alleged infringement of U.S. Patent No. 6,587,261. Such case settled in November of 2018 and the Company received its pro rata portion of the aggregate settlement amount of $200,000. A Notice of Voluntary Dismissal was filed on November 15, 2018 and the Court closed the case.

Counterclaims

In the ordinary course of business, we, or with our wholly-owned subsidiaries or monetization partners, will initiate litigation against parties whom we believe have infringed on our intellectual property rights and technologies. The initiation of such litigation exposes us to potential counterclaims initiated by the defendants. Currently, there are no counterclaims pending against us. In the event such counterclaims are filed, we can provide no assurance that the outcome of these claims will not have a material adverse effect on our financial position and results from operations.

Item 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

Item 5. MARKET FOR REGISTRANT’S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES.

Our common stock is traded on the NASDAQ Capital Market under the symbol SPEX. No dividends were paid in 2018 or 2017 and we do not currently anticipate paying any cash dividends on our capital stock in the foreseeable future.

On March 6, 2019, the closing price of our common stock, as reported by the NASDAQ Capital Market, was $0.84. As of March 6, 2019, we had approximately 123 holders of record of our common stock

Equity Compensation Plan Information

The following table provides information about our common stock that may be issued upon the exercise of options, warrants and rights under all of our existing equity compensation plans as of December 31, 2018 (on a split-adjusted basis).

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (1)	Weighted average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (1)) (2)
Equity compensation plans approved by security holder	528,427	$ 49.23	53,672
Equity compensation plans not approved by security holder	—	—	—
	528,427		53,672

(1) Consists of options to acquire 105,547 shares of our common stock under the 2013 Equity Incentive Plan and 422,880 under the 2014 Equity Incentive Plan.
(2) Consists of shares of common stock available for future issuance under our equity incentive plan or any other individual compensation arrangement.

Item 6. SELECTED FINANCIAL DATA

As a smaller reporting company, we are not required to provide this information.

Item 7. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Forward-Looking Statements

You should read this discussion together with the Financial Statements, related Notes and other financial information included elsewhere in this Form 10-K. The following discussion contains assumptions, estimates and other forward-looking statements that involve a number of risks and uncertainties. These risks could cause our actual results to differ materially from those anticipated in these forward-looking statements.

Overview

Spherix Incorporated is a technology development company committed to the fostering of innovative ideas. Spherix Incorporated was formed in 1967 as a scientific research company and for much of our history pursued drug development, including through Phase III clinical studies, which were largely discontinued in 2012. In 2012 and 2013, we shifted our focus to being a firm that owns, develops, acquires and monetizes intellectual property assets. Such monetization included, but was not limited to, acquiring IP from patent holders in order to maximize the value of the patent holdings by conducting and managing a licensing campaign, commercializing the IP, or through the settlement and litigation of patents.

Since March 1, 2013, the Company has received limited funds from its IP monetization. In addition to our patent monetization efforts, since the fourth quarter of 2017, we have been transitioning to a technology development company. The Company made no investments in new IP during 2017 and 2018 and started the transition with its investment in Hoth Therapeutics, Inc. during the 3rd quarter of 2017, and with its agreement with DatChat, Inc. in March 2018.

We are a technology development company committed to the fostering of innovative ideas. Spherix Incorporated was formed in 1967 as a scientific research company and for much of our history pursued drug development including through Phase III clinical studies which were largely discontinued in 2012. In 2012 and 2013, we shifted our focus to being a firm that owns, develops, acquires and monetizes intellectual property assets. Such monetization included, but was not limited to, acquiring IP from patent holders in order to maximize the value of the patent holdings by conducting and managing a licensing campaign, commercializing the IP, or through the settlement and litigation of patents.

Our activities generally include the acquisition and development of patents through internal or external research and development. In addition, we seek to acquire existing rights to intellectual property through the acquisition of already issued patents and pending patent applications, both in the United States and abroad. We may alone, or in conjunction with others, develop products and processes associated with technology development and monetizing related intellectual property.

Since March 1, 2013, the Company has received limited funds from its IP monetization. In addition to our patent monetization efforts, since the fourth quarter of 2017, we have been transitioning to a technology development company. The Company made no investments in new IP during 2017 and 2018 and started the transition with its investment in Hoth Therapeutics, Inc. during the 3rd quarter of 2017, and with its agreement with DatChat, Inc. in March 2018.

In March 2018, the Company entered into an agreement and plan of merger, subject to shareholder approval, with DatChat, Inc. (the "DatChat Merger"), a secure messaging application that utilizes blockchain technology, as amended on May 3, 2018. After further negotiations, the Company determined not to pursue a merger with DatChat and on August 8, 2018, entered into a securities purchase agreement (the "Securities Purchase Agreement") with DatChat pursuant to which the Company and DatChat agreed to terminate the DatChat Merger and each of the parties to the Merger Agreement agreed to release and discharge and hold harmless each of the other parties with respect to the transaction contemplated by the Merger Agreement.

In addition to the termination, under the Securities Purchase Agreement, the Company agreed to make a $1,000,000 strategic investment in DatChat which consisted of (a) a cash payment of $500,000, (b) the forgiveness of prior advances made to DatChat by the Company, and (c) an obligation of the Company to pay certain specific future compensation expenses of DatChat (amounts in clauses (b) and (c) not to exceed a maximum of $500,000 in the aggregate); in exchange for $1,000,000 of restricted shares of DatChat common stock which is equal to 4.37% of the issued and outstanding common stock of DatChat.

In October 2018, the Company entered into an agreement and plan of merger, subject to shareholder approval, with CBM BioPharma, Inc. ("CBM"), a pharmaceutical company focusing on the development of cancer treatments, pursuant to which all shares of capital stock of CBM will be converted into the right to receive an aggregate of 15,000,000 shares of the Company's common stock with CBM continuing as the surviving corporation in the merger.

On February 15, 2019, Hoth announced the pricing of its initial public offering ("IPO) of 1,250,000 shares of its common stock at an initial offering price to the public of $5.60 per share. All shares of common stock were offered by Hoth. In addition, Hoth granted the underwriters a 30-day option to purchase up to an additional 187,500 shares of common stock at the initial public offering price, less the underwriting discount, to cover over-allotments, if any.

Hoth's common stock commenced trading on The Nasdaq Capital Market, on February 15, 2019 under the ticker symbol "HOTH". The IPO closed on February 20, 2019.

Critical Accounting Policies

Accounting for Warrants

We account for the issuance of common stock purchase warrants issued in connection with the equity offerings in accordance with the provisions of Accounting Standards Codification ("ASC") 815, *Derivatives and Hedging* ("ASC 815"). We classify as equity any contracts that (i) require physical settlement or net-share settlement or (ii) gives the Company a choice of net-cash settlement or settlement in its own shares (physical settlement or net-share settlement). We classify as assets or liabilities any contracts that (i) require net-cash settlement (including a requirement to net-cash settle the contract if an event occurs and if that event is outside the control of the Company) or (ii) gives the counterparty a choice of net-cash settlement or settlement in shares (physical settlement or net-share settlement). In addition, Under ASC 815, registered common stock warrants that require the issuance of registered shares upon exercise and do not expressly preclude an implied right to cash settlement are accounted for as derivative liabilities. We classify these derivative warrant liabilities on the consolidated balance sheet as a current liability.

We assess the classification of our common stock purchase warrants as of the date of each offering and determined that such instruments met the criteria for liability classification. The warrants are reported on the consolidated balance sheets as a warrant liability at fair value using the Black-Scholes valuation method. Changes in the estimated fair value of the warrants result in the consolidated statement of operations as "change in the fair value of warrant liabilities".

Convertible Preferred Stock

We account for convertible preferred stock with detachable warrants in accordance with ASC 470: *Debt* and allocated proceeds received to the convertible preferred stock and detachable warrants based on relative fair values. We evaluated the classification of our convertible preferred stock and warrants and determined that such instruments meet the criteria for equity classification. We recorded the related issuance costs and value ascribed to the warrants as a reduction of the convertible preferred stock.

We have also evaluated our convertible preferred stock and warrants in accordance with the provisions of ASC 815, *Derivatives and Hedging*, including consideration of embedded derivatives requiring bifurcation. The issuance of the convertible preferred stock generated a beneficial conversion feature ("BCF"), which arises when a debt or equity security is issued with an embedded conversion option that is beneficial to the investor or in the money at inception because the conversion option has an effective strike price that is less than the market price of the underlying stock at the commitment date. We recognized the BCF by allocating the intrinsic value of the conversion option, which is the number of shares of common stock available upon conversion multiplied by the difference between the effective conversion price per share and the fair value of common stock per share on the commitment date, to additional paid-in capital, resulting in a discount on the convertible preferred stock. As the convertible preferred stock may be converted immediately, we have disclosed the BCF as a deemed dividend on the consolidated statements of operations.

Stock-based Compensation

We account for share-based payment awards exchanged for employee services at the estimated grant date fair value of the award. Stock options issued under our long-term incentive plans are granted with an exercise price equal to no less than the market price of our stock at the date of grant and expire up to ten years from the date of grant. These options generally vest over a one- to five-year period.

The fair value of stock options granted was determined on the grant date by using a Black-Scholes model valuation with assumptions for risk free interest rate, the expected term, expected volatility, and expected dividend yield. The risk-free interest rate is based on U.S. Treasury zero-coupon yield curve over the expected term of the option. The expected term assumption is determined using the weighted average midpoint between vest and expiration for all individuals within the grant. The volatility rate was computed based on the standard deviation of our underlying stock price's daily logarithmic returns. Our model includes a zero dividend yield assumption, as we have not historically paid nor do we anticipate paying dividends on our common stock. Our model does not include a discount for post-vesting restrictions, as we have not issued awards with such restrictions.

The periodic expense is then determined based on the valuation of the options, and at that time an estimated forfeiture rate is used to reduce the expense recorded. Our estimate of pre-vesting forfeitures is primarily based on our historical experience and is adjusted to reflect actual forfeitures as the options vest.

Fair Value of Financial Instruments

Financial instruments, including accounts and other receivables, accounts payable and accrued liabilities are carried at cost, which management believes approximates fair value due to the short-term nature of these instruments. We measure the fair value of financial assets and liabilities based on the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. We maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value.

We use three levels of inputs that may be used to measure fair value:

Level 1 - quoted prices in active markets for identical assets or liabilities
Level 2 - quoted prices for similar assets and liabilities in active markets or inputs that are observable
Level 3 - inputs that are unobservable (for example, cash flow modeling inputs based on assumptions)

Intangible Assets - Patent Portfolios

Intangible assets include our patent portfolios with original estimated useful lives ranging from 6 months to 12 years. We amortize the cost of the intangible assets over their estimated useful lives on a straight-line basis. Costs incurred to acquire patents, including legal costs, are also capitalized as long-lived assets and amortized on a straight-line basis with the associated patent.

We monitor the carrying value of long-lived assets for potential impairment and tests the recoverability of such assets whenever events or changes in circumstances indicate that the carrying amounts may not be recoverable. If a change in circumstance occurs, we will perform a test of recoverability by comparing the carrying value of the asset or asset group to its undiscounted expected future cash flows. If cash flows cannot be separately and independently identified for a single asset, we will determine whether impairment has occurred for the group of assets for which we can identify the projected cash flows. If the carrying values are in excess of undiscounted expected future cash flows, we measure any impairment by comparing the fair value of the asset or asset group to its carrying value. We tested our intangible assets for impairment at the end of December 31, 2018 and 2017. An impairment charge of approximately $2.2 million and nil was taken during the year ended December 31, 2018 and 2017, respectively.

Recently Issued Accounting Pronouncements

See Note 3 to the consolidated financial statements for a discussion of recent accounting standards and pronouncements.

Results of Operations

Fiscal Year Ended December 31, 2018 Compared to Fiscal Year Ended December 31, 2017

For the year ended December 31, 2018 and 2017, revenue was approximately $28,000 and $1.2 million, respectively. The $28,000 for the year ended December 31, 2018 is a settlement from monetization pursuant to agreement with Equitable. The $1.2 million for the year ended December 31, 2017 primarily represents the amortization of deferred revenue related to the two patent license agreements we entered into with RPX Corporation ("RPX") on November 23, 2015 and May 22, 2016 (the "RPX License Agreements"). The Company has determined that its licenses represent functional intellectual property under Topic 606. Therefore, revenue is recognized at the point in time when the customer has the right to use the intellectual property rather than over the license period. Accordingly, the Company's deferred revenue related to its licenses was eliminated through a debit in the amount of approximately $3.2 million through the accumulated deficit at the beginning of 2018. The Company will not recognize revenue from the RPX license or the other patents in its portfolio in the future.

For the year ended December 31, 2018 and 2017, we incurred a loss from operations of $6.9 million and $3.8 million, respectively. The increase in net loss was primarily attributed to $2.2 million increase in impairment of intangible assets, $1.2 million decrease in revenue, $0.5 million increase in professional fees and $0.1 million increase in acquisition costs related to the DatChat Merger, and was partially offset by $1.0 million decrease in compensation and related expenses.

For the year ended December 31, 2018 and 2017, other income was approximately $8.6 million and $0.5 million, respectively. The increase in other income was primarily attributed to $7.8 million increase in fair value of our investment in Hoth and $0.9 million increase in change in fair value of warrant liabilities, and was partially offset by $0.6 million decrease in other income.

Liquidity and Capital Resources

We continue to incur ongoing administrative and other expenses, including public company expenses, in excess of corresponding (non-financing related) revenue. While we continue to implement our business strategy, we intends to finance our activities through:

- managing current cash and cash equivalents on hand from our past debt and equity offerings,
- seeking additional funds raised through the sale of additional securities in the future,
- seeking additional liquidity through credit facilities or other debt arrangements, and
- increasing revenue from its patent portfolios, license fees and new business ventures.

Our ultimate success is dependent on our ability to obtain additional financing and generate sufficient cash flow to meet our obligations on a timely basis. Our business will require significant amounts of capital to sustain operations and make the investments it needs to execute its longer-term business plan to support new technologies and help advance innovation. Our working capital amounted to approximately $1.8 million at December 31, 2018. Absent generation of sufficient revenue from the execution of our long-term business plan, we will need to obtain additional debt or equity financing, especially if we experience downturns in our business that are more severe or longer than anticipated, or if we experience significant increases in expense levels resulting from being a publicly-traded company or operations. If we attempt to obtain additional debt or equity financing, we cannot assume that such financing will be available to the Company on favorable terms, or at all.

Because of recurring operating losses, net operating cash flow deficits, and an accumulated deficit, there is substantial doubt about our ability to continue as a going concern within one year from the date of this filing. The consolidated financial statements have been prepared assuming that we will continue as a going concern, and do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets, or the amounts and classification of liabilities that may result from the outcome of this uncertainty.

Cash Flows from Operating Activities - For the year ended December 31, 2018 and 2017, net cash used in operations was $2.7 million and $3.3 million, respectively. The cash used in operating activities for the year ended December 31, 2018 primarily resulted from $8.2 million change in fair value of our investment in Hoth and $0.7 million change in fair value of warrant liabilities, and partially offset by a net income of $1.7 million, impairment of goodwill and intangible assets of $2.2 million and amortization of patent portfolio expenses of $1.4 million. The cash used in operating activities for the year ended December 31, 2017 primarily resulted from a net loss of $3.3 million.

Cash Flows from Investing Activities - For the year ended December 31, 2018, net cash used in investing activities was approximately $0.2 million. The cash used in investing activities primarily resulted from our purchase of marketable securities for the year ended December 31, 2018 of $14.3 million, purchase of investment at fair value of $0.9 million, and was partially offset by our sale of marketable securities of $15.1 million. For the year ended December 31, 2017, net cash provided by investing activities was approximately $1.3 million. The cash provided by investing activities primarily resulted from our sale of marketable securities for the year ended December 31, 2017 of $14.2 million, partially offset by our investment in Hoth for $0.7 million and by our purchase of marketable securities of $12.3 million.

