

INTERLEUKIN GENETICS INC

Form 424B3

April 01, 2015

**Filed pursuant to Rule 424(b)(3)**

**Registration No. 333-189749**

## **PROSPECTUS**

### **120,408,197 SHARES OF COMMON STOCK**

This prospectus relates to the resale, from time to time, by the selling stockholders named in this prospectus or their pledgees, donees, transferees, or other successors in interest of up to 120,408,197 shares of our common stock. These shares consist of 85,326,230 issued and outstanding shares and 35,081,967 shares underlying warrants. These shares and warrants were issued in connection with a private placement completed on May 17, 2013 and consist of (1) 43,715,847 shares and 32,786,885 shares underlying warrants issued to the investors in the private placement, (2) 28,160,200 shares issued to Pyxis Innovations Inc. upon conversion of 5,000,000 shares of our Series A-1 Convertible Preferred Stock immediately prior to the private placement, (3) 2,521,222 shares issued to Pyxis upon conversion of \$14,316,255 in principal amount of convertible debt immediately prior to the private placement, (4) 10,928,961 shares issued to Delta Dental Plan of Michigan, Inc. upon conversion of 500,000 shares of our Series B Convertible Preferred Stock immediately prior to the private placement, and (5) 2,295,082 shares underlying warrants issued to BTIG, LLC, the placement agent in the private placement, and its affiliates, as placement agent compensation.

Our common stock is traded on the OTCQB under the symbol "ILIU". On March 30, 2015, the closing sale price of our common stock on the OTCQB was \$0.14 per share.

The selling stockholders may offer and sell any of the shares from time to time at fixed prices, at market prices or at negotiated prices, and may engage a broker, dealer or underwriter to sell the shares. For additional information on the possible methods of sale that may be used by the selling shareholder, you should refer to the section entitled "Plan of Distribution" elsewhere in this prospectus. We will not receive any proceeds from the sale of any shares by the selling stockholders. We may, however, receive the proceeds of any cash exercises of warrants. We do not know when or in what amount the selling stockholders may offer the shares for sale. The selling stockholders may sell any, all or none of the shares offered by this prospectus.

**AN INVESTMENT IN OUR COMMON STOCK INVOLVES RISKS. SEE THE SECTION ENTITLED “RISK FACTORS” BEGINNING ON PAGE 4.**

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

The date of this prospectus is March 31, 2014

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You should read this prospectus and any applicable prospectus supplement before making an investment in the securities of Interleukin Genetics, Inc. See “Where You Can Find More Information” for more information. You should rely only on the information contained in this prospectus or a prospectus supplement. The Company has not authorized anyone to provide you with different information. This document may be used only in jurisdictions where offers and sales of these securities are permitted. You should assume that information contained in this prospectus, or in any prospectus supplement, is accurate only as of any date on the front cover of the applicable document. Our business, financial condition, results of operations and prospects may have changed since that date. Unless otherwise noted in this prospectus, “Interleukin Genetics,” “Interleukin,” “the Company,” “we,” “us,” “our” and similar terms refer to Interleukin Genetics, Inc.

### **Smaller Reporting Company – Scaled Disclosure**

Pursuant to Item 10(f) of Regulation S-K promulgated under the Securities Act of 1933, as indicated herein, we have elected to comply with the scaled disclosure requirements applicable to “smaller reporting companies,” including providing two years of audited financial statements.

## PROSPECTUS SUMMARY

*This summary highlights some information from this prospectus. It may not contain all the information important to making an investment decision. You should read the following summary together with the more detailed information regarding our Company and the securities being sold in this offering, including “Risk Factors” and other information incorporated by reference herein.*

### **Overview**

Interleukin Genetics, Inc. is a molecular diagnostics company that develops and commercializes unique genetic tests to guide better prevention and treatment of chronic diseases of aging. Our overall mission is to provide genetic tests and testing services to empower physicians, dentists, and wellness-oriented individuals, to maintain or improve their health or the health of their patients. Our business focuses on personalized health, by providing genetic tests that are actionable and provide strong clinical value. Our tests are made available through healthcare providers or, for some of our tests, directly to end users. We have patents covering the use of specific patterns of gene variations for a number of common chronic diseases.

### **Our Products**

Our genetic tests that are currently being commercialized are:

*PerioPredict*<sup>®</sup>: This test analyzes patterns of genetic variations that change the biology to amplify inflammatory responses of individuals who carry these genetic patterns. The test identifies individuals who are at increased risk for more severe periodontal disease and disease progression, and require more preventive care. In November 2013, we announced the introduction of PerioPredict<sup>®</sup>, our next-generation version of the PST<sup>®</sup> genetic test. The genetic test utilizes an expansion of previous genetic markers that now cover all major ethnic groups. We no longer offer the PST<sup>®</sup> genetic test.

*Weight Management Genetic Test*: This test determines whether individuals will lose weight more predictably on a low fat, low carbohydrate or balanced diet and whether normal or vigorous exercise is needed to most efficiently lose existing body fat. This test is marketed under our Inherent Health<sup>®</sup> brand. The test results guide more effective long term weight loss.

*Bone Health Genetic Test*: This test is designed to identify whether an individual is more likely to be susceptible to spine fractures and low bone mineral density associated with osteoporosis. This test is marketed under our Inherent Health<sup>®</sup> brand.

*Heart Health Genetic Test:* This test is designed to identify genetic predisposition to excess inflammation, which is a risk factor for heart attack. This test is marketed under our Inherent Health® brand.

*Nutritional Needs Genetic Test:* This test is designed to identify DNA variations in genes crucial to B-vitamin metabolism and the ability to manage oxidative stress. This test is marketed under our Inherent Health® brand.

*Wellness Select Genetic Test:* This allows buyers to purchase any combination of Inherent Health® genetic tests at a discounted price. This is marketed under our Inherent Health® brand.

We have entered into an Amended and Restated Preferred Participation Agreement with Renaissance Health Services Corporation, or RHSC, the exclusive distributor of the Delta Dental brand in eight states, with respect to reimbursement for our PerioPredict® test (as amended and restated, we refer to this agreement as the “Preferred Participation Agreement”). We market our Inherent Health® brand of genetic assessment tests primarily through our commercial relationships with Alticor affiliated companies such as Amway.

In addition to the currently marketed genetic tests listed above, we have developed an Osteoarthritis (OA) genetic test to identify individuals at increased risk for progression of OA and its complications, such as knee replacement; and a cardiovascular disease (CVD) test to identify individuals at increased risk for a second heart attack. Either test may have clinical utility, and therefore may be useful to physicians in managing patient care, and to pharmaceutical companies in developing disease modifying drugs to prevent progression of OA, or to assess and refine the value of drugs indicated for prevention of secondary CVD events. In early 2015, we entered into an arrangement with Isis Pharmaceuticals, Inc. pursuant to which we are providing testing services to support Isis clinical trials. We are exploring additional opportunities to collaborate on drug clinical trials, and to expand the use of our genetic tests in clinical practice.

## **Business Strategy**

Our revenue model consists of:

- reimbursement for the processing of our PerioPredict® genetic test by insurance providers;
- sales of our Inherent Health® brand of genetic tests either directly to end users or through partnerships such as with Alticor affiliated companies;
- sales of our Inherent Health® brand of genetic tests to commercial distribution partners such as regional weight loss centers; and
- license fees and royalties for intellectual property used in the sale of partner genetic tests.