Cash Flows from Financing Activities – Net cash provided by financing activities for the year ended December 31, 2018 was approximately $2.7 million, which related to issuance of 2,222,222 shares of its common stock. Net cash flows provided by financing activities during the year ended December 31, 2017 was $2.1 million, which related to the net proceeds from an underwritten public offering of 1,250,000 shares of our common stock.

The Company's ultimate success is dependent on its ability to obtain additional financing and generate sufficient cash flow to meet its obligations on a timely basis. The Company's business will require significant amounts of capital to sustain operations and make the investments it needs to execute its longer-term business plan. The Company's working capital amounted to approximately $1.8 million at December 31, 2018. Absent generation of sufficient revenue from the execution of the Company's long-term business plan, the Company will need to obtain additional debt or equity financing, especially if the Company experiences downturns in its business that are more severe or longer than anticipated, or if the Company experiences significant increases in expense levels resulting from being a publicly-traded company or operations. If the Company attempts to obtain additional debt or equity financing, the Company cannot assume that such financing will be available to the Company on favorable terms, or at all.

We have filed a shelf registration statement on Form S-3 with the SEC. The registration statement, which has been declared effective, was filed in reliance on Instruction I.B.6 of Form S-3, which imposes a limitation on the maximum amount of securities that we may sell pursuant to the registration statement during any twelve-month period. At the time we sell securities pursuant to the registration statement, the amount of securities to be sold plus the amount of any securities we have sold during the prior twelve months in reliance on Instruction I.B.6 may not exceed one-third of the aggregate market value of our outstanding common stock held by non-affiliates as of a day during the 60 days immediately preceding such sale as computed in accordance with Instruction I.B.6. Whether we sell securities under the registration statement will depend on a number of factors, including the market conditions at that time, our cash position at that time and the availability and terms of alternative sources of capital.

In connection with the consummation of the initial public offering of Hoth, the Company entered into a lock-up agreement with Hoth pursuant to which the Company has agreed not to sell any shares of Hoth common stock or common stock equivalents beneficially owned or acquired by Spherix (the "Spherix Securities") until February 20, 2022, which is the 36 month anniversary of the consummation of Hoth's initial public offering, provided, however (i) Spherix may offer, sell, contract to sell, hypothecate, pledge, dividend or distribute to its shareholders or otherwise dispose of, directly or indirectly, up to an aggregate of 10% of the initially issued Spherix Securities, provided further that the recipients of the Spherix Securities shall not be permitted to resell such Spherix Securities until six months after the date of the Initial Public Offering, (ii) beginning 12 months after the date of Hoth's initial public offering, Spherix may offer, sell, contract to sell, hypothecate, pledge, dividend or distribute to its shareholders or otherwise dispose of, directly or indirectly, up to an additional 10% of the initially issued Spherix Securities, (iii) beginning 24 months after the date of Hoth's initial public offering, Spherix may offer, sell, contract to sell, hypothecate, pledge, dividend or distribute to its shareholders or otherwise dispose of, directly or indirectly, up to an additional 10% of the initially issued Spherix Securities and (iv) beginning 36 months after the date of the Hoth initial public offering, Spherix may offer, sell, contract to sell, hypothecate, pledge, dividend or distribute to its shareholders or otherwise dispose of, directly or indirectly, the Spherix Securities without any restrictions.

Contractual obligations

None.

Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

As a smaller reporting company, we are not required to provide the information required by this item.

Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Financial statements and supplementary data required by this Item 8 follow.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and Board of Directors of
Spherix Incorporated

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Spherix Incorporated and Subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated statements of operations, changes in stockholders' equity and cash flows for each of the two years in the period ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

Explanatory Paragraph – Going Concern

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As more fully described in Note 2, the Company has a significant working capital deficiency, has incurred significant losses and needs to raise additional funds to meet its obligations and sustain its operations. These conditions raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 2. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Marcum LLP

Marcum LLP

We have served as the Company's auditor since 2013**.**

New York, NY
March 11, 2019

SPHERIX INCORPORATED AND SUBSIDIARIES
Consolidated Balance Sheets
($ in thousands except per share amounts)

	December 31 2018	December 31 2017
ASSETS		
Current assets		
Cash and cash equivalents	$ 17	$ 197
Marketable securities	2,700	3,998
Prepaid expenses and other assets	188	150
Total current assets	2,905	4,345
Property and equipment, net	1	3
Patent portfolios and patent rights, net	—	3,578
Investments	10,345	1,020
Deposit	—	26
Total assets	**$ 13,251**	**$ 8,972**
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable and accrued expenses	$ 132	$ 56
Accrued salaries and benefits	732	695
Warrant liabilities	82	822
Payable to DatChat	207	—
Short-term deferred revenue	—	957
Short-term lease liabilities	—	48
Total current liabilities	1,153	2,578
Long-term deferred revenue	—	2,288
Total liabilities	**1,153**	**4,866**
Stockholders' equity		
Series D: 4,725 shares issued and outstanding at December 31, 2018 and 2017; liquidation value of $0.0001 per share	—	—
Series D-1: 834 shares issued and outstanding at December 31, 2018 and 2017; liquidation value of $0.0001 per share	—	—
Common stock, $0.0001 par value, 100,000,000 shares authorized; 8,542,542 and 6,234,910 shares issued at December 31, 2018 and 2017, respectively; 8,542,530 and 6,234,898 shares outstanding at December 31, 2018 and 2017, respectively	1	—
Additional paid-in-capital	152,444	149,425
Treasury stock, at cost, 12 shares at December 31, 2018 and 2017	(264)	(264)
Accumulated deficit	(140,083)	(145,055)
Total stockholders' equity	12,098	4,106
Total liabilities and stockholders' equity	**$ 13,251**	**$ 8,972**

The accompanying notes are an integral part of these consolidated financial statements.

SPHERIX INCORPORATED AND SUBSIDIARIES
Consolidated Statements of Operations
($ in thousands)

	Years Ended December 31,	
	2018	**2017**
Revenues	$ 28	$ 1,236
Operating costs and expenses		
Amortization of patent portfolio	1,405	1,373
Compensation and related expenses (including stock-based compensation)	1,012	2,059
Professional fees	1,569	1,038
Impairment of intangible assets	2,173	—
Rent	81	92
Depreciation expense	38	3
Acquisition costs	230	—
Other selling, general and administrative	394	493
Total operating expenses	6,902	5,058
Loss from operations	(6,874)	(3,822)
Other (expenses) income		
Other (expenses) income , net	(333)	291
Change in fair value of investment	8,194	345
Change in fair value of warrant liabilities	740	(120)
Total other income	8,601	516
Net income (loss)	**$ 1,727**	**$ (3,306)**
Net income (loss) per share attributable to common stockholders, basic and diluted		
Basic	$ 0.21	$ (0.60)
Diluted	$ 0.21	$ (0.60)
Weighted average number of common shares outstanding,		
Basic	8,058,165	5,538,568
Diluted	8,061,091	5,538,568

The accompanying notes are an integral part of these consolidated financial statements.

SPHERIX INCORPORATED AND SUBSIDIARIES
Consolidated Statements of Changes in Stockholders' Equity
($ in thousands)

	Common Stock		Preferred Stock		Additional	Treasury Stock		Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Paid-in	Shares	Amount	Deficit	Equity
Balance at January 1, 2017	**4,943,929**	**$ —**	**5,559**	**$ —**	**$ 147,331**	**12**	**$ (264)**	**$ (141,749)**	**$ 5,318**
Repurchase of restricted stock units to pay for employee withholding taxes	35,969	—	—	—	(24)	—	—	—	(24)
Issuance common stock in equity raise, net of offering cost	1,250,000	—	—	—	2,095	—	—	—	2,095
Stock-based compensation	5,000	—	—	—	23	—	—	—	23
Net loss	—	—	—	—	—	—	—	(3,306)	(3,306)
Balance at December 31, 2017	**6,234,898**	**$ —**	**5,559**	**$ —**	**$ 149,425**	**12**	**$ (264)**	**$ (145,055)**	**$ 4,106**
Issuance common stock in equity raise, net of offering cost	2,222,222	1	—	—	2,699	—	—	—	2,700
Stock-based compensation	85,410	—	—	—	320	—	—	—	320
Cumulative effect of the changes related to adoption of ASC 606	—	—	—	—	—	—	—	3,245	3,245
Net income	—	—	—	—	—	—	—	1,727	1,727
Balance at December 31, 2018	**8,542,530**	**$ 1**	**5,559**	**$ —**	**$ 152,444**	**12**	**$ (264)**	**$ (140,083)**	**$ 12,098**

The accompanying notes are an integral part of these consolidated financial statements.

SPHERIX INCORPORATED AND SUBSIDIARIES
Consolidated Statements of Cash Flows
($ in thousands)

	Years Ended December 31,	
	2018	**2017**
Cash flows from operating activities		
Net income (loss)	$ 1,727	$ (3,306)
Adjustments to reconcile net loss to net cash used in operating activities:		
Amortization of patent portfolio	1,405	1,373
Change in fair value of investment	(8,194)	(345)
Change in fair value of warrant liabilities	(740)	120
Stock-based compensation	320	23
Depreciation expense	38	3
Realized loss on marketable securities	400	328
Unrealized loss (gain) on marketable securities	117	(240)
Impairment of intangible assets	2,173	—
Changes in assets and liabilities:		
Prepaid expenses and other assets	(38)	(15)
Deposit	—	—
Accounts payable and accrued expenses	74	(67)
Accrued salaries and benefits	37	249
Deferred revenue	—	(1,216)
Accrued lease liabilities	(48)	(179)
Net cash used in operating activities	(2,729)	(3,272)
Cash flows from investing activities		
Purchase of marketable securities	(14,280)	(12,274)
Sale of marketable securities	15,061	14,213
Purchase of investments	(922)	(675)
Release of deposit	26	—
Purchase of property and equipment	(36)	—
Net cash (used in) provided by investing activities	(151)	1,264
Cash flows from financing activities		
Cash from issuance common stock, net of offering cost	2,700	2,095
Repurchase of restricted stock units to pay for employee withholding taxes	—	(24)
Net cash provided by financing activities	2,700	2,071
Net (decrease) increase in cash and cash equivalents	(180)	63
Cash and cash equivalents, beginning of period	197	134
Cash and cash equivalents, end of period	$ 17	$ 197
Cash paid for interest and taxes	$ —	$ 195
Non-cash investing and financing activities		
Investment in DatChat	$ 207	$ —
Investment in Mellow Scooters	$ 2	$ —

The accompanying notes are an integral part of these consolidated financial statements.

Note 1. Organization and Description of Business

Organization and Description of Business

Spherix Incorporated (the "Company") is technology development committed to the fostering of innovative ideas. The Company was incorporated in 1967 in the State of Delaware as a scientific research company, and for much of its history pursued drug development including through Phase III clinical studies which were discontinued. Such monetization included, but was not limited to, acquiring IP from patent holders in order to maximize the value of the patent holdings by conducting and managing a licensing campaign, commercializing the IP, or through the settlement and litigation of patents.

The Company was formerly focused on commercializing and monetizing patents by acquiring IP from patent holders in order to maximize the value of the patent holdings by conducting and managing a licensing campaign, or through the settlement and litigation of patents.

Since March 1, 2013, the Company has received limited funds from its IP monetization. In addition to our patent monetization efforts, since the fourth quarter of 2017, we have been transitioning to focus our efforts as a technology development company. These efforts have focused on biotechnology research and blockchain technology research. The Company's biotechnology research development includes investments in Hoth Therapeutics Inc. and the proposed merger with CBM BioPharma, Inc. ("CBM"). The Company made no investments in new IP during 2017 and 2018.

Hoth Therapeutics is a development stage biopharmaceutical company focused on proprietary therapeutics for patients suffering from indications such as atopic dermatitis, also known as eczema. To treat indications impacting more than 32 million Americans, Hoth is working to develop and commercialize the BioLexa Platform, a proprietary, patented, drug compound platform developed at the University of Cincinnati. The BioLexa Platform has achieved positive results at preclinical studies conducted at the University of Miami.

In addition to Hoth, the Company is proposing a merger with CBM. In October 2018, the Company entered into an agreement and plan of merger, subject to shareholder approval, with CBM, a pharmaceutical company focusing on the development of cancer treatments, pursuant to which all shares of capital stock of CBM will be converted into the right to receive an aggregate of 15,000,000 shares of the Company's common stock with CBM continuing as the surviving corporation in the merger.

In the field of blockchain research, the Company previously entered into an agreement and plan of merger, subject to shareholder approval, with DatChat, Inc. (the "DatChat Merger"), a secure messaging application that utilizes blockchain technology. After further negotiations, the Company determined not to pursue a merger with DatChat and on August 8, 2018, entered into a Securities Purchase Agreement with DatChat pursuant to which the Company and DatChat agreed to terminate the DatChat Merger and the Company agreed to make a $1,000,000 strategic investment in DatChat which consisted of (a) a cash payment of $500,000, (b) the forgiveness of prior advances made to DatChat by the Company, and (c) an obligation of the Company to pay certain specific future compensation expenses of DatChat (amounts in clauses (b) and (c) not to exceed a maximum of $500,000 in the aggregate); in exchange for $1,000,000 of restricted shares of DatChat common stock. Pursuant to the Securities Purchase Agreement, the Company applied a total of approximately $293,000 prior advances towards its investment in DatChat ("Prior Incurred Amount"), including $272,000 of compensation related costs and $21,000 professional fees. The Company also recorded approximately $207,000 compensation expenses payable to DatChat ("Payable to DatChat") in addition to the $293,000 advances to reach the $500,000 maximum.

The breakdown of investment at Datchat as December 31, 2018 are as follows ($ in thousands):

	DatChat Investment as of December 31, 2018
Cash Payment	$ 500
Prior Incurred Amount Made to DatChat	293
Payable to DatChat	207
Total	**1,000**

On November 23, 2018, the Company entered into a Security Purchase Agreement with Mellow Scooters, LLC ("Mellow Scooters"), a leading-edge company that enables anyone to own and operate a personal fleet of electric scooters and dockless bicycles to generate revenue. Mellow Scooters agreed to sell 250 Units to the Company, representing 25% of its issued and outstanding limited liability company membership interests for a subscription price of $106,000. The $106,000 consisted of (a) a cash payment of $30,000, (b) the forgiveness of prior advances made to Mellow Scooters by the Company, and (c) an obligation of the Company to pay certain specific future expenses of Mellow Scooters (amounts in clauses (b) and (c) not to exceed a maximum of $76,000 in the aggregate). As of December 31, 2018, the Company has applied a total of approximately $74,000 prior advances towards its investment in Mellow Scooters, including $71,000 compensation related cost and $3,500 professional fees. The Company also recorded $2,000 payable for professional fees of Mellow Scooter in addition to the $74,000 advances to reach the $76,000 maximum.

The breakdown of investment at Mellow Scooters as December 31, 2018 are as follows ($ in thousands):

	Mellow Scooters Investment as of December 31, 2018
Cash Payment	$ 30
Prior Incurred Amount Made to Mellow Scooters	74
Payable to Mellow Scooters	2
Total	**106**

CBM Merger

On October 10, 2018, the Company entered into an Agreement and Plan of Merger (the "Merger Agreement"), by and among the Company, Spherix Delaware Merger Sub Inc., a Delaware corporation and a wholly-owned subsidiary of Spherix ("Merger Sub"), CBM, and Scott Wilfong in the capacity as the representative from and after the effective time of the Merger (as defined below) (the "Effective Time") for the stockholders of CBM as of immediately prior to the Effective Time (the "Stockholder Representative").

Pursuant to the Merger Agreement and subject to the terms and conditions set forth therein, at the closing of the transactions contemplated by the Merger Agreement, Merger Sub will merge with and into CBM (the "Merger"), with CBM continuing as the surviving corporation in the Merger. Subject to the terms and conditions set forth in the Merger Agreement, at the Effective Time: (i) all shares of capital stock of CBM (the "CBM Stock") issued and outstanding immediately prior to the Effective Time will be converted into the right to receive the Stockholder Merger Consideration (as defined below).

As consideration for the Merger, the Company shall deliver to the stockholders of CBM an aggregate of 15,000,000 shares of Company common stock (the "Stockholder Merger Consideration"), with each share of Company common stock valued at $1.10 per share. At or prior to the Closing, the Company, the Stockholder Representative, and a mutually agreeable escrow agent (the "Escrow Agent"), shall enter into an Escrow Agreement, effective as of the Effective Time, in form and substance reasonably satisfactory to the parties (the "Escrow Agreement"), pursuant to which the Company shall deposit with the Escrow Agent 1,500,000 shares from the Stockholder Merger Consideration otherwise deliverable to the stockholders of CBM who own beneficially and of record greater than 10% of the CBM common stock issued and outstanding immediately prior to the Closing (each a "Significant Company Stockholder") (including any equity securities paid as dividends or distributions with respect to such shares or into which such shares are exchanged or converted, the "Escrow Shares"), to be held in a segregated escrow account (the "Escrow Account") and disbursed by the Escrow Agent. Each stockholder of CBM Stockholder at the Effective Time (each, a "CBM Stockholder") shall receive its pro rata share of the Stockholder Merger Consideration (less, in the case of each of the Significant Company Stockholders, its pro rata portion of the Escrow Shares held in the Escrow Account) based on the number of shares of CBM Stock owned by such CBM Stockholder as compared to the total number of shares of CBM Stock owned by all CBM Stockholders as of immediately prior to the Effective Time. The Escrow Shares shall serve as a security for, and a source of payment of, the indemnity rights of the Company indemnified parties.

In the event that this Agreement is terminated by the Company pursuant to certain sections of the Agreement, then the Company may be required to deliver to CBM certificate(s) representing an aggregate of 400,000 shares of the Company's Common Stock within two (2) business days of termination.

Note 2. Going Concern and Financial Condition

The Company continues to incur ongoing administrative and other expenses, including public company expenses, in excess of corresponding (non-financing related) revenue. While the Company continues to implement its business strategy, it intends to finance its activities through:

- managing current cash and cash equivalents on hand from the Company's past debt and equity offerings,
- seeking additional funds raised through the sale of additional securities in the future,
- seeking additional liquidity through credit facilities or other debt arrangements, and
- increasing revenue from its patent portfolios, license fees and new business ventures.

The Company's ultimate success is dependent on its ability to obtain additional financing and generate sufficient cash flow to meet its obligations on a timely basis. The Company's business will require significant amounts of capital to sustain operations and make the investments it needs to execute its longer-term business plan to support new technologies and help advance innovation. The Company's working capital amounted to approximately $1.8 million at December 31, 2018. Absent generation of sufficient revenue from the execution of the Company's long-term business plan, the Company will need to obtain additional debt or equity financing, especially if the Company experiences downturns in its business that are more severe or longer than anticipated, or if the Company experiences significant increases in expense levels resulting from being a publicly-traded company or operations. If the Company attempts to obtain additional debt or equity financing, the Company cannot assume that such financing will be available to the Company on favorable terms, or at all.

Because of recurring operating losses, net operating cash flow deficits, and an accumulated deficit, there is substantial doubt about the Company's ability to continue as a going concern within one year from the date of this filing. The consolidated financial statements have been prepared assuming that the Company will continue as a going concern, and do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets, or the amounts and classification of liabilities that may result from the outcome of this uncertainty.

Note 3. Summary of Significant Accounting Policies

Basis of Presentation and Principles of Consolidation

The accompanying consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries, Nuta Technology Corp. ("Nuta"), Spherix Portfolio Acquisition II, Inc. ("SPAII"), Guidance IP, LLC ("Guidance"), Directional IP, LLC ("Directional"), Spherix Management Services, LLC ("SMS"), Spherix Delaware Merger Sub Inc. ("Merger Sub"), Spherix Merger Subsidiary, Inc ("SMSI") and NNPT, LLC ("NNPT"). All significant intercompany balances and transactions have been eliminated in consolidation.

Use of Estimates

The accompanying consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("US GAAP"). This requires management to make estimates and assumptions that affect certain reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenue and expenses during the period. The Company's significant estimates and assumptions include the recoverability and useful lives of long-lived assets, stock-based compensation, the valuation of derivative liabilities, the valuation of investments and the valuation allowance related to the Company's deferred tax assets. Certain of the Company's estimates, including the carrying amount of the intangible assets, could be affected by external conditions, including those unique to the Company and general economic conditions. It is reasonably possible that these external factors could have an effect on the Company's estimates and could cause actual results to differ from those estimates and assumptions.

Segments

The Company operates in one operating segment and, accordingly, no segment disclosures have been presented herein.

Concentration of Cash

The Company maintains cash balances at two financial institutions in checking accounts and money market accounts. The Company considers all highly liquid investments with original maturities of three months or less when purchased to be cash equivalents. The Company has not experienced any losses in such accounts and believes it is not exposed to any significant credit risk on cash.

Marketable Securities

Marketable securities are classified as trading and are carried at fair value. The Company's marketable securities consist of corporate bonds and highly liquid mutual funds and exchange-traded & closed-end funds which are valued at quoted market prices.

Fair Value of Financial Instruments

Financial instruments, including cash and cash equivalents, accounts payable and accrued liabilities are carried at cost, which management believes approximates fair value due to the short-term nature of these instruments. The Company measures the fair value of financial assets and liabilities based on the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The Company maximizes the use of observable inputs and minimizes the use of unobservable inputs when measuring fair value.

The Company uses three levels of inputs that may be used to measure fair value:

Level 1 - quoted prices in active markets for identical assets or liabilities
Level 2 - quoted prices for similar assets and liabilities in active markets or inputs that are observable
Level 3 - inputs that are unobservable (for example, cash flow modeling inputs based on assumptions)

Property and Equipment

Property and equipment are stated at cost and include office furniture and equipment and computer hardware and software. The Company computes depreciation and amortization under the straight-line method and typically over the following estimated useful lives of the related assets:

- Office furniture and equipment 3 to 10 years
- Computer hardware and software 3 to 5 years

Impairment of Long-lived Assets (Including Patent Assets)

The Company monitors the carrying value of long-lived assets for potential impairment and tests the recoverability of such assets whenever events or changes in circumstances indicate that the carrying amounts may not be recoverable. If a change in circumstance occurs, the Company performs a test of recoverability by comparing the carrying value of the asset or asset group to its undiscounted expected future cash flows. If cash flows cannot be separately and independently identified for a single asset, the Company will determine whether impairment has occurred for the group of assets for which the Company can identify the projected cash flows. If the carrying values are in excess of undiscounted expected future cash flows, the Company measures any impairment by comparing the fair value of the asset or asset group to its carrying value. The Company performed impairment tests for intangible assets at December 31, 2018 and 2017. An impairment charge of approximately $2.2 million and nil was taken during the year ended December 31, 2018 and 2017, respectively.

Convertible Preferred Stock

The Company applies the accounting standards for distinguishing liabilities from equity when determining the classification and measurement of its preferred stock. Preferred shares subject to mandatory redemption are classified as liability instruments and are measured at fair value. Conditionally redeemable preferred shares (including preferred shares that feature redemption rights that are either within the control of the holder or subject to redemption upon the occurrence of uncertain events not solely within the Company's control) are classified as temporary equity. At all other times, preferred shares are classified as stockholders' equity.

The Company accounts for convertible preferred stock with detachable warrants in accordance with ASC 470: *Debt* and allocated proceeds received to the convertible preferred stock and detachable warrants based on relative fair values. The Company evaluated the classification of its convertible preferred stock and warrants and determined that such instruments meet the criteria for equity classification. The Company recorded the related issuance costs and value ascribed to the warrants as a reduction of the convertible preferred stock.

The Company has also evaluated its convertible preferred stock and warrants in accordance with the provisions of ASC 815, *Derivatives and Hedging*, including consideration of embedded derivatives requiring bifurcation. The issuance of the convertible preferred stock could generate a beneficial conversion feature ("BCF"), which arises when a debt or equity security is issued with an embedded conversion option that is beneficial to the investor or in the money at inception because the conversion option has an effective strike price that is less than the market price of the underlying stock at the commitment date. The Company recognized the BCF by allocating the intrinsic value of the conversion option, which is the number of shares of common stock available upon conversion multiplied by the difference between the effective conversion price per share and the fair value of common stock per share on the commitment date, to additional paid-in capital, resulting in a discount on the convertible preferred stock (see Note 8). As the convertible preferred stock may be converted immediately, the Company recognized the BCF as a deemed dividend in the consolidated statements of operations.

Treasury Stock

The Company accounts for the treasury stock using the cost method, which treats it as a reduction in stockholders' equity.

Revenue Recognition

The Company recognizes revenue under ASC 606, *Revenue from Contracts with Customers*. The core principle of the new revenue standard is that a company should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. The following five steps are applied to achieve that core principle:

- Step 1: Identify the contract with the customer
- Step 2: Identify the performance obligations in the contract
- Step 3: Determine the transaction price
- Step 4: Allocate the transaction price to the performance obligations in the contract
- Step 5: Recognize revenue when the company satisfies a performance obligation

In order to identify the performance obligations in a contract with a customer, a company must assess the promised goods or services in the contract and identify each promised good or service that is distinct. A performance obligation meets ASC 606's definition of a "distinct" good or service (or bundle of goods or services) if both of the following criteria are met:

- The customer can benefit from the good or service either on its own or together with other resources that are readily available to the customer (i.e., the good or service is capable of being distinct).
- The entity's promise to transfer the good or service to the customer is separately identifiable from other promises in the contract (i.e., the promise to transfer the good or service is distinct within the context of the contract).

If a good or service is not distinct, the good or service is combined with other promised goods or services until a bundle of goods or services is identified that is distinct.

The transaction price is the amount of consideration to which an entity expects to be entitled in exchange for transferring promised goods or services to a customer. The consideration promised in a contract with a customer may include fixed amounts, variable amounts, or both. When determining the transaction price, an entity must consider the effects of all of the following:

- Variable consideration
- Constraining estimates of variable consideration
- The existence of a significant financing component in the contract
- Noncash consideration
- Consideration payable to a customer

Variable consideration is included in the transaction price only to the extent that it is probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is subsequently resolved.

The transaction price is allocated to each performance obligation on a relative standalone selling price basis.

The transaction price allocated to each performance obligation is recognized when that performance obligation is satisfied, at a point in time or over time as appropriate.

As of December 31, 2018, there were no contract assets or liabilities associated with the Company's settlement and licensing agreements. During the year ended December 31, 2018, the Company only generated $28 thousand of revenue.

Inventor Royalties

Inventor royalties are expensed in the period that the related revenues are recognized. In certain instances, pursuant to the terms of the underlying inventor agreements, costs paid by the Company to acquire patents are recoverable from future net revenues. Patent acquisition costs that are recoverable from future net revenues are amortized over the estimated economic useful life of the related patents, or as the prepaid royalties are earned by the inventor, as appropriate, and the related expense is included in amortization expense.

Accounting for Warrants

The Company accounts for the issuance of common stock purchase warrants issued in connection with the equity offerings in accordance with the provisions of ASC 815, Derivatives and Hedging ("ASC 815"). The Company classifies as equity any contracts that (i) require physical settlement or net-share settlement or (ii) gives the Company a choice of net-cash settlement or settlement in its own shares (physical settlement or net-share settlement). The Company classifies as assets or liabilities any contracts that (i) require net-cash settlement (including a requirement to net-cash settle the contract if an event occurs and if that event is outside the control of the Company) or (ii) gives the counterparty a choice of net-cash settlement or settlement in shares (physical settlement or net-share settlement). In addition, Under ASC 815, registered common stock warrants that require the issuance of registered shares upon exercise and do not expressly preclude an implied right to cash settlement are accounted for as derivative liabilities. The Company classifies these derivative warrant liabilities on the consolidated balance sheet as a current liability.

The Company assessed the classification of common stock purchase warrants as of the date of each offering and determined that such instruments met the criteria for liability classification. Accordingly, the Company classified the warrants as a liability at their fair value and adjusts the instruments to fair value at each reporting period. This liability is subject to re-measurement at each balance sheet date until the warrants are exercised or expired, and any change in fair value is recognized as "change in the fair value of warrant liabilities" in the consolidated statements of operations. The fair value of the warrants has been estimated using a Black-Scholes valuation model (see Note 8).

Stock-based Compensation

The Company accounts for share-based payment awards exchanged for employee services at the estimated grant date fair value of the award. Stock options issued under the Company's long-term incentive plans are granted with an exercise price equal to no less than the market price of the Company's stock at the date of grant and expire up to ten years from the date of grant. These options generally vest over a one- to five-year period.

The fair value of stock options granted was determined on the grant date using assumptions for risk free interest rate, the expected term, expected volatility, and expected dividend yield. The risk-free interest rate is based on U.S. Treasury zero-coupon yield curve over the expected term of the option. The expected term assumption is determined using the weighted average midpoint between vest and expiration for all individuals within the grant. The expected volatility assumption is computed based on the standard deviation of the Company's underlying stock price's daily logarithmic returns.

The Company's model includes a zero dividend yield assumption, as the Company has not historically paid nor does it anticipate paying dividends on its common stock. The Company's model does not include a discount for post-vesting restrictions, as the Company has not issued awards with such restrictions.

The periodic expense is then determined based on the valuation of the options, and at that time an estimated forfeiture rate is used to reduce the expense recorded. In addition to the assumptions used in the Black-Scholes option-pricing model, the amount of stock option expense the Company recognizes in the consolidated statements of operations includes an estimate of stock option forfeitures. Under ASC 718, the Company is required to estimate the level of forfeitures expected to occur and record compensation expense only for those awards that ultimately expect will vest. The Company recognizes the effect of forfeitures in compensation expense when the forfeitures occur.

Income Taxes

The Company uses the asset and liability method of accounting for income taxes in accordance with ASC 740, “Income Taxes” (“ASC 740”). Under this method, income tax expense is recognized as the amount of: (i) taxes payable or refundable for the current year and (ii) deferred tax consequences of temporary difference resulting from matters that have been recognized in the Company’s financial statement or tax returns. Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities measured at the enacted tax rates in effect for the year in which these items are expected to reverse. Deferred tax assets are reduced by valuation allowances if, based on the consideration of all available evidence, it is more likely than not that some portion or all of the deferred tax asset will not be realized.

Net Loss per Share

Basic loss per share is computed by dividing the net income or loss applicable to common shares by the weighted average number of common shares outstanding during the period. Net income (loss) attributable to common stockholders includes the effect of the deemed capital contribution on extinguishment of preferred stock and the deemed dividend related to the immediate accretion of beneficial conversion feature of convertible preferred stock. Diluted earnings per share is computed using the weighted average number of common shares and, if dilutive, potential common shares outstanding during the period. Potential common shares consist of the incremental common shares issuable upon the exercise of stock options (using the treasury stock method) and the conversion of the Company’s convertible preferred stock and warrants (using the if-converted method). Diluted loss per share excludes the shares issuable upon the conversion of preferred stock and the exercise of stock options and warrants from the calculation of net loss per share if their effect would be anti-dilutive.

The following table summarizes the earnings (loss) per share calculation (in thousands, except per share amount):

	For the Years Ended December 31,	
	2018	2017
Basic earnings per share		
Numerator:		
Net income (loss)	$ 1,727	$ (3,306)
Net income (loss) available to common stockholders	**$ 1,727**	**$ (3,306)**
Denominator:		
Weighted average number of common shares outstanding,	8,058,165	5,538,568
Earnings per basic share:		
Net loss	0.21	(0.60)
Net income (loss) available to common stockholders	**$ 0.21**	**$ (0.60)**
Dilutive earnings per share		
Numerator:		
Net income (loss)	$ 1,727	$ (3,306)
Net income (loss) available to common stockholders	**$ 1,727**	**$ (3,306)**
Denominator:		
Weighted average basic shares outstanding,	8,058,165	5,538,568
Weighted average effect of dilutive securities		
Employee stock options	—	—
Convertible preferred stock	2,926	—
Weighted average diluted shares outstanding	8,061,091	5,538,568
Earnings per diluted share:		
Net income (loss)	$ 0.21	$ (0.60)
Net income (loss) available to common stockholders	**$ 0.21**	**$ (0.60)**

Securities that could potentially dilute loss per share in the future that were not included in the computation of diluted loss per share at December 31, 2018 and 2017 are as follows:

	As of December 31,	
	2018	2017
Convertible preferred stock	2,926	2,926
Warrants to purchase common stock	1,249,754	1,249,754
Options to purchase common stock	528,427	328,490
Total	**1,781,107**	**1,581,170**

Recently Issued Accounting Standards

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") ASU No. 2016-02, *Leases (Topic 842)*, which supersedes FASB ASC Topic 840, *Leases (Topic 840)* and provides principles for the recognition, measurement, presentation and disclosure of leases for both lessees and lessors. The new standard requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. This classification will determine whether lease expense is recognized based on an effective interest method or on a straight-line basis over the term of the lease, respectively. A lessee is also required to record a right-of-use asset and a lease liability for all leases with a term of greater than twelve months regardless of classification. Leases with a term of twelve months or less will be accounted for similar to existing guidance for operating leases. The standard is effective for annual and interim periods beginning after December 15, 2018, with early adoption permitted upon issuance. The adoption of this standard is not expected to have a material impact on the Company's consolidated financial position and results of operations.