Our primary business focus and strategy is to continue our commercialization efforts with our PerioPredict® genetic test. In addition, we plan to continue to develop and sell tests under the Inherent Health® brand.

We market our Inherent Health® brand of genetic assessment tests primarily through our relationships with Alticor's Amway Global Company and Access Business Group LLC. Under these agreements, Amway's independent business owners, or IBOs, are able to purchase genetic tests. We believe our proprietary genetic test brands supports the efforts of Amway to develop personalized consumer products for their IBOs' customers. Sales with Amway through these business arrangements began in December 2009.

## **Other Information Related to this Prospectus**

### ***The May 2013 Private Placement***

On May 17, 2013, we entered into a Common Stock Purchase Agreement (the "2013 Purchase Agreement") with various accredited investors (the "2013 Purchasers"), pursuant to which we sold securities to the 2013 Purchasers in a private placement transaction (the "May 2013 Private Placement"). In the May 2013 Private Placement, we sold an

aggregate of 43,715,847 shares of our common stock at a price of \$0.2745 per share for gross proceeds of \$12,000,000. The 2013 Purchasers also received warrants to purchase up to an aggregate of 32,786,885 shares of common stock an exercise price of \$0.2745 per share (the “2013 Warrants”). The 2013 Warrants have a term of seven years from the date they became exercisable. Sixty-three percent of the shares issuable pursuant to the 2013 Warrants were exercisable immediately upon issuance, and the remaining 37% became exercisable on August 9, 2013.

In addition, pursuant to the 2013 Purchase Agreement, as amended, each 2013 Purchaser had the right, at any time and from time to time on or before December 31, 2014 (the “Expiration Date”), to purchase at one or more subsequent closings its pro rata share of up to an aggregate of 18,214,936 additional shares of common stock at a purchase price of \$0.2745 per share and warrants to purchase up to an aggregate of 13,661,201 shares of common stock at an exercise price of \$0.2745 per share (the “Additional Investment”). If, prior to the Expiration Date, 2013 Purchasers had not purchased their entire pro rata share of the Additional Investment, 2013 Purchasers who had purchased their entire pro rata share of the Additional Investment, would have been entitled to purchase the unsold portion of the Additional Investment. This right expired unexercised on December 31, 2014.

Immediately prior to the closing of the Private Placement, and in accordance with the terms of the Purchase Agreement: (i) Pyxis Innovations Inc. (“Pyxis”), the sole holder of our outstanding Series A-1 Convertible Preferred Stock converted all 5,000,000 shares of outstanding Series A-1 stock into 28,160,200 shares of our common stock (the “Series A-1 Conversion”); (ii) Pyxis, the sole holder of our outstanding convertible debt, converted all of the principal amount of debt outstanding (\$14,316,255) into 2,521,222 shares of our common stock (the “Debt Conversion”); and (iii) Delta Dental Plan of Michigan, Inc. (“DDMI”), the sole holder of our outstanding Series B Convertible Preferred Stock converted all 500,000 outstanding shares of Series B stock into 10,928,961 shares of common stock (the “Series B Conversion”).

For its services as exclusive placement agent in the 2013 Private Placement, BTIG, LLC (“BTIG”) received cash compensation in the amount of approximately \$780,000 and BTIG and an affiliate received warrants to purchase an aggregate of 2,295,082 shares of our common stock, at an exercise price of \$0.2745 per share (the “2013 BTIG Warrants”). The 2013 BTIG Warrants expire on August 9, 2020.

In connection with the 2013 Private Placement, we also entered into a Registration Rights Agreement with the 2013 Purchasers, Pyxis, DDMI and BTIG, pursuant to which we were required to file a registration statement on Form S-1 within 45 days of May 17, 2013 to cover the resale of (i) the shares sold in the 2013 Private Placement and the shares of common stock underlying the 2013 Warrants issued in the 2013 Private Placement, (ii) the shares of common stock issued to Pyxis pursuant to the Series A-1 Conversion and the Debt Conversion, (iii) the shares of common stock issued to DDMI pursuant to the Series B Conversion, and (iv) the shares of common stock underlying the 2013 BTIG Warrants. Our failure to satisfy certain deadlines described in the Registration Rights Agreement may subject us to payment of certain monetary penalties.

### ***The December 2014 Private Placement***



On December 23, 2014, we entered into a Securities Purchase Agreement (the “2014 Purchase Agreement”) with various accredited investors (the “2014 Purchasers”), pursuant to which we sold securities to the 2014 Purchasers in a private placement transaction, which we refer to herein as the December 2014 Private Placement. In the December 2014 Private Placement we sold an aggregate of 50,099,700 shares of our common stock at a price of \$0.1003 per share for gross proceeds of \$5.025 million. The 2014 Purchasers also received warrants to purchase up to an aggregate of 50,099,700 shares of common stock at an exercise price of \$0.1003 per share, which we refer to herein as the 2014 Warrants. The 2014 Warrants were exercisable immediately and have a term of seven (7) years from the date of grant.

For its services as exclusive placement agent BTIG, LLC received cash compensation in the amount of approximately \$155,250 and warrants to purchase 89,731 shares of Common Stock, which has terms identical to those issued to the 2014 Purchasers in the December 2014 Private Placement, which we refer to herein as the 2014 BTIG Warrant.

On December 23, 2014, we also entered into a Registration Rights Agreement with the 2014 Purchasers and BTIG, pursuant to which we are required to file a registration statement on Form S-1 within 45 days of December 23, 2014 to cover the resale of (i) the shares of common stock sold to the 2014 Purchasers and the shares of common stock underlying the 2014 Warrants and (ii) the shares of common stock underlying the 2014 BTIG Warrants. Our failure to satisfy certain deadlines described in the Registration Rights Agreement may subject Interleukin to payment of certain monetary penalties.

### ***The December 2014 Debt Transaction***

On December 23, 2014, we also entered into a venture loan and security agreement (the “Loan Agreement”) with Horizon Technology Finance Corporation (the “Lender”) under which we have borrowed \$5.0 million, which we refer to herein as the December 2014 Debt Transaction. The loan bears interest at a floating rate equal to the One Month LIBOR Rate (with a floor of 0.50%) plus 8.50%. In the event that the One Month LIBOR Rate, as reported in the Wall Street Journal, exceeds 0.50%, the interest rate will be adjusted by an amount equal to the difference between such rates at the end of that particular month.

We have agreed to repay the Loan in forty-five (45) monthly payments consisting of fifteen (15) monthly payments of interest only followed by thirty (30) equal monthly payments of principal and interest. In addition, at the end of the repayment term (or at early termination of the loan) a final payment equal to 4.5% of the loan will be due and payable. We may prepay the loan by paying all accrued interest through the date of prepayment, the then outstanding principal balance and a prepayment premium equal to a declining percentage of the principal amount outstanding at the time of prepayment. That percentage will be 4% during the first fifteen months following the issuance of the loan, 2% during the following twelve months, and 1% thereafter.

Our obligations under the Loan Agreement are secured by a first priority security interest in substantially all of our assets other than our intellectual property. We have also agreed not to pledge or otherwise encumber our intellectual property assets, subject to certain exceptions.

The Loan Agreement includes customary affirmative and restrictive covenants, but does not include any covenants to attain or maintain certain financial metrics, and also includes customary events of default, including payment defaults, breaches of covenants, change of control and a material adverse change default. Upon the occurrence of an event of default and following any applicable cure periods, a default interest rate of an additional 5% may be applied to the outstanding loan balances, and the Lender may declare all outstanding obligations immediately due and payable and take such other actions as set forth in the Loan Agreement.

In connection with the Loan Agreement, the Company issued to the Lender and its affiliates warrants to purchase a total of 2,492,523 shares of common stock at an exercise price of \$0.1003 per share, which we refer to herein as the Lender Warrants. The Lender Warrants have a term of ten (10) years.

### **Corporate Information**

Our executive offices are located at 135 Beaver Street, Waltham, Massachusetts 02452, and our telephone number is (781) 398-0700. We were incorporated in Texas in 1986 and we re-incorporated in Delaware in March 2000. We maintain websites at [www.ilgenetics.com](http://www.ilgenetics.com) and [www.inherenthealth.com](http://www.inherenthealth.com). Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and all amendments to such reports are available to you free of charge through the Investor Relations Section of [www.ilgenetics.com](http://www.ilgenetics.com) as soon as practicable after such materials have been electronically filed with, or furnished to, the Securities and Exchange Commission. The information contained on our websites are not incorporated by reference into this prospectus. We have included our website addresses only as an inactive textual reference and do not intend them to be active links to our websites.

## The Offering

Common stock offered by the selling stockholders      Up to 120,408,197 shares of common stock, consisting of 85,326,230 issued and outstanding shares and 35,081,967 shares underlying Warrants.

Use of proceeds      We will not receive any proceeds from the sale of the shares offered by this prospectus. We may, however, receive the proceeds of any cash exercises of Warrants which, if received, would be used by us for working capital purposes.

OTCQB trading symbol      ILIU

## RISK FACTORS

*An investment in shares of our common stock involves a high degree of risk. You should carefully consider the following information about these risks, together with the other information appearing elsewhere in this prospectus, including our financial statements and related notes thereto, before deciding to invest in our common stock. The occurrence of any of the following risks could have a material adverse effect on our business, financial condition, results of operations and future growth prospects. In these circumstances, the market price of our common stock could decline, and you may lose all or part of your investment.*

### **Risks Related to Our Business, Our Financial Results and Need for Financing**

*The timing and amount of revenues, if any, that we may receive pursuant to the Preferred Participation Agreement with RHSC and its affiliates, or any other agreements we may enter into with other payors or large employers is uncertain.*

Although we have entered into the Amended and Restated Preferred Participation Agreement with RHSC, for itself and on behalf of certain of its affiliates and subsidiaries, pursuant to which RHSC affiliates may develop and offer Reimbursed Dental Plans, the timing of any revenues that we may receive under this agreement is dependent upon the timing of the offering of such Reimbursed Dental Plans, which timing is very uncertain at this time and is dependent on a viable market developing for such plans. RHSC has informed us that it has presented the scientific data underlying Reimbursed Dental Plans to a number of customers and will make available Reimbursed Dental Plans as an alternative to a customer's current plan for any customer that expresses an interest in such a plan. We have not yet received and we may never receive significant revenues under this agreement. We also continue to engage in discussions for the use of our PerioPredict<sup>®</sup> test with other insurance companies and large employers who would ultimately adopt reimbursed insurance plans, or utilize the PerioPredict<sup>®</sup> test through other arrangements, through the use of consultants and our internal management team. The failure to begin receiving significant revenues under the agreement with RHSC or under any other agreements we may enter into with other payors or large employers would have a material adverse effect on our business.

*There is substantial doubt concerning our ability to continue as a going concern.*

Our financial statements have been prepared assuming that we will continue as a going concern which contemplates the realization of assets and satisfaction of liabilities in the normal course of business. We expect to incur further losses in the development of our business and have been dependent on funding operations through the issuance of convertible debt and the sale of equity securities. These conditions raise substantial doubt about our ability to continue as a going concern. Management's plans include increasing revenue through new arrangements with commercial

distribution partners and continuing to finance operations through the private or public placement of debt and/or equity securities. However, no assurance can be given at this time as to whether we will be able to achieve these objectives. The financial statements do not include any adjustment relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might be necessary should we be unable to continue as a going concern. We can provide no assurance that we will be successful in increasing revenues, or that we will receive additional funding on reasonable terms, or at all.

*We have a history of operating losses and expect these losses to continue in the future.*

We have experienced significant operating losses since our inception and expect these losses to continue for some time. We incurred losses from operations of \$7.1 million in 2013 and \$6.3 million in 2014. As of December 31, 2014, our accumulated deficit was \$121.1 million. Our losses result primarily from research and development, selling, general and administrative expenses and amortization of intangible assets. Although we generate revenues from sales of our genetic risk assessment tests, this may not be sufficient to result in net income in the foreseeable future. We will need to generate significant revenue to continue our research and development programs and achieve profitability. We cannot predict when, if ever, we will achieve profitability.

*The market for personalized health generally and genetic risk assessment tests in particular is unproven.*

The markets and customer base in the field of personalized health are not well established. Adoption of technologies in this emerging field requires substantial market development and there can be no assurance that channels for marketing our products can or will be successfully developed by us or others, including RHSC. As a result, there can be no assurance that our products will be successfully commercialized or that they can be sold at sufficient volumes to make them profitable. If our potential customers do not accept our products, or take a longer time to accept them than we anticipate, it will reduce our anticipated sales and materially harm our business.

The market for genetic risk assessment tests, as part of the field of personalized health, is at an early stage of development and may not continue to grow. The scientific community, including us, has only a limited understanding of the role of genes in predicting disease. The success of our genetic risk assessment tests will depend upon their acceptance as being useful and cost-effective to the individuals who purchase these products, the physicians and other members of the medical community who recommend or prescribe them, as well as third-party payers, such as insurance companies and the government. We can only achieve broad market acceptance with substantial education about the benefits and limitations of genetic risk assessment tests while providing the tests at a fair cost. For example, it may be difficult to convince the dental community and dental patients that one cleaning per year is sufficient for low risk patients, and we expect to expend significant funds and resources to educate dentists and patients with respect to the benefits of our PerioPredict® test. There is no assurance that we will be able to successfully do so. Furthermore, while positive media attention resulting from new scientific studies or announcements can spur rapid growth in individual segments of the market, and also impact individual brands, news that challenges individual segments or products can have a negative impact on the industry overall as well as on sales of the challenged segments or products. The marketplace may never accept our products, and we may never be able to successfully commercialize our products, including the PerioPredict® test.



*We could become subject to intense competition from other companies, which may damage our business.*

The field of personalized health is highly competitive. Our potential competitors in the United States and abroad are numerous and include, among others, major pharmaceutical and diagnostic companies, consumer products companies, specialized biotechnology firms, universities and other research institutions. Many of our competitors have considerably greater financial, technical, marketing and other resources. Furthermore, many of these competitors are more experienced than we are in discovering, commercializing and marketing products. These greater resources may allow our competitors to discover important genes or genetic markers and more quickly and effectively develop and commercialize genetic tests than we or our partners are able to do. If we are not able to successfully market genetic tests, either alone or through collaborations, our business will be materially harmed. We expect competition to intensify in our industry as technical advances are made and become more widely known.