In July 2017, the FASB issued ASU 2017-11, *Earnings Per Share (Topic 260), Distinguishing Liabilities from Equity (Topic 480) and Derivatives and Hedging (Topic 815): I. Accounting for Certain Financial Instruments with Down Round Features; II. Replacement of the Indefinite Deferral for Mandatorily Redeemable Financial Instruments of Certain Nonpublic Entities and Certain Mandatorily Redeemable Noncontrolling Interests with a Scope Exception*, (ASU 2017-11). Part I of this update addresses the complexity of accounting for certain financial instruments with down round features. Down round features are features of certain equity-linked instruments (or embedded features) that result in the strike price being reduced on the basis of the pricing of future equity offerings. Current accounting guidance creates cost and complexity for entities that issue financial instruments (such as warrants and convertible instruments) with down round features that require fair value measurement of the entire instrument or conversion option. Part II of this update addresses the difficulty of navigating Topic 480, Distinguishing Liabilities from Equity, because of the existence of extensive pending content in the FASB Accounting Standards Codification. This pending content is the result of the indefinite deferral of accounting requirements about mandatorily redeemable financial instruments of certain nonpublic entities and certain mandatorily redeemable noncontrolling interests. The amendments in Part II of this update do not have an accounting effect. This ASU is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018. The Company adopted ASU 2017-11 on January 1, 2019 and the adoption did not have an impact on the Company's consolidated financial statements.

In June 2018, the FASB issued ASU 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting* ("ASU 2018-07"). ASU 2018-07 simplifies several aspects of the accounting for nonemployee share-based payment transactions resulting from expanding the scope of Topic 718, Compensation-Stock Compensation, to include share-based payment transactions for acquiring goods and services from nonemployees. ASU 2018-07 is effective for public business entities for fiscal years beginning after December 15, 2018, including interim periods within that fiscal year. The Company adopted ASU 2018-07 on January 1, 2019 and the adoption did not have an impact on the Company's consolidated financial statements

In August 2018, the SEC adopted the final rule under SEC Release No. 33-10532, Disclosure Update and Simplification, amending certain disclosure requirements that were redundant, duplicative, overlapping, outdated or superseded. In addition, the amendments expanded the disclosure requirements on the analysis of stockholders' equity for interim financial statements. Under the amendments, an analysis of changes in each caption of stockholders' equity presented in the balance sheet must be provided in a note or separate statement. The analysis should present a reconciliation of the beginning balance to the ending balance of each period for which a statement of comprehensive income is required to be filed. This final rule is effective on November 5, 2018. The Company is evaluating the impact of this guidance on its consolidated financial statements. The Company anticipates its first presentation of changes in stockholders' equity will be included in its Form 10-Q for the quarter ended March 31, 2019.

In August 2018, the FASB issued ASU 2018-13, "Fair Value Measurement (Topic 820), - Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement," which makes a number of changes meant to add, modify or remove certain disclosure requirements associated with the movement amongst or hierarchy associated with Level 1, Level 2 and Level 3 fair value measurements. This guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. Early adoption is permitted upon issuance of the update. The Company does not expect the adoption of this guidance to have a material impact on its consolidated Financial Statements.

Recently Adopted Accounting Standards

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers (Topic 606)" (ASU 2014-09) as modified by ASU No. 2015-14, "Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date," ASU 2016-08, "Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net)," ASU No. 2016-10, "Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing," and ASU No. 2016-12, "Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients." The revenue recognition principle in ASU 2014-09 is that an entity should recognize revenue to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In addition, new and enhanced disclosures will be required. Companies may adopt the new standard either using the full retrospective approach, a modified retrospective approach with practical expedients, or a cumulative effect upon adoption approach. The Company adopted the new standard effective January 1, 2018, using the modified retrospective approach. The Company has determined that its licenses represent functional intellectual property under Topic 606. Therefore, revenue is recognized at the point in time when the customer has the right to use the intellectual property rather than over the license period. Accordingly, the Company's deferred revenue related to its licenses was eliminated and accumulated deficit as of January 1, 2018 was decreased by approximately $3.2 million so that the Company will not recognize revenue on earnings statements in the future as to its license. Absent the adoption of ASC 606, the Company would have recorded approximately $1.0 million of deferred revenue for the year ended December 31, 2018.

In January 2016, the FASB issued ASU No. 2016-01, *Recognition and Measurement of Financial Assets and Financial Liabilities*. ASU No. 2016-01 requires equity investments to be measured at fair value with changes in fair value recognized in net income; simplifies the impairment assessment of equity investments without readily determinable fair values by requiring a qualitative assessment to identify impairment; eliminates the requirement for public business entities to disclose the methods and significant assumptions used to estimate the fair value that is required to be disclosed for financial instruments measured at amortized cost on the balance sheet; requires public business entities to use the exit price notion when measuring the fair value of financial instruments for disclosure purposes; requires an entity to present separately in other comprehensive income the portion of the total change in the fair value of a liability resulting from a change in the instrument-specific credit risk when the entity has elected to measure the liability at fair value in accordance with the fair value option for financial instruments; requires separate presentation of financial assets and financial liabilities by measurement category and form of financial assets on the balance sheet or the accompanying notes to the financial statements; and clarifies that an entity should evaluate the need for a valuation allowance on a deferred tax asset related to available-for-sale securities in combination with the entity's other deferred tax assets. ASU No. 2016-01 is effective for financial statements issued for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years. The Company adopted the provisions of ASU 2016-01 on January 1, 2018. The adoption of this update did not impact the Company's consolidated financial statements and related disclosures.

In May 2017, the Financial Accounting Standards Board (the FASB) issued ASU 2017-09, *Compensation-Stock Compensation (Topic 718): Scope of Modification Accounting*, (ASU 2017-09). ASU 2017-09 provides clarity and reduces both (1) diversity in practice and (2) cost and complexity when applying the guidance in Topic 718, to a change to the terms or conditions of a share-based payment award. The amendments in ASU 2017-09 should be applied prospectively to an award modified on or after the adoption date. This ASU is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017. The Company adopted ASU 2017-09 on January 1, 2018. The adoption of this ASU did not have a material impact on the Company's financial position or results of operations.

Note 4. Investments in Marketable Securities

The realized gain or loss, unrealized gain or loss, and dividend income related to marketable securities for the year ended December 31, 2018 and 2017, which are recorded as a component of other(expenses) income on the consolidated statements of operations, are as follows ($ in thousands):

	For the Years Ended December 31,	
	2018	2017
Realized gain (loss)	$ (400)	$ (328)
Unrealized gain (loss)	(117)	240
Dividend income	158	111
	$ (359)	$ 23

Note 5. Investment in Hoth Therapeutics, Inc.

On June 30, 2017 (the “Closing Date”), the Company entered into a Securities Purchase Agreement (the “Purchase Agreement”) with Hoth Therapeutics, Inc., a Nevada corporation (“Hoth”), for the purchase of an aggregate of 1,700,000 shares of common stock (which has been retroactively restated to reflect the 1-for-4 reverse stock split effected by Hoth on December 6, 2018), par value $0.0001 (the “Shares”), of Hoth, for a purchase price of $675,000. Hoth is a development stage biopharmaceutical company focused on unique targeted therapeutics for patients suffering from indications such as atopic dermatitis, also known as eczema. Hoth’s primary asset is a sublicense agreement with Chelexa Biosciences, Inc. (“Chelexa”) pursuant to which Chelexa has granted Hoth an exclusive sublicense to use its BioLexa products for the treatment of eczema.

On February 15, 2019, Hoth announced the pricing of its initial public offering (“IPO) of 1,250,000 shares of its common stock at an initial offering price to the public of $5.60 per share. All shares of common stock were offered by Hoth.

Hoth’s common stock commenced trading on The Nasdaq Capital Market, on February 15, 2019 under the ticker symbol “HOTH”. The IPO closed on February 20, 2019.

The Company records this investment at fair value and records any change in fair value in the statements of operations (see Note 8).

Note 6. Investment in DatChat, Inc.

On August 8, 2018, the Company entered into a securities purchase agreement (the "Securities Purchase Agreement") with DatChat. Under the Securities Purchase Agreement, the Company agreed to make a $1,000,000 strategic investment in DatChat. See Note 1 for further explanation.

As described in Note 3 to these consolidated financial statements, effective January 1, 2018, the Company adopted ASU 2016-01 concerning recognition and measurement of financial assets and financial liabilities. In adopting this new guidance, the Company has made an accounting policy election to adopt an adjusted cost method measurement alternative for its investment in DatChat.

Note 7. Intangible Assets

Patent Portfolio

The Company's intangible assets with finite lives consist of its patents and patent rights. For all periods presented, all of the Company's identifiable intangible assets were subject to amortization. The net carrying amounts related to acquired intangible assets are as follows ($ in thousands):

	Net Carrying Amount	Weighted average amortization period (years)
Patent Portfolios and Patent Rights at December 31, 2016, net	$ 4,951	3.65
Amortization expenses	(1,373)	
Patent Portfolios and Patent Rights at December 31, 2017, net	$ 3,578	2.67
Amortization expenses	(1,405)	
Impairment loss	(2,173)	
Patent Portfolios and Patent Rights at December 31, 2018, net	$ —	—

The Company reviews its patent portfolio for impairment as a single asset group whenever events or changes in circumstances indicate that the carrying value may not be recoverable.

The Company reviews its patent portfolio for impairment as a single asset group whenever events or changes in circumstances indicate that the carrying value may not be recoverable. During the year ended 2018, the Company determined that certain events occurred that were indicators of a potential impairment. In accordance with ASC 360-10, the Company first estimated the future undiscounted cash flows anticipated to be generated by the patent portfolio based on the Company's current usage and future plans for the patent portfolio over its remaining weighted average useful life. Given the short-term nature of the patents the undiscounted cash flows approximate discounted cash flows. The analysis concluded that the carrying amount of the patent portfolio was not recoverable. The Company recorded a $2.2 million impairment charge against its patent portfolio to write off the entire remaining balance of the intangible assets during the year ended December 31, 2018.

There was no impairment charges recorded during the year ended December 31, 2017.

Note 8. Fair Value of Financial Assets and Liabilities

Financial instruments, including cash and cash equivalents, accounts payable and accrued liabilities are carried at cost, which management believes approximates fair value due to the short-term nature of these instruments. The Company measures the fair value of financial assets and liabilities based on the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The Company maximizes the use of observable inputs and minimizes the use of unobservable inputs when measuring fair value.

The Company uses three levels of inputs that may be used to measure fair value:

Level 1 - quoted prices in active markets for identical assets or liabilities
Level 2 - quoted prices for similar assets and liabilities in active markets or inputs that are observable
Level 3 - inputs that are unobservable (for example, cash flow modeling inputs based on assumptions)

The following table presents the Company’s assets and liabilities that are measured at fair value at December 31, 2018 and 2017 ($ in thousands):

	Fair value measured at December 31, 2018			
	Total at December 31, 2018	**Quoted prices in active markets (Level 1)**	**Significant other observable inputs (Level 2)**	**Significant unobservable inputs (Level 3)**
Assets				
Marketable securities - exchange traded funds	$ 2,700	$ 2,700	$ —	$ —
Investments at Hoth	$ 9,214	$ —	$ —	$ 9,214
Liabilities				
Fair value of warrant liabilities	$ 82	$ —	$ —	$ 82

	Fair value measured at December 31, 2017			
	Total carrying value at December 31, 2017	**Quoted prices in active markets (Level 1)**	**Significant other observable inputs (Level 2)**	**Significant unobservable inputs (Level 3)**
Assets				
Marketable securities - mutual and exchange traded funds	$ 3,998	$ 976	$ 3,022	$ —
Investments at Hoth	$ 1,020	$ —	$ —	$ 1,020
Liabilities				
Fair value of warrant liabilities	$ 822	$ —	$ —	$ 822

There were no transfers between Level 1, 2 or 3 for the years ended December 31, 2018 and 2017.

Level 2 Valuation Techniques

The fair values of Level 2 marketable securities are determined using one or more quoted prices in markets that are not active or for which all significant inputs are observable, either directly or indirectly.

Level 3 Valuation Techniques

Level 3 Valuation Techniques – Assets

The following table sets forth a summary of the changes in the fair value of the Company's Level 3 financial assets that are measured at fair value on a recurring basis:

	Fair Value of Level 3 investment	
	December 31, 2018	December 31, 2017
Beginning balance	$ 1,020	$ —
Fair value of Hoth upon issuance	—	675
Change in fair value of Hoth	8,194	345
Ending balance	$ 9,214	$ 1,020

While the Company believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different estimate of fair value at the reporting date.

The decision to elect the fair value option, which is irrevocable once elected, is determined on an instrument by instrument basis and applied to an entire instrument. The net gains or losses, if any, on an investment for which the fair value option has been elected, are recognized as change in fair value of investment in the Consolidated Statements of Operations.

A summary of quantitative information with respect to the valuation methodology and significant unobservable inputs used for the Company's valuation in Hoth that are categorized within Level 3 of the fair value hierarchy at the date of issuance and as of December 31, 2018 and 2017 is as follows:

Date of valuation	December 31, 2018	December 31, 2017
Risk-free interest rate	2.45%	1.83%
Expected volatility	75.00%	75.00%
Contractual life (in years)	0.17	1.50

The investment in Hoth Therapeutics as of December 31, 2018 was valued using the PWERM (Probability Weighted Expected Return Method). Under this method, an analysis of future values of a company is performed for several likely scenarios. These scenarios included both a high and low range of values that were provided to Hoth Therapeutics by their investment bankers. The price per share was $6.50 and $5.50, respectively. The value is then discounted to the present using a risk-adjusted discount rate of 15%. The present values of the common stock under each scenario are then weighted based on the probability of each scenario occurring to determine the value of the investment. A 10% probability was placed on the high end and a 90% probability was placed on the low end.

The investment in Hoth Therapeutics as of December 31, 2017 was valued using a hybrid probability weighted expected return method, with scenarios including (1) Hoth continuing to operate as a private company through an estimated potential exit date, and (2) Hoth undergoing an IPO in the near future. The private-company scenario utilizes a reverse option pricing method (backsolve) based on the recent Series A transaction. Key inputs to the backsolve, in addition to the Series A price, include volatility (75.00%) and expected maturity (1.0 years). The IPO scenario is based on initial value indications proposed by investment bankers. The primary inputs, in addition to the pre-money value indications, include the estimated time to IPO (end of November) and a discount rate of 15%. The valuation conclusion is sensitive to the probability weightings assigned to each scenario. The weightings (1/3 IPO scenario, 2/3 private company scenario), were determined according to management expectations regarding exit opportunities, based on what was known or knowable as of December 31, 2017.

Intangible Assets Measured at Fair Value on a Non-Recurring Basis using Level 3 Inputs

The following tables presents the Company's hierarchy for nonfinancial assets measured at fair value on a non-recurring basis (in thousands):

	Net Carrying Value at December 31, 2018	Impairment Charges - Year Ended December 31, 2018
Assets		
Patent Portfolios, Net	$ —	$ 2,173

	Net Carrying Value at December 31, 2017	Impairment Charges - Year Ended December 31, 2017
Assets		
Patent Portfolios, Net	$ 3,578	$ —

The Company's intangible assets are measured at fair value on a non-recurring basis using Level 3 inputs. See Note 7 for valuation techniques for patents.