*Ethical, legal and social issues related to genetic testing may reduce demand for our products.*

Genetic testing has raised concerns regarding the appropriate utilization and the confidentiality of information provided by genetic testing. Genetic tests for assessing a person's likelihood of developing a chronic disease have focused public attention on the need to protect the privacy of genetic information. For example, concerns have been expressed that insurance carriers and employers may use these tests to discriminate on the basis of genetic information, resulting in barriers to the acceptance of genetic tests by consumers. This could lead to governmental authorities prohibiting genetic testing or calling for limits on or regulating the use of genetic testing, particularly for diseases for which there is no known cure. Any of these scenarios could decrease demand for our products.

*Technological changes may cause our tests to become obsolete.*

We have to date focused our efforts on genetic tests based on a small number of candidate genes. It is now possible to use array technology to conduct whole genome association studies for risk assessment, which may make our technologies obsolete. In order to develop customers and markets for our genetic risk assessment tests, we may be required to invest substantial additional capital and other resources.

*We have limited experience and capabilities with respect to distributing, marketing and selling genetic tests on our own and will continue to depend substantially on third parties to commercialize our tests.*

We have very limited experience and capabilities with respect to distributing, marketing and selling genetic risk assessment tests on our own. In June 2009, we announced the launch of our new Inherent Health<sup>®</sup> brand of genetic

tests. On October 26, 2009, we entered into an agreement with Amway Global, an affiliate of Alticor, pursuant to which it sells our Inherent Health® brand of genetics tests through its e-commerce Web site via a hyperlink to our e-commerce site. In 2014 and 2013, revenues from this agreement accounted for 44% and 38% of our revenues, respectively. In addition, beginning in September 2012 and again in 2013, Access Business Group LLC, an affiliate of Alticor, placed purchase orders totaling approximately \$3.3 million consisting of weight management kits. The kits are included as part of a promotional bundle of products that Amway is now selling to their Individual Business Owners. In 2014 and 2013, revenues from this arrangement accounted for 32% and 36% of our revenues, respectively. During 2013 we marketed and distributed our PST® test directly to dentists and periodontists via Quest Diagnostic's subsidiary, OralDNA Labs in the U.S. With the MPPS yielding positive results, we entered into the Preferred Participation Agreement obtaining reimbursement coverage for the PerioPredict® test from RHSC and its affiliates. We no longer sell the test through OralDNA Labs, and we are dependent on the offering of Reimbursed Dental Plans by RHSC and potentially other reimbursed insurance plans offered by other insurers, and the ability of RHSC and such other insurers to successfully commercialize such plans which is very uncertain. In addition, we have started to market and sell our genetic tests through other health care and professional channels, and to attempt to negotiate marketing and distribution agreements with third parties, although there can be no assurances we will be able to do so. We have, to date, had very limited success in marketing and selling our genetic tests, and we can provide no assurance that our current or planned commercialization efforts will be successful.



*If we are unsuccessful in establishing additional strategic alliances, our ability to develop and market products and services may be damaged.*

Entering into additional strategic alliances for the development and commercialization of products and services based on our discoveries is an important element of our business strategy. We face significant competition in seeking appropriate collaborators. If we fail to maintain our existing alliances or to establish additional strategic alliances or other alternative arrangements, then our ability to develop and market products and services will be damaged. In addition, the terms of any future strategic alliances may be unfavorable to us or these strategic alliances may be unsuccessful.

*Because our products are based on emerging science, if we make changes to our tests based on new scientific findings, market acceptance of our products may decrease and we may be exposed to liability in excess of our product liability insurance coverage.*

Our genetic test products are based on emerging science, and we continue to conduct studies to further enhance the usefulness and scientific credibility of our products. If we make changes to our tests based on new data, it could harm our credibility, decrease market acceptance of our products or expose us to liability claims. We currently maintain product liability insurance, but it is often difficult to obtain, is expensive and may not be available in the future on economically acceptable terms. In addition, potential product liability claims may exceed the amount of our insurance coverage or may be excluded from coverage under the terms of our policy. We may become subject to product liability claims that, even if they are without merit, could result in significant legal defense costs to us. If we are held liable for claims for which we are not indemnified or for damages exceeding the limits of our insurance coverage, those claims could materially damage our business and our financial condition. Any product liability claim against us or resulting recall of our products could create significant negative publicity.

*Current economic conditions could adversely affect our business and results of operations.*

Economic conditions and financial markets have been experiencing extreme disruption including, among other things, extreme volatility in prices of publicly traded securities, severely diminished liquidity, severely restricted credit availability, rating downgrades of certain investments and declining valuations of others. We believe the current economic conditions and financial market turmoil could adversely affect our operations. Uncertainty about current and future economic conditions may cause consumers to reign in their spending generally, the impact of which may be that they stop or delay their purchases of our genetic tests and consumer products. If these circumstances persist or continue to worsen, our future operating results could be adversely affected, particularly relative to our current expectations.

*Our dependence on key executives and scientists could adversely impact the development and management of our business.*

Our success depends on the ability, experience and performance of our senior management and other key personnel. If we lose one or more of the members of our senior management or other key employees, it could damage our business. In addition, our success depends on our ability to continue to hire, train, retain and motivate skilled managerial and scientific personnel. The pool of personnel with the skill that we require is limited. Competition to hire from this limited pool is intense. We compete with numerous pharmaceutical and healthcare companies, as well as universities and non-profit research organizations in the highly competitive Boston, Massachusetts business area. Our current senior management team is employed by us under agreements that may be terminated by them for any reason upon adequate notice. There can be no assurances, therefore, that we will be able to retain our senior executives or replace them, if necessary. We do not maintain key man life insurance on any of our personnel.

*If Pyxis or any of its affiliates enters a business in competition with ours, certain of our directors might have a conflict of interest.*

We have entered into an agreement with our stockholder, Pyxis (collectively, with its affiliates, the “Interested Parties”), allocating corporate opportunities as permitted under Section 122(17) of the Delaware General Corporation Law. This agreement regulates and defines the conduct of certain of our affairs as they may involve the Interested Parties, and our powers, rights, duties and liabilities and those of our officers and directors in connection with corporate opportunities. Except under certain circumstances, the Interested Parties have the right to engage in the same or similar activities or lines of business or have an interest in the same classes or categories of corporate opportunities as we do. If any Interested Parties or one of our directors appointed by an Interested Party acquire knowledge of a potential transaction or matter that may be a corporate opportunity for both the Interested Party and us, to the fullest extent permitted by law, the Interested Party will not have a duty to inform us about the corporate opportunity. In addition, the Interested Party will not be liable to us or to other stockholders for breach of any fiduciary duty as a stockholder of ours for not informing us of the corporate opportunity, keeping it for its own account, or referring it to another person. Additionally, except under limited circumstances, if an officer or employee of an Interested Party who is also one of our directors is offered a corporate opportunity, such opportunity shall not belong to us. In addition, we agreed that such director will have satisfied his duties to us and not be liable to us or to you in connection with such opportunity.

*We may be prohibited from fully using our net operating loss carryforwards, which could affect our financial performance.*

As a result of the losses incurred since inception, we have not recorded a federal income tax provision and have recorded a valuation allowance against all future tax benefits of our net operating loss carryforwards. As of December 31, 2014, we had gross net operating loss and research tax credit carryforwards of approximately \$81.2 million and \$1.6 million, respectively, for federal income tax purposes, expiring in varying amounts through the year 2034. As of December 31, 2014, the Company had gross NOL and research tax credit carryforwards of approximately \$4.1 million and \$900,000 for state income tax purposes, expiring in varying amounts through the year 2034. Our ability to use these net operating loss and credit carryforwards is subject to restrictions contained in the Internal Revenue Code which provide for limitations on our utilization of our net operating loss and credit carryforwards following a greater than 50% ownership change during the prescribed testing period. We have experienced such ownership changes in March 2003, June 1999, June 2012, May 2013 and December 2014. As a result, our net operating loss carryforwards that relate to periods prior these dates are limited in utilization. The annual limitation may result in the expiration of the carryforwards prior to utilization. In addition, in order to realize the future tax benefits of our net operating loss and tax credit carryforwards, we must generate taxable income, of which there is no assurance.