Level 3 Valuation Techniques – Liabilities

Level 3 financial liabilities consist of the warrant liabilities for which there is no current market for these securities such that the determination of fair value requires significant judgment or estimation. Changes in fair value measurements categorized within Level 3 of the fair value hierarchy are analyzed each period based on changes in estimates or assumptions and recorded as appropriate.

A significant decrease in the volatility or a significant decrease in the Company's stock price, in isolation, would result in a significantly lower fair value measurement. Changes in the values of the warrant liabilities are recorded in "change in fair value of warrant liabilities" in the Company's consolidated statements of operations.

The Series A and Series B warrants have been recorded at their fair value using the Black-Scholes valuation model, and will be recorded at their respective fair value at each subsequent balance sheet date. This model incorporates transaction details such as the Company's stock price, contractual terms, maturity, risk free rates, as well as volatility. The warrants require, at the option of the holder, a net-cash settlement following certain fundamental transactions at the Company or require the issuance of registered shares upon exercise, do not expressly preclude an implied right to cash settlement and are therefore accounted for as derivative liabilities.

A summary of quantitative information with respect to the valuation methodology and significant unobservable inputs used for the Company's warrant liabilities that are categorized within Level 3 of the fair value hierarchy at the date of issuance and as of December 31, 2018 and December 31, 2017 is as follows:

Date of valuation	December 31, 2018	December 31, 2017
Risk-free interest rate	2.48%	1.98%
Expected volatility	72.03% - 103.13%	100.00% - 132.21%
Contractual life (in years)	1.94-2.06	2.94 - 3.06
Expected dividend yield	—	—

The risk-free interest rate was based on rates established by the Federal Reserve. For the July 2015 Warrants, the expected volatility in the Black-Scholes model is based on an expected volatility of 100% for both periods which represents the percentage required to be used when valuing the cash settlement feature as contractually stated in the form of warrant. The general expected volatility is based on standard deviation of the Company's underlying stock price's daily logarithmic returns. The expected life of the warrants was determined by the expiration date of the warrants. The expected dividend yield was based upon the fact that the Company has not historically paid dividends on its common stock and does not expect to pay dividends on its common stock in the future.

The following table sets forth a summary of the changes in the fair value of the Company's Level 3 financial liabilities that are measured at fair value on a recurring basis for the year ended December 31, 2018 and 2017 ($ in thousands):

	Fair Value of Level 3 financial liabilities	
	December 31, 2018	December 31, 2017
Beginning balance	$ 822	$ 702
Fair value adjustment of warrant liabilities	(740)	120
Ending balance	$ 82	$ 822

Note 9. RPX License Agreement

Under an agreement between the Company and RPX Corporation ("RPX"), the Company granted RPX the ability to grant to VTech Telecommunications Ltd. ("VTech") a sublicense for a fully paid portfolio license in exchange for an additional $20,000 in cash consideration during the year ended December 31, 2017.

The license granted under the terms of the RPX License described herein does not extend to entities/companies that are not clients of RPX and provide chipsets or other hardware to current RPX clients.

During the year ended December 31, 2018 and 2017, the Company recorded approximately $0 and $957,000, respectively, in revenue related to the amortization of the license. The Company has determined that its licenses represent functional intellectual property under Topic 606. Therefore, revenue is recognized at the point in time when the customer has the right to use the intellectual property rather than over the license period. Accordingly, the Company's deferred revenue related to its licenses was eliminated through a debit adjustment in the amount of approximately $3.2 million through the accumulated deficit at the beginning of 2018. The Company will not recognize revenue from the RPX license in the future.

Note 10. Stockholders' Equity and Convertible Preferred Stock

Common Stock

2017 activity

On July 18, 2017, the Company entered into an underwriting agreement with Laidlaw & Company (UK) Ltd. with respect to the issuance and sale of an aggregate of 1,250,000 shares of the Company's common stock, par value $0.0001 per share, in a firm commitment underwritten public offering which closed on July 24, 2017. Each share was sold for a price of $2.00 for aggregate gross proceeds of $2.5 million, with net proceeds of approximately $2.1 million, after deducting the underwriting discounts and commissions (equivalent to 8% of gross proceeds) and estimated offering expenses.

2018 activity

On March 19, 2018, the Company closed a public offering of common stock for gross proceeds of approximately $3.0 million. The offering was a shelf takedown off of the Company's registration statement on Form S-3 (File No. 333-222488) and was conducted pursuant to a placement agency agreement (the "Agreement") between the Company and Laidlaw & Company (UK) Ltd., the sole placement agent, on a best-efforts basis with respect to the offering (the "Placement Agent"), that was entered into on March 14, 2018. The Company sold 2,222,222 shares of its common stock in the offering at a purchase price of $1.35 per share.

The Company had designated separate series of its capital stock as of December 31, 2018 and December 31, 2017 as summarized below:

	Number of Shares Issued and Outstanding as of			
	December 31, 2018	December 31, 2017	Par Value	Conversion Ratio
Series "A"	—	—	$ 0.0001	N/A
Series "C"	—	—	0.0001	0.05:1
Series "D"	4,725	4,725	0.0001	0.53:1
Series "D-1"	834	834	0.0001	0.53:1
Series "F-1"	—	—	0.0001	0.05:1
Series "H"	—	—	0.0001	0.53:1
Series "I"	—	—	0.0001	1.05:1
Series "J"	—	—	0.0001	0.05:1
Series "K"	—	—	0.0001	263.16:1

Series D Convertible Preferred Stock

In connection with the acquisition of North South's patent portfolio in September 2013, the Company issued 1,379,685 shares of its Series D Convertible Preferred Stock ("Series D Preferred Stock") to the stockholders of North South. Each share of Series D Preferred Stock has a stated value of $0.0001 per share and is convertible into ten-nineteenths of a share of Common Stock. Upon the liquidation, dissolution or winding up of the Company's business, each holder of Series D Preferred Stock shall be entitled to receive, for each share of Series D Preferred Stock held, a preferential amount in cash equal to the greater of (i) the stated value or (ii) the amount the holder would receive as a holder of Common Stock on an "as converted" basis. Each holder of Series D Preferred Stock shall be entitled to vote on all matters submitted to its stockholders and shall be entitled to such number of votes equal to the number of shares of Common Stock such shares of Series D Preferred Stock are convertible into at such time, taking into account the beneficial ownership limitations set forth in the governing Certificate of Designation and the conversion limitations described below. The conversion ratio of the Series D Preferred Stock is subject to adjustment in the event of stock splits, stock dividends, combination of shares and similar recapitalization transactions.

As of December 31, 2018 and 2017, 4,725 shares of Series D Preferred Stock remained issued and outstanding.

Series D-1 Convertible Preferred Stock

The Company's Series D-1 Convertible Preferred Stock ("Series D-1 Preferred Stock") was established on November 22, 2013. Each share of Series D-1 Preferred Stock has a stated value of $0.0001 per share and is convertible into ten- nineteenths of a share of Common Stock. Upon the liquidation, dissolution or winding up of the Company's business, each holder of Series D-1 Preferred Stock shall be entitled to receive, for each share of Series D-1 Preferred Stock held, a preferential amount in cash equal to the greater of (i) the stated value or (ii) the amount the holder would receive as a holder of Common Stock on an "as converted" basis. Each holder of Series D-1 Preferred Stock shall be entitled to vote on all matters submitted to the Company's stockholders and shall be entitled to such number of votes equal to the number of shares of Common Stock such shares of Series D-1 Preferred Stock are convertible into at such time, taking into account the beneficial ownership limitations set forth in the governing Certificate of Designation. The conversion ratio of the Series D-1 Preferred Stock is subject to adjustment in the event of stock splits, stock dividends, combination of shares and similar recapitalization transactions. The Company commenced an exchange with holders of Series D Convertible Preferred Stock pursuant to which the holders of the Company's outstanding shares of Series D Preferred Stock acquired in the Merger could exchange such shares for shares of the Company's Series D-1 Preferred Stock on a one-for-one basis.

As of December 31, 2018 and 2017, 834 shares of Series D-1 Preferred Stock remained issued and outstanding.

Warrants

A summary of warrant activity for year ended December 31, 2018 and 2017 is presented below:

	Warrants	Weighted Average Exercise Price	Total Intrinsic Value	Weighted Average Remaining Contractual Life (in years)
Outstanding as of December 31, 2017	1,249,754	$ 8.98	$ —	2.92
Outstanding as of December 31, 2018	1,249,754	$ 8.98		1.92

Stock Options

2012 Plan

At December 31, 2018, there were 521 shares available for grant under the 2012 Equity Incentive Plan.

2013 Plan

At December 31, 2018, there were 105,547 fully vested options outstanding and 41,821 shares available for grant under the Spherix Incorporated 2013 Equity Incentive Plan.

2014 Plan and Option Grants

At December 31, 2018, there were 422,880 options outstanding and 11,330 shares available for grant under the Spherix Incorporated 2014 Equity Incentive Plan.

The fair value of options granted in 2018 and 2017 was estimated using the following assumptions:

	For the Years Ended December 31,	
	2018	**2017**
Exercise price	$1.04-$1.50	$ 1.02
Expected stock price volatility	131.8%-132.2%	134.5%
Risk-free rate of interest	2.65%-2.80%	1.4%
Term (years)	9.13-9.34	4.42

A summary of option activity under the Company's employee stock option plan for year ended December 31, 2018 and 2017 is presented below:

	Number of Shares	Weighted Average Exercise Price	Total Intrinsic Value	Weighted Average Remaining Contractual Life (in years)
Outstanding as of December 31, 2017	325,597	$ 78.20	$ 5,999	3.2
Employee options granted	200,000	1.39	—	9.2
Outstanding as of December 31, 2018	525,597	$ 48.96	$ —	4.9
Options vested and expected to vest	525,534	$ 48.96	$ —	4.9
Options vested and exercisable	500,534	$ 51.35	$ —	4.6

A summary of options that the Company granted to non-employees for the year ended December 31, 2018 and 2017 is presented below:

	Number of Shares	Weighted Average Exercise Price	Total Intrinsic Value	Weighted Average Remaining Contractual Life (in years)
Outstanding as of December 31, 2017	2,893	$ 98.07	$ —	3.4
Outstanding as of December 31, 2018	2,893	$ 98.07	$ —	2.4
Options vested and expected to vest	2,893	$ 98.07	$ —	2.4
Options vested and exercisable	2,893	$ 98.07	$ —	2.4

Stock-based compensation associated with the amortization of stock option expense was $213,000 and $14,000 for the years ended December 31, 2018 and 2017, respectively.

Estimated future stock-based compensation expense relating to unvested stock options is approximately $8,000. The weighted average remaining contractual term of exercisable options is approximately 4.8 years at December 31, 2018.

Restricted Stock Awards

2017 activity

On October 11, 2017, the Company granted a consultant 5,000 shares of restricted common stock for consulting services. The restricted stock award vested immediately. The grant date fair value of restricted stock award was $8,400.

2018 activity

During 2018 approximately 84,410 shares with a fair value of approximately $106,000 was granted. These restricted stock awards vested immediately.

Restricted Stock Units

On March 14, 2017, 35,969 restricted stock units ("RSUs") were delivered to Anthony Hayes. 23,287 shares of common stock were withheld (at the closing price of the Company's common stock on the NASDAQ Capital Market on March 14, 2017) to satisfy the tax obligation relating to the vesting of the RSUs.

As of December 31, 2018, the Company did not have unrecognized stock-based compensation expense related to restricted stock unit awards.

Stock-based Compensation Expense

Stock-based compensation expense for the year ended December 31, 2018 and 2017 was comprised of the following ($ in thousands):

	For the Years Ended December 31,	
	2018	**2017**
Employee restricted stock awards	$ 107	$ —
Non-employee restricted stock awards	—	9
Employee stock option awards	213	14
Total compensation expense	**$ 320**	**$ 23**

Note 11. Commitments and Contingencies

Financing of Directors' and Officers' Insurance

The Company financed its Directors' and Officers' insurance policy for approximately $0.2 million. Payments are due monthly and the policy is for 12 months. Finance charges for the 12-month period are nominal. As of December 31, 2018, the Company owed approximately $0.1 million and such amounts were recorded in accrued expenses. The Company has made regular payments in accordance with this insurance policy.

Legal Proceedings

In the ordinary course of business, the Company actively pursues legal remedies to enforce its intellectual property rights and to stop unauthorized use of use technology. From time to time, the Company may be involved in various claims and counterclaims and legal actions arising in the ordinary course of business. There were no pending material claims or legal matters as of the date of this report other than the following matters:

International License Exchange of America, LLC Litigations

Optic153 LLC Litigations

Under our Monetization Agreement with Equitable, Optic 153 LLC, an Equitable subsidiary, has filed the following litigations relating to patents acquired under the terms of settlement of one of our prior litigations:

- On March 15, 2018, litigation against Lumentum Operations LLC, Case No. 1:18-cv-00406-VAC-CJB, in the in the U.S. District Court for the District of Delaware, related to alleged infringement of U.S. Patent No. 6,587,261. Such case settled in November of 2018 and the Company received its pro rata portion of the aggregate settlement amount of $200,000. A Notice of Voluntary Dismissal was filed on November 15, 2018 and the Court closed the case.

Counterclaims

In the ordinary course of business, we, or with our wholly-owned subsidiaries or monetization partners, will initiate litigation against parties whom we believe have infringed on our intellectual property rights and technologies. The initiation of such litigation exposes us to potential counterclaims initiated by the defendants. Currently, there are no counterclaims pending against us. In the event such counterclaims are filed, we can provide no assurance that the outcome of these claims will not have a material adverse effect on our financial position and results from operations.

Note 12. Income Taxes

The income tax provision consists of the following ($ in thousands):

	As of December 31,	
	2018	2017
Federal		
Current	$ —	$ —
Deferred	(517)	14,376
Decrease in valuation allowance	517	(14,376)
State and local		
Current	—	—
Deferred	(92)	(1,416)
(Decrease) Increase in valuation allowance	92	1,416
Change in valuation Allowance	610	(12,960)
Income Tax Provision (Benefit)	$ —	$ —

The following is a reconciliation of the U.S. federal statutory rate to the effective income tax rates for the years ended December 31, 2018 and 2017:

	For the years ended December 31,	
	2018	2017
U.S. Statutory Federal Rate	21%	34%
Federal tax rate change	—%	(456.08)%
State Taxes, Net of Federal Tax Benefit	3.91%	2.28%
Other Permanent Differences	1.76%	3.12%
State rate change in effect	—%	—%
Fair Value of Warrants	8.99%	(1.23)%
Increase due to true up of State NOL	—	26.00
Decrease due to change in Federal NOL and other true ups	(0.36)%	(0.12)%
Change in Valuation Allowance	(35.30)%	392.03%
Income Tax Provision (Benefit)	0.0	0.0

At December 31, 2018 and 2017, the Company's deferred tax assets and liabilities consisted of the effects of temporary differences attributable to the following ($ in thousands):

	As of December 31,	
	2018	2017
Deferred tax assets:		
Net-operating loss carryforward	$ 12,163	$ 9,608
Stock based compensation	5,444	5,368
Patent portfolio and other	11,201	11,317
Total Deferred Tax assets	28,808	26,293
Valuation allowance	(26,831)	(26,220)
Deferred Tax Asset, Net of valuation allowance	$ 1,977	$ 73
Deferred tax liability:		
Fair value adjustment of investment	(1,977)	(73)
Net deferred tax assets	$ —	$ —

On December 22, 2017, "H.R.1", formerly known as the "Tax Cuts and Jobs Act", was signed into law. Among other items, H.R.1 reduces the federal corporate tax rate to 21% from the existing maximum rate of 35%, effective January 1, 2018. As a result, the Company revalued its net deferred tax asset at the new lower tax rate and has reduced the value of the deferred tax asset before valuation allowance by $15.08 million.