### **Risks Related to Our Intellectual Property**

*If we fail to obtain patent protection for our products and preserve our trade secrets, then competitors may develop competing products and services, which will likely decrease our sales and market share.*

Our success will depend on our ability to obtain patent protection in the United States and in other countries for our products and services. In addition, our success will also depend upon our ability to preserve our trade secrets and to operate without infringing upon the proprietary rights of third parties. We own rights to 11 issued U.S. patents and have a number of additional U.S. patent applications pending. We have also been granted a number of corresponding foreign patents and have a number of foreign counterparts of our U.S. patents and patent applications pending. Our patent positions, and those of other pharmaceutical and biotechnology companies, are generally uncertain and involve complex legal, scientific and factual questions. Our ability to develop and commercialize products and services depends on our ability to:

- obtain patents;
  
- obtain licenses to the proprietary rights of others;

- prevent others from infringing on our proprietary rights; and
- protect trade secrets.

Our pending patent applications may not result in issued patents and any issued patents may never afford meaningful protection for our technology or products or provide us with a competitive advantage. Further, others may develop competing products, which avoid legally infringing upon, or conflicting with, our patents. There is no assurance that another company will not replicate one or more of our products, and this may harm our ability to do business. In addition, competitors may challenge any patents issued to us, and these patents may subsequently be narrowed, invalidated or circumvented.

From time to time, the U.S. Supreme Court, other federal courts, the U.S. Congress or the USPTO may change the standards of patentability and any such changes could have a negative impact on our business. There have been several cases involving “gene patents” and diagnostic claims that have been considered by the U.S. Supreme Court. A suit brought by multiple plaintiffs, including the American Civil Liberties Union, or ACLU, against Myriad Genetics, or Myriad, and the USPTO, could impact biotechnology and diagnostic patents. That case involves certain of Myriad’s U.S. patents related to the breast cancer susceptibility genes BRCA1 and BRCA2. The Federal Circuit issued a written decision on July 29, 2011 that reversed the decision of the U.S. District Court for the Southern District of New York that Myriad’s composition claims to “isolated” DNA molecules cover unpatentable subject matter. The Federal Circuit court instead held that the breast cancer genes are patentable subject matter. Subsequently, on March 20, 2012, the Supreme Court issued a decision in *Mayo Collaborative v. Prometheus Laboratories*, or Prometheus, a case involving patent claims directed to optimizing the amount of drug administered to a specific patient. According to that decision, Prometheus’ claims failed to add enough inventive content to the underlying correlations to allow the processes they describe to qualify as patent-eligible processes that apply natural laws. The Supreme Court subsequently granted *certiorari* in the Myriad case, vacated the judgment, and remanded the case back to the Federal Circuit for further consideration in light of their decision in the Prometheus case. The Federal Circuit heard oral arguments on July 20, 2012, and issued a decision on August 16, 2012. The Federal Circuit reaffirmed its earlier decision and held that composition of matter claims directed to isolated nucleic acids are patent-eligible subject matter, but that method claims consisting of only abstract mental processes are not patent-eligible. On September 25, 2012, the ACLU filed a petition for a *writ of certiorari* asking the Supreme Court to review the Federal Circuit’s decision with respect to the composition of matter claims. On November 30, 2012, the Supreme Court granted the petition and agreed to review the case. On June 13, 2013, the Supreme Court issued a decision in the Myriad case. According to the decision, claims directed to genomic DNA cover unpatentable subject matter. However, claims directed to cDNA are patent eligible subject matter.

On March 4, 2014, the USPTO issued a memorandum to patent examiners providing guidelines for examining process claims for patent eligibility in view of the Supreme Court decision in *Prometheus*. The guidance indicates that claims directed to a law of nature, a natural phenomenon, or an abstract idea that do not meet the eligibility requirements should be rejected as non-statutory subject matter. We cannot assure you that our patent portfolio will not be negatively impacted by the decision described above, rulings in other cases or changes in guidance or procedures issued by the USPTO.

Congress directed the USPTO to study effective ways to provide independent, confirming genetic diagnostic test activity where gene patents and exclusive licensing for primary genetic diagnostic tests exist. This study will examine the impact that independent second opinion testing has on providing medical care to patients; the effect that providing independent second opinion genetic diagnostic testing would have on the existing patent and license holders of an exclusive genetic test; the impact of current practices on testing results and performance; and the role of insurance coverage on the provision of genetic diagnostic tests. The USPTO was directed to report the findings of the study to Congress and provide recommendations for establishing the availability of independent confirming genetic diagnostic test activity by June 16, 2012. On August 28, 2012, the Department of Commerce sent a letter to the House and Senate Judiciary Committee leadership updating them on the status of the genetic testing report. The letter stated in part: "Given the complexity and diversity of the opinions, comments, and suggestions provided by interested parties, and the important policy considerations involved, we believe that further review, discussion, and analysis are required before a final report can be submitted to Congress." The USPTO issued a Request for Comments and Notice of Public Hearing on Genetic Diagnostic Testing on January 25, 2012, and held additional public hearings in February and March 2013. It is unclear whether the results of this study will be acted upon by the USPTO or result in Congressional efforts to change the law or process in a manner that could negatively impact our present or future patent portfolio.

There can be no assurance that the Supreme Court's decision in either the *Myriad* or *Prometheus* case will not have a negative impact gene or diagnostic patents generally or the ability of biotechnology and diagnostic companies to obtain or enforce their patents in the future. Such negative decisions by the Supreme Court could have a material adverse effect on our existing patent portfolio and our ability to protect and enforce our intellectual property in the future.

We also rely on trade secrets and proprietary know-how that we seek to protect, in part, with confidentiality agreements. The third parties we contract with may breach these agreements, and we may not have adequate remedies for any breach. If they do not protect our rights, third parties could use our technology, and our ability to compete in the market would be reduced. We also realize that our trade secrets may become known through other means not currently foreseen by us. Our competitors may discover or independently develop our trade secrets.

*Third parties may own or control patents or patent applications and require us to seek licenses, which could increase our costs or prevent us from developing or marketing our products or services.*

We may not have rights under patents or patent applications that are related to our current or proposed products. Third parties may own or control these patents and patent applications in the United States and abroad. Therefore, in some cases, to develop or sell any proposed products or services with patent rights controlled by third parties, our collaborators or ourselves may seek, or may be required to seek, licenses under third-party patents and patent applications. If this occurs, we may have to pay license fees, royalties or both, to the licensor. If licenses are not available to us on acceptable terms, our collaborators or we may be prohibited from developing or selling our products or services.

### **Risks Related to Development, Clinical Testing and Regulatory Approval of Our Tests**

*Any tests that may be developed by us may be subject to regulatory clearance or approval, which can be lengthy, costly and burdensome.*

Our currently marketed tests were launched as laboratory developed tests, or LDTs, performed in our CLIA-certified clinical laboratory operating in Waltham, Massachusetts. We expect that our future LDTs will also be performed at our CLIA-certified laboratory. Although FDA believes that tests such as ours fall within its jurisdiction as medical devices, it has historically exercised enforcement discretion with respect to LDTs, meaning that such tests generally have not been subject to FDA regulatory requirements. However, the Agency's regulatory approach to LDTs is in a period of transition. FDA officials have stated that direct-to-consumer (DTC) genetic tests that make medical claims will no longer be subject to enforcement discretion and the FDA sent the Company a letter in July 2010 consistent with this change in Agency position. However, FDA has not stated what specific requirements will apply to LDTs sold DTC and we have not received any feedback from FDA regarding the plan we submitted to it in January 2011. FDA convened an advisory panel in March 2011 to make recommendations regarding oversight of DTC genetic tests. Following the meeting, the director of OIVD stated that FDA would likely need to take a case-by-case approach with respect to which types of genetic tests could be offered DTC. In October 2014, a draft guidance was issued by the Office of *In Vitro* Diagnostics and Radiological Health within the FDA. This guidance is currently a non-binding recommendation issued to gather comment. The guidance proposes additional reporting requirements and enforcement actions that would result if a company is in breach of these reporting requirements. If enacted as a binding regulation and if we must comply with the applicable regulations, the company intends to comply fully and acknowledges that non-compliance may result in enforcement actions, which could affect our ability to market and sell our tests and may harm our reputation. We are uncertain as to what, if any, regulatory requirements may apply to our tests in the future. We cannot provide any assurance that FDA regulation, including pre-market review or approval, will not be required in the future, or that our tests will be permitted to be offered DTC.

If FDA requires us to obtain clearance through its 510k premarket notification process or obtain approval through its premarket approval, or PMA, process, either as a condition of continuing to market our tests or bringing future tests to market, our business could be negatively impacted. Requiring FDA clearance or approval could be lengthy, costly and burdensome. In addition, depending upon FDA's response to a submission we may be required to stop selling our tests, revise our tests significantly, or delay introduction of new tests. Additionally, if our tests become subject to more active regulation as medical devices by FDA, we would be required to comply with other regulatory requirements, including facility registration, device listing, adverse event reporting, and good manufacturing practices. We would also be subject to penalties, including seizure and injunction, for noncompliance with FDA requirements. Complying with FDA requirements could add additional costs and burdens to our operations.

*We are subject to government regulation which may significantly increase our costs and delay introduction of our products.*

We are subject to a variety of federal and state legal requirements including CLIA, the FD&C Act, state clinical laboratory licensure laws and implementing regulations. The growth of our business may increase the potential of being found in violation of these laws. Our risk of being found in violation of these laws and regulations is further increased by the fact that the technologies at issue are new and the applicability of statutory and regulatory provisions to these technologies has not been fully developed, implemented, or subjected to judicial review, and the statutory and regulatory provisions themselves are open to a variety of interpretations. Any action brought against us, or any business partners, for violation of these laws or regulations, even if we or they successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. If their or our operations are found to be in violation of any of these laws and regulations, they or we may be subject to any applicable penalty associated with the violation, including civil and criminal penalties, damages and fines, and they or we could be required to curtail or cease operations. Any of the foregoing consequences could seriously harm our business and our financial results.

*If we do not comply with governmental regulations applicable to our CLIA-certified laboratory, we may not be able to continue our operations.*

The establishment and operation of our laboratory is subject to regulation by numerous federal, state and local governmental authorities in the United States. The laboratory holds a CLIA certificate of compliance and is licensed by the Commonwealth of Massachusetts, and other states as required, which enables us to provide testing services to residents of most other states. Failure to comply with state regulations or changes in state regulatory requirements, could result in a substantial curtailment or even prohibition of the operations of our laboratory and could have a material adverse effect on our business. CLIA is a federal law that regulates clinical laboratories that perform testing on human specimens for the purpose of providing information for the diagnosis, prevention or treatment of disease. To renew CLIA certification, laboratories are subject to survey and inspection every two years. Moreover, CLIA inspectors may make unannounced inspections of these laboratories. If we were to lose our CLIA certification or our state licenses, whether as a result of a revocation, suspension or limitation, we would no longer be able to continue our testing operations which would have a material adverse effect on our business.

*Tests based on our technology may require clinical trial testing, which can be lengthy, costly and burdensome.*

If the FDA decides to require pre-market clearance or approval of LDT's, we may be required to perform clinical trials prior to submitting a marketing application. If we are required to conduct clinical trials, whether using prospectively acquired tissue samples or archival samples, delays in the commencement or completion of clinical testing could significantly increase development costs and delay commercialization. The commencement of clinical trials may be delayed due to insufficient patient enrollment, which is a function of many factors, including the size of the patient population and the nature of the disease or condition being studied.

*Future therapeutic collaborators, if any, may be unable to obtain regulatory approval of any therapeutic product that they may develop.*

If, in the future, we enter into any collaborations relating to the use of our technology in the development of therapeutic products, any therapeutic products that our collaborators may develop will be subject to extensive governmental regulations relating to development, clinical trials, manufacturing and commercialization. Rigorous preclinical testing and clinical trials and an extensive regulatory review process are required to be successfully completed in the United States and in many foreign jurisdictions before a new therapeutic product can be sold. Satisfaction of these and other regulatory requirements is costly, time consuming, uncertain and subject to unanticipated delays. The time required to obtain FDA and other approvals for therapeutic products is unpredictable but typically exceeds several years. It is possible that none of the therapeutic products our collaborators may develop will obtain the appropriate regulatory approvals necessary for us or our collaborators to begin selling them. In addition, if the use of any test that we develop is necessary for the safe use of a collaborator's therapeutic product, we might be required to obtain clearance or approval of our test.



Furthermore, any regulatory approval to market a therapeutic product may be subject to limitations on the indicated uses. These limitations may limit the size of the market for the therapeutic product. Any therapeutic product that our collaborators may develop will also be subject to numerous foreign regulatory requirements governing the conduct of clinical trials, manufacturing and marketing authorization, pricing and third-party reimbursement. The foreign regulatory approval process includes all of the risks associated with FDA approval described above as well as risks attributable to the satisfaction of local regulations in foreign jurisdictions. Therefore, approval by the FDA of a therapeutic product does not assure approval by regulatory authorities outside the United States or vice versa.

*If we fail to comply with regulatory requirements, we could be subject to enforcement actions, which could affect our ability to market and sell our tests and may harm our reputation.*

If we in the future fail to comply with applicable federal, state or foreign laws or regulations, we could be subject to enforcement actions, which could affect the ability to successfully develop, market and sell our tests and could harm our reputation and lead to reduced acceptance of such tests or products by the market. These enforcement actions could include:

- warning letters;
  
- recalls, public notification or medical device safety alerts;
  
- restrictions on, or prohibitions against, marketing such tests or products;
  
- product seizures;
  
- injunctions;
  
- civil penalties, including monetary fines; and
  
- criminal penalties.

*If we do not comply with laws regulating the protection of the environment and health and human safety, our business could be adversely affected.*

Our research and development activities involve the use of hazardous and chemicals materials, and we maintain quantities of various flammable and toxic chemicals in our facilities. We believe our procedures for storing, handling and disposing these materials in our facilities comply with the relevant local and Federal guidelines. Although we believe that our safety procedures for handling and disposing of these materials comply with the standards mandated by applicable regulations, the risk of accidental contamination or injury from these materials cannot be eliminated. If an accident occurs, we could be held liable for resulting damages, which could be substantial. We are also subject to numerous environmental, health and workplace safety laws and regulations, including those governing laboratory procedures, exposure to blood-borne pathogens and the handling of biohazardous materials. We may incur substantial costs to comply with, and substantial fines or penalties if we violate, any of these laws or regulations.