Upon completion of our 2018 U.S. income tax return in 2019 we may identify additional re-measurement adjustments to our recorded deferred tax liabilities. We will continue to assess our provision for income taxes as future guidance is issued, but do not currently anticipate significant revisions will be necessary. Any such revisions will be treated in accordance with the measurement period guidance outlined in Staff Accounting Bulletin No. 118

After the enactment of the Act, the SEC issued Staff Accounting Bulletin No. 118 ("SAB 118") to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Act. In our financial statements for the period ended December 31, 2017, we calculated an estimate of the impact of the Act related to the remeasurement of our net U.S. deferred tax asset due to the change in U.S. federal corporate income tax rate. The provisional amount recorded was deferred tax expense of $12.960 million, but which was fully and equally offset by a deferred tax benefit related to a corresponding reduction in our valuation allowance. The Company had previously recorded a valuation allowance against the deferred tax asset so this adjustment had no impact on the financial statements for the period ended December 31, 2017. During the quarter ended December 31, 2018, the completed the accounting for the income tax effects of the Act, which resulted in an in an immaterial change in the net deferred tax asset, before valuation allowance, as of the enactment date.

In assessing the realization of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the period in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and taxing strategies in making this assessment. The Company has determined that, based on objective evidence currently available, it is more likely than not that, with

the exception of an Alternative Minimum Tax (AMT) carryforward, the deferred tax assets will not be realized in future periods. Accordingly, the Company has provided a partial-valuation allowance for the deferred tax assets with the exception of the AMT credit carryforward at December 31, 2018. As of December 31, 2018, the change in valuation allowance is approximately $610 thousand.

Under the Tax cuts and Jobs Act corporations are no longer subject to the Alternative Minimum Tax (AMT), effective for taxable years beginning after Dec. 31, 2017. However, where a corporation has an AMT credit from a prior taxable year, the corporation will continue to carry the credit forward and may use a portion of it as a refundable credit in any taxable year beginning after 2017 but before 2022. Generally, 50 percent of the corporation's AMT Credit carried forward to one of these years will be claimable and refundable for that year. In tax years beginning in 2021, however, the entire remaining carryforward generally will be refundable. The Company has an AMT credit carryforward of $40,842 as of December, 31, 2018. The Company will request the following refunds for the tax years ended December 31, 2019 through December 31, 2021:

Tax Year Ended:	AMT Credit Refund Request
December 31, 2019	$ 20,421
December 31, 2020	10,211
December 31, 2021	10,210
	$ 40,842

As of December 31, 2018, the Company had federal and state net operating loss carryovers ("NOLs") of approximately $52.53 million, which expire from 2019 through 2038. The NOL carryover may be subject to limitation under Internal Revenue Code section 382, should there be a greater than 50% ownership change as determined under the regulations.

As required by the provisions of ASC 740, the Company recognizes the financial statement benefit of a tax position only after determining that the relevant tax authority would more likely than not sustain the position following an audit. For tax positions meeting the more likely than not threshold, the amount recognized in the consolidated financial statements is the largest benefit that has a greater than 50 percent likelihood of being realized upon ultimate settlement with the relevant tax authority. Differences between tax positions taken or expected to be taken in a tax return and the net benefit recognized and measured pursuant to the interpretation are referred to as "unrecognized benefits." A liability is recognized (or amount of NOL or amount of tax refundable is reduced) for an unrecognized tax benefit because it represents an enterprise's potential future obligation to the taxing authority for a tax position that was not recognized as a result of applying the provisions of ASC 740.

If applicable, interest costs and penalties related to unrecognized tax benefits are required to be calculated and would be classified as interest and penalties in general and administrative expense in the statement of operations. As of December 31, 2018 and 2017, no liability for unrecognized tax benefit was required to be reported. No interest or penalties were recorded during the years ended December 31, 2018 and 2017. The Company does not expect any significant changes in its unrecognized tax benefits in the next year. The Company files U.S. federal and state income tax returns. As of December 31, 2018, the Company's U.S. and state tax returns (California, Delaware, Maryland, New York, New York City, Virginia, Pennsylvania and Texas) remain subject to examination by tax authorities beginning with the tax return filed for the year ended December 31, 2015, however, there were no audits pending in any of the above-mentioned jurisdictions during 2018. The Company believes that its income tax positions would be sustained upon an audit and does not anticipate any adjustments that would result in material changes to its consolidated financial position.

Note 13. Subsequent Events

The Company evaluates events that have occurred after the balance sheet date but before the consolidated financial statements are issued. Based upon the evaluation, the Company did not identify any recognized or non-recognized subsequent events that would have required adjustment or disclosure in the consolidated financial statements other than disclosed.

Notice of Delisting or Failure to Satisfy a Continued Listing Rule or Standard

On January 11, 2019, the Company received written notice (the "Notice") from the Listing Qualifications Department (the "Staff") of The NASDAQ Stock Market LLC ("Nasdaq") indicating that, based upon the Company's non-compliance with Nasdaq Listing Rule 5620(a), which requires an issuer to hold an annual meeting of shareholders no later than one year after the end of the Company's fiscal year-end (the "Annual Meeting Rule"), the Company would be required to submit a plan to regain compliance with the Annual Meeting Rule for the Staff's consideration by no later than February 25, 2019. The Notice has no immediate impact on the Company's listing or trading in the Company's securities on Nasdaq.

The Company has been provided an extension of up to 180 calendar days from the Company's fiscal year end, through July 1, 2019, to evidence compliance with the Annual Meeting Rule. As announced to the Company's stockholders on a Current Report on Form 8-K filed on February 6, 2019, the Company has established April 15, 2019 as the date of the Company's 2019 annual meeting of stockholders.

Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

Item 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain “disclosure controls and procedures,” as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, that are designed to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in Securities and Exchange Commission rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and our Chief Financial Officer, to allow timely decisions regarding required disclosure. In designing and evaluating our disclosure controls and procedures, management recognized that disclosure controls and procedures, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the disclosure controls and procedures are met. Additionally, in designing disclosure controls and procedures, our management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible disclosure controls and procedures.

The design of any disclosure controls and procedures also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. With respect to the annual period ended December 31, 2018, under the supervision and with the participation of our management, we conducted an evaluation of the effectiveness of the design and operations of our disclosure controls and procedures. Based upon this evaluation, our management has concluded that our disclosure controls and procedures were not effective as of December 31, 2018. We have a lack of segregation of duties, and a lack of controls in place to ensure that all material transactions and developments impacting the financial statements are reflected.

However, to the extent possible, we will implement procedures to assure that the initiation of transactions, the custody of assets and the recording of transactions will be performed by separate individuals. We believe that the foregoing steps will remediate the material weakness identified above, and we will continue to monitor the effectiveness of these steps and make any changes that our management deems appropriate.

Management is in the process of determining how best to make the required changes that are needed to implement an effective system of internal control over financial reporting. Our management acknowledges the existence of this problem, and intends to develop procedures to address it to the extent possible given the Company’s limitations in financial and human resources.

Management’s Annual Report on Internal Control over Financial Reporting

Our management, including our Chief Executive Officer and Interim Chief Financial Officer assessed the effectiveness of our internal control over financial reporting as of December 31, 2018 and concluded that our internal controls over financial reporting were not effective. In making this assessment, our management used the 2013 framework established in “Internal Control-Integrated Framework” promulgated by the Committee of Sponsoring Organizations of the Treadway Commission, commonly referred to as the “COSO” criteria.

In connection with management’s assessment of our internal control over financial reporting described above, management has identified the following material weaknesses in our internal control over financial reporting as of December 31, 2018.

(1) The Company has inadequate segregation of duties consistent with control objectives.
(2) Lack of controls in place to ensure that all material transactions and developments impacting the financial statements are reflected.

We are currently reviewing our internal controls and procedures related to these material weaknesses and expect to implement changes in the near term, including identifying specific areas within our governance, accounting and financial reporting processes to add adequate resources to potentially mitigate these material weaknesses.
(3) We do not have written documentation of our internal control policies and procedures.

Our management team will continue to monitor and evaluate the effectiveness of our disclosure controls and procedures and our internal controls over financial reporting on an ongoing basis and is committed to taking further action and implementing additional enhancements or improvements, as necessary and as funds allow.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation.

This Annual Report does not contain an attestation report of our independent registered public accounting firm regarding internal control over financial reporting since the rules for smaller reporting companies provide for this exemption.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the year ended December 31, 2018 which have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. OTHER INFORMATION

None.

PART III

All per share amounts and outstanding shares, including stock options, restricted stocks and warrants, have been retroactively adjusted for all periods on a post-Reverse Stock Split basis below. Further, exercise prices of stock options and warrants have been retroactively adjusted in these consolidated financial statements for all periods presented to reflect the 1-for-19 Reverse Stock Split. Numbers of shares of the Company's preferred stock were not affected by the Reverse Stock Split; however, the conversion ratios have been adjusted to reflect the Reverse Stock Split.

Item 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Directors and Executive Officers

The following table sets forth the name, age and position of each current director and executive officer of the Company.

Name	Age	Position	Director Since
Robert J. Vander Zanden (1)(2)(3)	73	Director and Chairman of the Board	2004
Anthony Hayes	51	Chief Executive Officer and Director	2013
Tim S. Ledwick (1)(2)	61	Director	2015
Eric Weisblum (1)(2)(3)	49	Director	2016
Gregory James Blattner (1)	41	Director	2018

(1) Member of our Audit Committee.
(2) Member of our Compensation Committee.
(3) Member of our Nominating Committee.

The biographies of our current directors are as follows:

Dr. Robert J. Vander Zanden

Dr. Robert J. Vander Zanden, a Board member since 2004, having served as a Vice President of R&D at Kraft Foods International, brings a long and distinguished career in applied technology, product commercialization, and business knowledge of the food science industry to us. Additionally, Mr. Vander Zanden has specific experience in developing organizations designed to deliver against corporate objectives. Dr. Vander Zanden holds a Ph.D. in Food Science and an M.S. in Inorganic Chemistry from Kansas State University, and a B.S. in Chemistry from the University of Wisconsin - Platteville, where he was named a Distinguished Alumnus in 2002. In his 30-year career, he has been with ITT Continental Baking Company as a Product Development Scientist; with Ralston Purina's Protein Technology Division as Manager Dietary Foods R&D; with Keebler as Group Director, Product and Process Development (with responsibility for all corporate R&D and quality); with Group Gamesa, a Frito-Lay Company, as Vice President, Technology; and with Nabisco as Vice President of R&D for their International Division. With the acquisition of Nabisco by Kraft Foods, he became the Vice President of R&D for Kraft's Latin American Division. Dr. Vander Zanden retired from Kraft Foods in 2004. He currently holds the title of Adjunct Professor and Lecturer in the Department of Food, Nutrition and Packaging Sciences at Clemson University, where he also is a member of their Industry Advisory Board. His focus on achieving product and process innovation through training, team building and creating positive working environments has resulted in his being recognized with many awards for product and packaging innovation. Mr. Vander Zanden executive experience provides him with valuable business expertise, which the Board believes qualifies him to serve as a director of the Company.

Anthony Hayes

Mr. Anthony Hayes, a director and Chief Executive Officer since 2013, has served as the Chief Executive Officer of North South since March 2013 and since June 2013, as a consultant to our Company. Mr. Hayes was the fund manager of JaNSOME IP Management LLC and JaNSOME Patent Fund LP from August 2012 to August 2013, both of which he co-founded. Mr. Hayes was the founder and Managing Member of Atwater Partners of Texas LLC from March 2010 to August 2012 and a partner at Nelson Mullins Riley & Scarborough LLP from May 1999 to March 2010. Mr. Hayes received his Juris Doctorate from Tulane University School of Law and his B.A. in economics from Mary Washington College. The Board believes Mr. Hayes is qualified to serve as a director of the Company based on his expansive knowledge of, and experience in, the patent monetization sector, as well as because of his intimate knowledge of the Company through his service as Chief Executive Officer. On March 10, 2017, as a result of Mr. Frank Reiner's resignation as Chief Financial Officer, Mr. Hayes began serving as the Company's Principal Accounting Officer.

Tim S. Ledwick

Mr. Tim S. Ledwick, who joined as a director in 2015, is currently the Chief Financial Officer of Management Health Solutions, a private equity-backed company that provides software solutions and services to hospitals focused on reducing costs through superior inventory management practices. In addition, since 2012 he has served on the board and as Chair of the Audit Committee of Telkonet, Inc. (TKOI) a smart energy management technology company. From 2007 to 2011, Mr. Ledwick provided CFO consulting services to AdvantageResourcing (former Advantage Human Resourcing, Inc.) a $150 million services firm and, in addition, from 2007-2008 also acted as special advisor to The Dellacorte Group, a middle market financial advisory firm focused on transactions between $100 million and $1 billion. From 2002 through 2006, Tim was a member of the Board of Directors and Executive Vice President-CFO of Dictaphone Corporation playing a lead role in developing a business plan which revitalized the company, resulting in the successful sale of the firm and delivering a seven times return to shareholders. From 2001-2002, Mr. Ledwick was brought on as CFO to lead the restructuring efforts of Lernout & Hauspie Speech Products, a Belgium-based NASDAQ listed speech technology company, whose market cap had at one point reached a high of $9 billion. From 1999 through 2001, he was CFO of Cross Media Marketing Corp, an $80 million public company headquartered in New York City, playing a lead role in the firm`s acquisition activity, tax analysis and capital raising. Mr. Ledwick is a member of the Connecticut Society of Certified Public Accountants and received his B.B.A. in accounting from The George Washington University and his M.S. in Finance from Fairfield University. The Board believes that Mr. Ledwick's executive experience and financial expertise qualifies him to serve as a director of the Company.

Eric Weisblum

Mr. Eric Weisblum, who joined as a director in 2016, is currently the Chief Executive Officer and a director of Point Capital Inc. (OTC:PTCI), where he has been employed since 2013 and prior to that was President of Sableridge Capital for five years . In addition to being an active investor in both public and private companies, Mr. Weisblum provides managerial assistance and guidance to help companies execute on their business strategy. Mr. Weisblum has reviewed, invested and worked with numerous public and private companies, and he has overseen the execution of M&A strategy in the micro-cap and small cap markets. Mr. Weisblum also co-founded Whalehaven, a hedge fund that has invested in over 100 public companies to date. Prior to Whalehaven, Mr. Weisblum was employed by M.H. Meyerson & Co. Inc., a full-service financial and investment-banking firm, with individual and institutional accounts. At M.H. Meyerson, Mr. Weisblum traded equities on behalf of numerous established funds, and originated, structured, and placed structured financing transactions. As a result, Mr. Weisblum brings with him nearly 20 years of experience in structuring and trading financial instruments. Mr. Weisblum holds a B.A. from the University of Hartford's Barney School of Business.

Gregory James Blattner

Mr. Blattner, who joined as a member of our Board in 2018, has nearly five years of experience in the alternative investment technology industry. Since January 2014, he has served as the Director of Business Development at Agio, a progressive managed information technology and cybersecurity services provider, where he is responsible for sales and account management of enterprise accounts. Prior to Agio, from May 2013 to December 2013, Mr. Blattner was a business development manager for the Eikon platform at Thomson Reuters. From 2010 to 2013, Mr. Blattner was a sales manager at American Express for its foreign exchange business. From 2005 to 2009, Mr. Blattner held various positions at JPMorgan, first in the operational risk management arm of the investment bank and later in Foreign Exchange product sales for its treasury services business. From 2000 to 2004, Mr. Blattner was an Associate at Morgan Stanley's corporate treasury funding desk. He earned a bachelor's degree from Iona College. The Company believes Mr. Blattner's extensive experience in technology and operations solutions make him a qualified appointee as director.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act, requires our directors and executive officers, and anyone who beneficially owns ten percent (10%) or more of our Common Stock, to file with the SEC initial reports of beneficial ownership and reports of changes in beneficial ownership of Common Stock. Anyone required to file such reports also need to provide us with copies of all Section 16(a) forms they file.

Based solely upon a review of (i) copies of the Section 16(a) filings received during or with respect to 2017 and (ii) certain written representations of our officers and directors, we believe that all filings required to be made pursuant to Section 16(a) of the Exchange Act during and with respect to 2018 were filed in a timely manner.

Code of Ethics

We have adopted a Code of Ethics, which is available on our website at www.spherix.com.

Audit Committee

We have a standing Audit Committee. The Audit Committee members are Mr. Ledwick, Chair, Dr. Vander Zanden and Eric Weisblum. The Committee has authority to review our financial records, deal with our independent auditors, recommend financial reporting policies to the Board, and investigate all aspects of our business. The Audit Committee Charter is available for your review on our website at www.spherix.com. Each member of the Audit Committee satisfies the independence requirements and other criteria established by NASDAQ and the SEC applicable to audit committee members. The Board has determined that Mr. Ledwick meets the requirements of an audit committee financial expert as defined in the SEC and NASDAQ rules.

Item 11. EXECUTIVE COMPENSATION

The following Summary of Compensation table sets forth the compensation paid by our Company during the two years ended December 31, 2018, to all Executive Officers earning in excess of $100,000 during any such year.

Summary of Compensation

Name and Principal Position	Year	Salary ($)	Bonus ($)	Stock Awards ($)	Option Awards ($)	Non-Equity Incentive Plan Compensation ($)(1)	Change in Pension Value and Non-Qualified Deferred Compensation Earnings ($)	All Other Compensation ($)	Total ($)
Anthony Hayes, Chief Executive Officer, Director,	2018	349,010	(3)	—	—	—	—	—	349,010
Principal Accounting Officer and Principal Financial Officer (2)	2017	349,430	490,000	88,499	3,045	—	—	—	930,974
Frank Reiner, Interim Chief Financial Officer (until March 10, 2017) (4)	2017	53,817	—	—	—	—	—	289,504	343,321

(1) Awards pursuant to the Spherix Incorporated 2013 Incentive Compensation Plan and 2014 Plan.

(2) On March 14, 2017, 35,969 restricted stock units (“RSUs”) were delivered to Anthony Hayes. 23,287 shares of common stock were withheld (at the closing price of the Company’s common stock on the NASDAQ Capital Market on March 14, 2017) to satisfy the tax obligation relating to the vesting of the RSUs.

(3) Amount of 2018 bonus is not calculable as of the date of this report.

(4) All stock options to Mr. Reiner were granted in accordance with ASC Topic 718. On March 10, 2017, Mr. Reiner and the Company entered into a separation agreement and general release, pursuant to which Mr. Reiner received payments due to him under the terms of his employment agreement as well as a lump sum payment of $18,504 in lieu of his right to continue health insurance coverage under the Company’s group health plan.

Narrative Disclosure to Summary Compensation Table

Executive Officer Agreements

On April 1, 2016, we entered into an employment agreement with Mr. Anthony Hayes pursuant to which Mr. Hayes serves as the Chief Executive Officer for a period of one year, subject to renewal. In consideration for his employment, we agreed to pay Mr. Hayes a base salary of $350,000 per annum. Mr. Hayes will be entitled to receive an annual bonus in an amount equal to up to 100% of his base salary if we meet or exceed certain criteria adopted by our Compensation Committee. We further agreed to grant executive restricted stock units, pursuant to the Corporation's 2014 Equity Incentive Plan, with respect to 118,512 shares of the Company's common stock. One-half of the grant shall vest if as of December 31, 2016, the Corporation has pro-forma cash of at least five million dollars ($5,000,000) (cash plus any cash used for a Board-approved extraordinary acquisition or transaction reconstituting the Company's core operations, less accrued bonuses) and one-half shall vest upon the Company meeting certain agreed upon criteria. As of December 31, 2016, 59,256 restricted stock units were vested and 59,256 restricted stock units were forfeited.

On October 19, 2017, the Company entered into an amendment to the employment agreement of Mr. Hayes, pursuant to which, effective January 1, 2017, Mr. Hayes was entitled to receive an annual cash bonus in an amount equal to up to $250,000 if the Company meets or exceeds certain criteria adopted by the Compensation Committee of the Company's Board of Directors. In addition, Mr. Hayes was awarded a restricted stock unit grant for 30,000 shares of the Company's common stock under the Company's 2014 Equity Incentive Plan. Such grant shall vest in installments, in tandem with the satisfaction of the same criteria to which the cash bonus is subject. If all criteria are met, 100% of the grant of restricted stock units shall vest upon the determination of the Compensation Committee, which in any event shall not be later than March 15, 2018. All other terms of Mr. Hayes' employment agreement, effective as of April 1, 2016, remain in full force and effect.

Potential Payment upon Termination or Change in Control

Under the April 1, 2016 employment agreement with Mr. Hayes, we have agreed to, in the event of termination by us without "cause" or pursuant to a change in control, grant Mr. Hayes, in addition to reimbursement of any documented, unreimbursed expenses incurred prior to such date, (i) any unpaid compensation and vacation pay accrued during the term of the Employment Agreement, and any other benefits accrued to him under any of our benefit plans outstanding at such time, (ii) twelve (12) months base salary at the then current rate to be paid in a single lump sum within thirty (30) days of Mr. Hayes' termination, (iii) continuation for a period of twelve (12) months of any benefits as extended to our executive officers from time to time, including but not limited to group health care coverage and (iv) payment on a pro rata basis of any annual bonus or other payments earned in connection with any bonus plans to which Mr. Hayes was a participant as of the date of termination. In addition, any options or restricted stock shall be immediately vested upon termination of Mr. Hayes's employment without "cause" or pursuant to a change in control.

Under the March 14, 2014 employment agreement with Mr. Frank Reiner, in the event of a termination or non-renewal of his employment without "cause" or pursuant to the consummation of a change in control, we have agreed to grant Mr. Reiner in addition to reimbursement of any documented, unreimbursed expenses incurred prior to such date, (i) any unpaid compensation and vacation pay accrued during two years commencing on March 14, 2014 or any then applicable extension of the term of Mr. Reiner's employment, and any other benefits accrued to him under any of our benefit plans outstanding at such time, (ii) twelve (12) months' base salary at the then current rate to be paid in a single lump sum within sixty (60) days of Mr. Reiner's termination, (iii) continuation for a period of twelve (12) months of any benefits as extended to our executive officers from time to time and (iv) payment on a pro rata basis of any annual bonus or other payments earned in connection with any bonus plans to which Mr. Reiner was a participant as of the date of termination. In addition, any options or restricted stock shall be immediately vested upon termination or non-renewal of Mr. Reiner's employment without "cause" or pursuant to a change in control. In March 2017, Mr. Reiner and the Company agreed not to renew Mr. Reiner's employment agreement and Mr. Reiner received his non-renewal compensation. On March 10, 2017, Mr. Reiner and the Company entered into a separation agreement and general release, pursuant to which Mr. Reiner received payments due to him under the terms of his employment agreement as well as a lump sum payment of $18,504 in lieu of his right to continue health insurance coverage under the Company's group health plan.

Outstanding Equity Awards at December 31, 2018

	Option Awards			
Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price ($)	Option Expiration Date
Anthony Hayes	39,472	—	$ 134.52	4/1/2023
	13,158	—	$ 54.34	4/3/2019
	5,263	—	$ 34.01	7/15/2019
	3,947	—	$ 1.98	5/2/2021
	3,947	—	$ 1.02	5/30/2022

Director Compensation

The following table summarizes the compensation paid to non-employee directors during the year ended December 31, 2018.

	Fees earned or paid in cash ($)	Stock Awards ($) (1)	Option Awards ($) (1)	Non-Equity Incentive Plan Compensation ($)	Change in Pension Value and Non-Qualified Deferred Compensation Earnings ($)	All Other Compensation($)	Total ($)
Eric Weisblum (2)	60,000	26,600	57,613	—	—	—	144,213
Robert J. Vander Zanden (3)	60,000	26,600	57,613	—	—	—	144,213
Tim Ledwick (4)	60,000	26,600	57,613	—	—	—	144,213
Gregory Blattner (5)	39,561	—	45,649	—	—	—	85,210

(1) All stock options were granted in accordance with ASC Topic 718.
(2) Mr. Weisblum was paid $60,000 in cash compensation for his service as a director in 2018. In addition, in February 2018, Mr. Weisblum was granted options to purchase 50,000 shares of Common Stock, with a term of ten years and an exercise price of $1.50, vesting with 50% vesting immediately and the remaining 50% vesting on the six months anniversary of the date of issue.
(3) Mr. Vander Zanden was paid $60,000 in cash compensation for his service as a director in 2018. In addition, in February 2018, Mr. Vander Zanden was granted options to purchase 50,000 shares of Common Stock, with a term of ten years and an exercise price of $1.50, vesting with 50% vesting immediately and the remaining 50% vesting on the six months anniversary of the date of issue.
(4) Mr. Ledwick was paid $60,000 in cash compensation for his service as a director in 2018. In addition, in February 2018, Mr. Ledwick was granted options to purchase 50,000 shares of Common Stock, with a term of five years and an exercise price of $1.50, vesting with 50% vesting immediately and the remaining 50% vesting on the six months anniversary of the date of issue.
(5) Mr. Blattner was paid $39,561 in cash compensation for his service as a director in 2018. In addition, in May 2018, Mr. Blattner was granted options to purchase 50,000 shares of Common Stock, with a term of five years and an exercise price of $1.04, vesting with 50% vesting immediately and the remaining 50% vesting on the one year anniversary of the date of issue.

Non-employee directors received the following annual compensation for service as a member of the Board for the fiscal year ended December 31, 2018:

Annual Retainer	$	60,000	To be paid in cash in four equal quarterly installments.
Stock Options		50,000	Options to acquire shares of our Common Stock, pursuant to and subject to the available number of shares under the 2014 Plan, to be granted on the date of our Annual Meeting. The options will have an exercise price equal to the closing price on the trading day immediately preceding the date of issuance and be exercisable for a period of ten (10) years with 50% vesting immediately on the date of issue and the remaining 50% vesting on the six month anniversary date of the issue so long as the optionee has not been removed as a director of Spherix for cause.
Additional Retainer	$	5,000	To be paid to the Chairman of the Board upon election annually.

Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT, AND RELATED STOCKHOLDERS

Securities Authorized for Issuance under Equity Compensation Plans

The following table provides information about our Common Stock that may be issued upon the exercise of options, warrants and rights under all of our existing equity compensation plans as of December 31, 2018.

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (1)	Weighted average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (1)) (2)
Equity compensation plans approved by security holder	528,427	$ 49.23	53,672
Equity compensation plans not approved by security holder	—	—	—
	528,427		53,672

(1) Consists of options to acquire 105,547 shares of our common stock under the 2013 Equity Incentive Plan and 422,880 under the 2014 Equity Incentive Plan.

(2) Consists of shares of Common Stock available for future issuance under our equity incentive plans.

Beneficial Ownership of our Capital Stock by Certain Beneficial Owners and Management

The following tables set forth certain information concerning the number of shares of our Common Stock, Series D Preferred Stock and Series D-1 Preferred Stock owned beneficially as of March 6, 2019 by (i) our officers and directors as a group and (ii) each person (including any group) known to us to own more than 5% of our Common Stock, Series D Preferred Stock and Series D-1 Preferred Stock. As of March 6, 2019 there were 8,542,530 shares of Common Stock outstanding, 4,725 shares of Series D Preferred Stock outstanding and 834 shares of Series D-1 Preferred Stock outstanding. Unless otherwise indicated, it is our understanding and belief that the stockholders listed possess sole voting and investment power with respect to the shares shown.

	Common Stock Beneficially Owned(2)		Series D Preferred Stock(2)		Series D-1 Preferred Stock(2)	
Name of Beneficial Owner(1)	Shares	Percentage	Shares	Percentage	Shares	Percentage
Robert J. Vander Zanden	101,268(3)	1.19%	—	—	—	—
Anthony Hayes	117,970(4)	1.38%	—	—	—	—
Tim S. Ledwick	91,841(5)	1.08%	—	—	—	—
Eric Weisblum	77,894(6)	*	—	—	—	—
Gregory James Blattner	25,000(7)	*				
All Directors and Officers as a Group (5 persons)		4.85%	—	—	—	—
Stockholders						
Daniel W. Armstrong 611 Loch Chalet Ct Arlington, TX 76012-3470	—	—	1,350	28.57%	—	—
R. Douglas Armstrong 570 Ocean Dr. Apt 201 Juno Beach, FL 33408-1953	—	—	450	9.52%	—	—
Thomas Curtis 4280 10 Oaks Road Dayton, MD 21036-1124	—	—	900	19.05%	—	—
Francis Howard 376 Victoria Place London, SW1 V1AA United Kingdom	—	—	900	19.05%	—	—
Charles Strogen 6 Winona Ln Sea Ranch Lakes, FL 33308-2913	—	—	1,125	23.81%	—	—
Chai Lifeline Inc. 151 West 30th Street, Fl 3 New York, NY 10001-4027	—	—	—	—	834	100%

* Less than 1% of the outstanding shares of the Company Common Stock.

(1) Under Rule 13d-3 of the Exchange Act a beneficial owner of a security includes any person who, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise has or shares: (i) voting power, which includes the power to vote or to direct the voting of shares; and (ii) investment power, which includes the power to dispose or direct the disposition of shares. Certain shares may be deemed to be beneficially owned by

more than one person (if, for example, persons share the power to vote or the power to dispose of the shares). In addition, shares are deemed to be beneficially owned by a person if the person has the right to acquire the shares (for example, upon exercise of an option) within 60 days of the date as of which the information is provided. In computing the percentage ownership of any person, the amount of shares outstanding is deemed to include the amount of shares beneficially owned by such person (and only such person) by reason of these acquisition rights.

(2) Based on 8,542,530 shares of our Common Stock outstanding as of March 6, 2019 and takes into account the beneficial ownership limitations governing the Series D Preferred Stock and Series D-1 Preferred Stock. Beneficial ownership limitations on our Series D Preferred Stock prevent the conversion or voting of the stock if the number of shares of Common Stock to be issued pursuant to such conversion or to be voted would exceed, when aggregated with all other shares of Common Stock owned by the same holder at the time, the number of shares of Common Stock which would result in such holder beneficially owning more than 4.99% of all of the Common Stock outstanding at such time, subject to an increase in such limitation up to 9.99% of the issued and outstanding Common Stock on 61 days' written notice to us. Beneficial ownership limitations on our Series D-1 Preferred Stock prevent the conversion or voting of the stock if the number of shares of Common Stock to be issued pursuant to such conversion or to be voted would exceed, when aggregated with all other shares of Common Stock owned by the same holder at the time, the number of shares of Common Stock which would result in such holder beneficially owning more than 9.99% of all of the Common Stock outstanding at such time.

(3) Includes 21,007 shares of Common Stock, 80,261 options for purchase of Common Stock exercisable as of March 6, 2019.

(4) Includes 52,183 shares of Common Stock, and 65,787 options for purchase of Common Stock exercisable as of March 6, 2019.

(5) Includes 30,000 shares of Common Stock, 61,841 options for purchase of Common Stock exercisable as of March 6, 2019.

(6) Includes 20,000 shares of Common Stock, 57,894 options for purchase of Common Stock exercisable as of March 6, 2019.

(7) Includes 25,000 options for purchase of Common Stock exercisable as of March 6, 2019, and 25,000 options for purchase of Common Stock exercisable within 60 days of March 6, 2019.

Effective January 1, 2013, and as amended and restated on June 9, 2017, the Company and Equity Stock Transfer, LLC entered into a Rights Agreement, which was subsequently assigned to Transfer Online Inc. as Rights Agent on June 20, 2016. The Rights Agreement provides each stockholder of record a dividend distribution of one "right" for each outstanding share of Common Stock. Rights become exercisable at the earlier of ten days following: (1) a public announcement that an acquirer has purchased or has the right to acquire 10% or more of our Common Stock, or (2) the commencement of a tender offer which would result in an offer or beneficially owning 10% or more of our outstanding Common Stock. All rights held by an acquirer or offer or expire on the announced acquisition date, and all rights expire at the close of business on December 31, 2020, subject to further extension. Each right entitles a stockholder to acquire, at a price of $7.46 per one nineteen-hundredths of a share of our Series A Preferred Stock, subject to adjustments, which carries voting and dividend rights similar to one share of our Common Stock. Alternatively, a right holder may elect to purchase for the stated price an equivalent number of shares of our Common Stock at a price per share equal to one-half of the average market price for a specified period. In lieu of the stated purchase price, a right holder may elect to acquire one-half of the Common Stock available under the second option. The purchase price of the preferred stock fractional amount is subject to adjustment for certain events as described in the Agreement. At the discretion of a majority of the Board of Directors and within a specified time period, we may redeem all of the rights at a price of $0.001 per right. The Board may also amend any provisions of the Agreement prior to exercise.

Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

On June 30, 2015, our Board of Directors appointed Frank Reiner as Interim Chief Financial Officer. Pursuant to Mr. Reiner's employment agreement with the Company, dated as of March 14, 2014, as amended, the term of Mr. Reiner's employment was one year and automatically extended for additional one-year terms unless no less than 60 days' prior written notice of non-renewal is given by Mr. Reiner or us. Mr. Reiner's base salary under his employment agreement was $235,000 per year, but in connection with being named Interim Chief Financial Officer, the Board of Directors authorized an amendment to Mr. Reiner's employment agreement to increase Mr. Reiner's base salary to $271,000. On March 10, 2017, Mr. Reiner and the Company entered into a separation agreement and general release, pursuant to which Mr. Reiner received payments due to him under the terms of his employment agreement as well as a lump sum payment of $18,504 in lieu of his right to continue health insurance coverage under the Company's group health plan.

The current Board of Directors consists of Mr. Tim S. Ledwick, Mr. Anthony Hayes, Dr. Robert J. Vander Zanden, Mr. Eric Weisblum and Mr. Gregory James Blattner. The Board of Directors has determined that Dr. Vander Zanden, Mr. Ledwick, Mr. Weisblum and Mr. Blattner are independent directors within the meaning of the applicable NASDAQ rules. Our Audit, Compensation, and Nominating Committees consist solely of independent directors.

We have not adopted written policies and procedures specifically for related person transactions. Our Board of Directors is responsible to approve all related party transactions, and approved each of the transactions set forth above.

Item 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

Fees Paid to Auditor

The following table sets forth the fees paid by our Company to Marcum LLP for audit and other services provided in 2018 and 2017.

	2018	2017
Audit Fees	$ 127,779	$ 85,682
Audit Related Fees	—	—
Tax Fees	—	—
All Other Fees	—	—
Total	127,779	85,682

Policy on Audit Committee Pre-Approval of Audit and Permissible Non-Audit Services of Independent Auditors

Consistent with SEC policies and guidelines regarding audit independence, the Audit Committee is responsible for the pre-approval of all audit and permissible non-audit services provided by our principal accountants. Our Audit Committee has established a policy regarding approval of all audit and permissible non-audit services provided by our principal accountants. No non-audit services were performed by our principal accountants during the fiscal years ended December 31, 2018 and 2017. Our Audit Committee pre-approves these services by category and service. Our Audit Committee has pre-approved all of the services provided by our principal accountants.

PART IV

Item 15. EXHIBITS, FINANCIAL STATEMENTS, SCHEDULES

Consolidated Financial Statements

The following financial statements are included in Item 8 herein:

Report of Independent Registered Public Accounting Firm

Consolidated Balance Sheets as of December 31, 2018 and 2017

Consolidated Statements of Operations for the Years Ended December 31, 2018 and 2017

Consolidated Statements of Changes in Stockholders' Equity for the Years Ended December 31, 2018 and 2017

Consolidated Statements of Cash Flows for the Years Ended December 31, 2018 and 2017

Notes to Consolidated Financial Statements

2. **Financial Statement Schedules**

None

Exhibits

Exhibit No.	Description
1.1	Underwriting Agreement, dated July 18, 2017, between Spherix Incorporated and Laidlaw & Co. (UK) Ltd (incorporated by reference to Form 8-K filed July 24, 2017)
1.2	Placement Agency Agreement, dated July 15, 2015, between Spherix Incorporated and Chardan Capital Markets LLC (incorporated by reference to Form 8-K filed July 17, 2015)
3.1	Amended and Restated Certificate of Incorporation of Spherix Incorporated, dated April 24, 2014 (incorporated by reference to Form 8-K filed April 25, 2014)
3.2	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of Spherix Incorporated, dated March 2, 2016 (incorporated by reference to Form 8-K filed March 18, 2016)
3.3	Amended and Restated Bylaws of Spherix Incorporated (incorporated by reference to Form 8-K filed October 15, 2013)
3.4	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of Spherix Incorporated, effective March 4, 2016 (incorporated by reference to Form 10-K filed March 29, 2016)
4.1	Specimen Certificate for common stock, par value $0.0001 per share, of Spherix Incorporated (incorporated by reference to Form S-3/A filed April 17, 2014)
4.2	Rights Agreement dated as of January 24, 2013, between Spherix Incorporated and Equity Stock Transfer, LLC (incorporated by reference to Form 8-K filed January 30, 2013)

4.3	Amended and Restated Rights Agreement, dated as of June 9, 2017, between Spherix Incorporated and Transfer Online Inc. (incorporated by reference to Form 8-K filed June 9, 2017)
4.4	Certificate of Designation of Preferences, Rights and Limitations of Series J Convertible Preferred Stock (incorporated by reference to Form 8-K/A filed on June 2, 2014)
4.5	Certificate of Designation of Preferences, Rights and Limitations of Series K Convertible Preferred Stock (incorporated by reference to Form 8-K filed on December 3, 2015)
4.6	Form of Warrant (incorporated by reference to Form 8-K filed on March 26, 2014)
4.7	Form of Placement Agent Warrant (incorporated by reference to Form 8-K filed on March 26, 2014)
4.8	Form of Common Stock Purchase Warrant (incorporated by reference to Form 8-K filed July 17, 2015)
4.9	Form of Warrant (incorporated by reference to Form 8-K filed December 3, 2015)
10.1	2012 Equity Incentive Plan (incorporated by reference from the Company's Information Statement on Definitive 14C filed November 26, 2012)
10.2	Warrant Exchange Agreement dated March 1, 2013 between the Company and certain investors (incorporated by reference to Form 8-K filed March 7, 2013)
10.3	Agreement and Plan of Merger dated April 2, 2013 (incorporated by reference to the Form 8-K filed on April 4, 2013)
10.4	First Amendment to Agreement and Plan of Merger dated August 30, 2013 (incorporated by reference to the Form 8-K filed on September 4, 2013)
10.5	Spherix Incorporated 2013 Equity Incentive Plan (incorporated by reference to the Form 8-K filed on April 4, 2013)
10.6	Spherix Incorporated 2014 Equity Incentive Plan (incorporated by reference from the Company's Proxy Statement on Form DEF 14A filed December 20, 2013)
10.7	Amendment to Spherix Incorporated 2014 Equity Incentive Plan (incorporated by reference from the Company's Proxy Statement on Form DEF 14A filed March 28, 2014)
10.8	Form of Indemnification Agreement (incorporated by reference to the Form 8-K filed on September 10, 2013)
10.9	Employment Agreement between Spherix Incorporated and Anthony Hayes (incorporated by reference to the Form 8-K filed on September 13, 2013)
10.10	Indemnification Agreement between Spherix Incorporated and Jeffrey Ballabon (incorporated by reference to the Form 8-K filed on June 13, 2014)
10.11**	Patent Purchase Agreement between Spherix Incorporated and Rockstar Consortium US LP, including Amendment No. 1 thereto (incorporated by reference to the Form 8-K/A filed on November 19, 2013)
10.12	Form of Series F Exchange Agreement (incorporated by reference to the Form 8-K filed on November 26, 2013)
10.13	Form of Series D Exchange Agreement (incorporated by reference to the Form 8-K filed on December 30, 2013)
10.14	Confidential Patent Purchase Agreement dated December 31, 2013 between Spherix Incorporated and Rockstar Consortium US LP (incorporated by reference to the Form S-1/A filed January 21, 2014)
10.15	Form of Subscription Agreement (incorporated by reference to the Form 8-K filed March 26, 2014)

10.16	Form of Registration Rights Agreement (incorporated by reference to the Form 8-K filed March 26, 2014)
10.17	Form of Subscription Agreement (incorporated by reference to the Form 8-K filed on May 29, 2014)
10.18	Letter of Agreement, dated January 6, 2014, between Spherix Incorporated and Chord Advisors, LLC (incorporated by reference to the Form 10-K filed on March 30, 2015)
10.19	Letter of Agreement, dated April 11, 2014, between Spherix Incorporated and Chord Advisors, LLC (incorporated by reference to the Form 10-K filed on March 30, 2015)
10.20	Securities Purchase Agreement, dated July 15, 2015, between Spherix Incorporated and the purchasers party thereto (incorporated by reference to Form 8-K filed July 17, 2015)
10.21	Employment Agreement, dated as of March 14, 2014, between Spherix Incorporated and Frank Reiner (incorporated by reference to Form 10-K filed March 29, 2016)
10.22	Amendment to Employment Agreement, dated as of June 30, 2015, between Spherix Incorporated and Frank Reiner (incorporated by reference to Form 10-K filed March 29, 2016)
10.23	Settlement and License Agreement, dated October 13, 2015, between Spherix Incorporated and Huawei Technologies Co., Ltd. (incorporated by reference to Form 10-K filed March 29, 2016)
10.24	Patent License Agreement, dated as of November 23, 2015, between Spherix Incorporated and RPX Corporation (incorporated by reference to Form 8-K filed November 30, 2015
10.25	Securities Purchase Agreement, dated as of December 2, 2015, between Spherix Incorporated and the investors party thereto (incorporated by reference to Form 8-K filed December 3, 2015)
10.26	Engagement Agreement, dated September 16, 2015, as amended, between Spherix Incorporated and H.C. Wainwright & Co., LLC (incorporated by reference to Form 8-K filed December 3, 2015)
10.27	Employment Agreement, effective as of April 1, 2016, between Spherix Incorporated and Anthony Hayes (incorporated by reference to Form 8-K filed May 26, 2016)
10.28	Amendment to Employment Agreement between Spherix Incorporated and Anthony Hayes (incorporated by reference to the Form 8-K filed on October 25, 2017)
10.29	Separation Agreement and Release, dated March 10, 2017, between Spherix Incorporated and Frank Reiner (incorporated by reference to Form 8-K filed March 15, 2017)
10.30	Patent License Agreement, dated as of May 23, 2016, between Spherix Incorporated and RPX Corporation (incorporated by reference to Form 10-Q filed August 15, 2016)
10.31	Technology Monetization Agreement, dated as of March 11, 2016, and amended as of April 22, 2016, April 27, 2016 and May 22, 2016, between Spherix Incorporated and Equitable IP Corporation (incorporated by reference to Form 8-K filed August 2, 2016)
10.32	Underwriting Agreement, dated as of August 2, 2016, by and among Spherix Incorporated and the underwriters named on Schedule I thereto (incorporated by reference to Form 8-K filed August 3, 2016)
10.33	Assignment and Assumption of Rights Agreement, dated as of June 16, 2016, by and between Spherix Incorporated and Transfer Online, Inc. (incorporated by reference to Form 8-K filed June 21, 2016)
10.34	Securities Purchase Agreement, dated as of June 30, 2017, by and between Spherix Incorporated and Hoth Therapeutics, Inc. (incorporated by reference to Form 8-K filed July 3, 2017)

10.35	Registration Rights Agreement, dated as of June 30, 2017, by and between Spherix Incorporated and Hoth Therapeutics, Inc. (incorporated by reference to Form 8-K filed July 3, 2017)
10.36	Form of Shareholders Agreement, dated as of June 30, 2017 (incorporated by reference to Form 8-K filed July 3, 2017)
10.37	Agreement and Plan of Merger, dated as of March 12, 2018, by and among Spherix Incorporated, Spherix Merger Subsidiary Inc., DatChat, Inc. and Darin Myman (incorporated by reference to Form 8-K filed March 14, 2018)
10.38	Placement Agency Agreement, dated as of March 14, 2018, between Spherix Incorporated and Laidlaw & Company (UK) Ltd. (incorporated by reference to Form 8-K filed March 19, 2018)
10.39	First Amendment to Agreement and Plan of Merger, dated as of May 3, 2018, by and among Spherix Incorporated, Spherix Merger Subsidiary Inc., DatChat, Inc. and Darin Myman (incorporated by reference to Form 8-K filed May 7, 2018)
10.40	Agreement and Plan of Merger, dated as of October 10, 2018, by and among Spherix Incorporated, Spherix Delaware Merger Sub Inc., Scott Wilfong and CBM Biopharma, Inc. (incorporated by reference to Form 8-K filed October 16, 2018)
21.1*	List of Subsidiaries
23.1*	Consent of Marcum LLP, independent registered public accounting firm
31.1*	Certification of Principal Executive Officer pursuant to Item 601(b)(31) of Regulation S-K, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1*	Certification of Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema Document
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase Document

* Filed herewith.

** Pursuant to a Confidential Treatment Request under Rule 24b-2 filed with and approved by the SEC, portions of this exhibit have been omitted

Item 16. Form 10-K Summary

Not applicable.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Spherix Incorporated
(Registrant)

By: /s/ Anthony Hayes
Anthony Hayes
Chief Executive Officer and Director (Principal Executive Officer, Principal Financial Officer and Principal Accounting Officer)

Date: March 11, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

/s/ Anthony Hayes Anthony Hayes	Chief Executive Officer and Director	March 11, 2019
/s/ Tim S. Ledwick Tim S. Ledwick	Director	March 11, 2019
/s/ Robert J. Vander Zanden Robert J. Vander Zanden	Chairman of the Board	March 11, 2019
/s/ Eric Weisblum Eric Weisblum	Director	March 11, 2019
/s/ Gregory James Blattner Gregory James Blattner	Director	March 11, 2019

Exhibit 21.1

List of Subsidiaries

Nuta Technology Corp
Spherix Portfolio Acquisition II (SPAII)
Guidance IP, LLC
Directional IP, LLC
NNPT, LLC
Spherix Management Services, LLC
Spherix Delaware Merger Sub Inc.
Spherix Merger Subsidiary Inc.

Exhibit 23.1

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM'S CONSENT

We consent to the incorporation by reference in the Registration Statement of Spherix Incorporated and Subsidiaries (the "Company") on Form S-8 (333-210627), Form S-8 (333-197429), Form S-8 (333-187811), Form S-8 (333-185524), Form S-1 (333-218216), and Form S-3 (333-222488), of our report, which includes an explanatory paragraph as to the Company's ability to continue as a going concern, dated March 11, 2019, with respect to our audits of the consolidated financial statements of the Company as of December 31, 2018 and 2017 and for the years then ended , which report is included in this Annual Report on Form 10-K of Spherix Incorporated for the year ended December 31, 2018.

/s/ Marcum LLP

Marcum LLP

New York, NY

March 11, 2019

Exhibit 31.1

Certification of
Principal Executive Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Anthony Hayes, certify that:

1. I have reviewed this report on Form 10-K of Spherix Incorporated;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ Anthony Hayes
Anthony Hayes
Chief Executive Officer
(Principal Executive Officer,
Principal Financial Officer and Principal Accounting Officer)
March 11, 2019

Exhibit 32.1

Certification of
Principal Executive Officer
Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

I, Anthony Hayes, Director, Chief Executive Officer, Principal Financial and Accounting Officer of Spherix Incorporated (the "Company"), in compliance with Section 906 of the Sarbanes-Oxley Act of 2002, hereby certify that, to the best of my knowledge, the Company's Annual Report on Form 10-K for the period ended December 31, 2018 (the "Report") filed with the Securities and Exchange Commission:

Fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Anthony Hayes
Anthony Hayes
Chief Executive Officer
(Principal Executive Officer
Principal Financial Officer and Principal Accounting Officer)
March 11, 2019

A signed copy of this written statement required by Section 906 has been provided to Spherix Incorporated and will be retained by Spherix Incorporated and furnished to the Securities and Exchange Commission or its staff upon request.