*Changes in healthcare policy could impact commercialization of our tests.*

In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act, or the ACA, became law. This law substantially changes the way health care is financed by both governmental and private insurers. The ACA contains a number of provisions that may impact our business and operations in ways we cannot currently predict. In particular, we believe that the ACA may impact adoption of Reimbursed Dental Plans and other reimbursed insurance plans that include our PerioPredict<sup>®</sup> test because there is uncertainty in the cost of compliance with the ACA and how that may impact employer coverage for adult dental care in their overall benefits plan.

In addition to the ACA, there will likely continue to be proposals by legislators at both the federal and state levels, regulators and third-party payors to reduce costs while expanding individual healthcare benefits. Certain of these changes could impose additional limitations on the prices we will be able to charge for our tests or the amounts of reimbursement available for our tests from governmental agencies or third-party payors. While in general it is too early to predict specifically what effect the ACA or any future healthcare reform legislation or policies will have on our business, current and future healthcare reform legislation and policies could have a material adverse effect on our business and financial condition.

## Risks Related to Our Common Stock

*Our common stock is listed on the OTCQB, which could result in a limited market for our common stock.*

Our common stock was listed on the NYSE Amex until August 16, 2010, when it was suspended for failure to comply with the NYSE Amex continued listing standards. Our common stock then began trading on the OTCQB™ under the symbol ILIU. This delisting could hurt our investors by reducing the liquidity and market price of our common stock. Additionally, the delisting could negatively affect us by reducing the number of investors willing to hold or acquire our common stock, which could negatively affect our ability to raise capital.

*Our stock price has been and is likely to continue to be volatile and the market price of our common stock may drop.*

In the three years ended December 31, 2014, our stock price has fluctuated from a low of \$0.05 to a high of \$0.55. Furthermore, the stock market has experienced significant volatility. The volatility of stocks for companies in our industry often does not relate to the operating performance of the companies represented by the stock. Some of the factors that may cause the market price of our common stock to fluctuate include:

- the timing and commercial success of the launch of Reimbursed Dental Plans and other reimbursed insurance plans that incorporate the PerioPredict® test;
- demand for and acceptance of our products;
- our ability to develop new relationships and maintain and enhance existing relationships with strategic partners;
- regulatory developments or enforcement in the United States and foreign countries;
- developments or disputes concerning patents or other proprietary rights;
- introduction of technological innovations or new products or services by us or our competitors;
- failure to secure adequate capital to fund our operations, or the issuance of equity securities at prices below fair market price;

- changes in estimates or recommendations by securities analysts, if any cover our common stock;
- litigation;
- future sales of our common stock;
- general market conditions;
- economic and other external factors or other disasters or crises;
- period-to-period fluctuations in our financial results; and
- overall fluctuations in U.S. equity markets.

These and other external factors may cause the market price and demand for our common stock to fluctuate substantially, which may limit or prevent investors from readily selling their shares of common stock and may otherwise negatively affect the liquidity of our common stock. In addition, in the past, when the market price of a stock has been volatile, holders of that stock have instituted securities class action litigation against the company that issued the stock. If any of our stockholders brought a lawsuit against us, we could incur substantial costs defending the lawsuit. Such a lawsuit could also divert the time and attention of our management.

*Our management and their affiliates own a significant percentage of our stock and will be able to exercise significant influence over matters subject to stockholder approval.*

As of January 1, 2015, our executive officers, directors and their respective affiliates, beneficially owned approximately 42.6% of our outstanding common stock. Accordingly, these stockholders will be able to exert a significant degree of influence over our management and affairs and over matters requiring stockholder approval, including the election of our board of directors and approval of significant corporate transactions. This concentration of ownership could have the effect of entrenching our management and/or the board of directors, delaying or preventing a change in our control or otherwise discouraging a potential acquirer from attempting to obtain control of us, which in turn could have a material and adverse effect on the fair market value of our common stock.

*We do not expect to pay dividends for the foreseeable future and you should not expect to receive any funds without selling your shares of common stock, which you may only be able to do at a loss.*

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain any earnings for use in the operation and expansion of our business and do not anticipate paying any cash dividends on our common stock in the foreseeable future. Therefore, you should not expect to receive any funds without selling your shares, which you may only be able to do at a loss.

#### SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the information incorporated by reference in this prospectus contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or Securities Act, and Section 21E of the Securities Exchange Act of 1934, or Exchange Act, regarding our strategy, future, operations, future financial position, future revenues, projected costs, and plans and objectives of management. You can identify these forward-looking statements by their use of words such as “anticipate,” “believe,” “estimate,” “expect,” “intend,” “may,” “plan,” “project,” “target,” “potential,” “will,” “would,” “could,” “should,” “continue,” and similar expressions. You also can identify the fact that they do not relate strictly to historical or current facts. There are a number of important risks and uncertainties that could cause our actual results to differ materially from those indicated by forward-looking statements. For a description of these risks and uncertainties, please refer to the section entitled “Risk Factors,” any other risk factors set forth in any information incorporated by reference in this prospectus, as well as any other risk factors and cautionary statements we include or incorporate by reference into this prospectus in the future. While we may elect to update forward-looking statements wherever they appear in this prospectus or in the documents incorporated by reference in this prospectus, we do not assume, and specifically disclaim, any obligation to do so, whether as a result of new information, future events or otherwise.

**USE OF PROCEEDS**

The shares of common stock being offered by this prospectus are solely for the account of the selling stockholders. We will not receive any proceeds from the sale of these shares by the selling stockholders. We may, however, receive the proceeds of any cash exercises of Warrants which, if received, would be used by us for working capital purposes.

**MARKET FOR OUR COMMON STOCK****Market Information**

Our common stock currently trades under the symbol “ILIU” on the OTCQB™. The following table sets forth, for the periods indicated, the high and low sales prices for our common stock, as reported by the OTCQB™.

|                | High   | Low    |
|----------------|--------|--------|
| 2014:          |        |        |
| First Quarter  | \$0.38 | \$0.25 |
| Second Quarter | \$0.35 | \$0.25 |
| Third Quarter  | \$0.29 | \$0.11 |
| Fourth Quarter | \$0.17 | \$0.05 |

|                | High   | Low    |
|----------------|--------|--------|
| 2013:          |        |        |
| First Quarter  | \$0.52 | \$0.23 |
| Second Quarter | \$0.55 | \$0.35 |
| Third Quarter  | \$0.50 | \$0.31 |
| Fourth Quarter | \$0.39 | \$0.30 |

## **Stockholders**

As of January 1, 2015, there were approximately 131 stockholders of record and according to our estimate, approximately 3,000 beneficial owners of our common stock.

## **DIVIDEND POLICY**

We have never paid dividends to our stockholders. We currently intend to retain all available funds and any future earnings to fund the development and expansion of our business, and we do not anticipate paying any cash dividends in the foreseeable future.

## MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

*The following discussion of our financial condition and results of operations should be read in conjunction with our audited Financial Statements and the notes thereto included elsewhere in this prospectus.*

### General Overview and Trends

Interleukin Genetics, Inc. is a molecular diagnostics company that develops and commercializes unique genetic tests to guide better prevention and treatment of chronic diseases of aging. Our overall mission is to provide genetic tests and testing services to empower physicians, dentists, and wellness-oriented individuals, to maintain or improve their health, or the health of their patients. Our business focuses on personalized health, by providing genetic tests that are actionable and provide strong clinical value. Our tests are made available through healthcare providers or, for some of our tests, directly to end users. We have patents covering the use of specific patterns of gene variations for a number of common chronic diseases.

During the year ended December 31, 2014, we continued to focus our resources on commercializing our PerioPredict<sup>®</sup> test following completion of the MPPS, the large validation study with the University of Michigan and Renaissance Health Services Corporation ("RHSC"), and on the sales of our Inherent Health<sup>®</sup> brand of genetic tests and related programs.

On February 25, 2013, we entered into a Preferred Participation Agreement with RHSC, for itself and on behalf of certain of its affiliates and subsidiaries, which was amended and restated on November 1, 2013. Pursuant to this agreement, affiliates of RHSC agreed to reimburse us a fixed price for each PerioPredict<sup>®</sup> genetic test that we process for a customer of affiliates of RHSC. In addition, if during the term of the agreement we offer the PerioPredict<sup>®</sup> test to any other person or party for a lower price, such lower price would then be applicable to tests processed for a customer of such affiliates of RHSC for the remainder of the term of the agreement. RHSC and its affiliates will continue to receive the preferred pricing (or any lower market price during the term) only for so long as affiliates of RHSC continue to: (a) work to develop and to offer dental plans for which a significant portion of such affiliates' clients are eligible that provides for use of the PerioPredict<sup>®</sup> test and reimbursement of the test at the agreed upon price (each such plan, hereinafter referred to as a "Reimbursed Dental Plan") for which a significant portion of employees of RHSC's affiliates' customers are eligible; and (b) exercise their commercially-reasonable best efforts to maximize the number of customers that offer a Reimbursed Dental Plan. This amended agreement has a term of three years beginning February 25, 2013, unless terminated earlier (1) upon the mutual written agreement of us and RHSC, (2) if either party becomes the subject of bankruptcy, insolvency, liquidation or other similar proceedings, or (3) in the event of an uncured breach of the amended agreement by either party.



The timing of any revenues that we may receive under the Amended and Restated Preferred Participation Agreement (the “Preferred Participation Agreement”) with RHSC is dependent upon the timing of the offering of Reimbursed Dental Plans, which timing is very uncertain at this time and is dependent on a viable market developing for such plans. RHSC has informed us that it has presented the scientific data underlying Reimbursed Dental Plans to a number of customers and will make available Reimbursed Dental Plans as an alternative to a customer’s current plan for any customer that expresses an interest in such a plan. We may never receive significant revenues under this agreement. We continue to engage in discussions for the use of our PerioPredict® test with other insurance companies and large employers who could ultimately adopt reimbursed insurance plans or other arrangements, through the use of consultants and our internal management team.

On April 11, 2014, we announced the pre-print online publication of our research study titled “Association of interleukin-1 gene variations with moderate to severe chronic periodontitis in multiple ethnicities” in the *Journal of Periodontal Research*. The study results from multiple ethnic groups further validated the association between periodontitis and the interleukin-1 beta (IL1B) composite genotype pattern, a specific genetic profile that can be elucidated by our PerioPredict® genetic risk test. In addition, the study results demonstrated that detection of the IL1B variations tested provided added value in the prediction of moderate to severe periodontitis above and beyond the risk attributable to smoking and diabetes alone.

On April 22, 2014, we announced receipt of conditional approval from the New York State Department of Health to offer, process and report the results of the PerioPredict® test for periodontal disease. The State of New York is the only U.S. state that requires an independent regulatory review process including technical validation with clinical utility for laboratory developed tests run within a CLIA certified laboratory. Conditional status will be removed on successful completion of a future additional review, the timing of which is determined solely by the State of New York. As a result of New York State approval, the PerioPredict® test is now available to dental providers and their patients in all 50 U.S. states.

Our Inherent Health<sup>®</sup> brand of genetic tests includes the first-of-its-kind test for weight management that identifies an individual's genetic tendencies for weight gain related to either fat or carbohydrates in the diet. The Inherent Health<sup>®</sup> brand also offers customers a full suite of affordable, easy-to-use and meaningful genetic tests in heart health, bone health and nutritional needs. In addition, we launched additional products under the name Wellness Select that allows our e-commerce customers to purchase any combination of our Inherent Health<sup>®</sup> genetic tests at a discounted price.

We market our Inherent Health<sup>®</sup> brand of genetic assessment tests primarily through our commercial relationships with Alticor Inc. affiliated companies. Alticor is a related party. On October 26, 2009, we entered into a Merchant Network and Channel Partner Agreement with Amway Corp., d/b/a/ Amway Global ("Amway Global"), a subsidiary of Alticor. Pursuant to this agreement, Amway Global sells our Inherent Health<sup>®</sup> brand of genetic tests through its e-commerce website via a hyperlink to our e-commerce site. In 2014 and 2013, revenues from this agreement accounted for approximately 44% and 38% of our revenues, respectively.

Beginning in September 2012 and again in 2013, Access Business Group LLC ("ABG"), an affiliate of Alticor, a related party, placed purchase orders totaling approximately \$3.3 million consisting of weight management kits. The kits are included as part of a promotional bundle of products that Amway is now selling to their Individual Business Owners (IBOs). Of the \$3.3 million in orders received in 2013, \$1.8 million was related to the 2014 program and \$1.5 million was related to the 2013 program. Cash for the kits purchased for the 2013 program was received in the first quarter of 2013 and cash for the kits purchased for the 2014 program was received by December 31, 2013. As a component of the 2013 promotional program, and not reflective of actual product expiry, the kits were required to be redeemed before December 31, 2013. In February 2014, we removed the redemption date requirement for the 2013 promotional program, for which ABG paid us \$519,000 as a retrospective increase in the product purchase price. All revenues related to the 2013 promotional program, including the \$519,000, will remain deferred until the kits are redeemed or the breakage analysis determines the probability of eventual redemption is remote. In October 2014, we received \$250,000 as a retrospective increase in the product purchase price for unsold kits as consideration for extending the required redemption date of the 2014 promotional program to December 31, 2017. Cash received for these kits will be treated as deferred revenues until specific kits are returned for processing or on the final allowed redemption date of December 31, 2017. For the years ended December 31, 2014 and 2013, approximately 32% and 36%, respectively, of our revenue came from sales through ABG's promotional product bundle program.

On September 21, 2012, we entered into a License Agreement ("the License Agreement") with Access Business Group International LLC ("ABGI"), an affiliate of Alticor. Pursuant to this License Agreement, we granted ABGI and its affiliates ("the Licensees") a non-exclusive license to use the technology related to our Weight Management genetic test and to sell the Weight Management test in Europe, Russia and South Africa. ABGI, or a laboratory designated by ABGI, is responsible for processing the tests, and we receive a royalty for each test sold. The License Agreement has an initial term of five years from the date of first commercial sale of the Weight Management test under the agreement. For the years ended December 31, 2014 and December 31, 2013, \$150,923 and \$198,960, respectively, in license fees have been received pursuant to the License Agreement. The decline in license fees is due to reduced unit sales, which we believe is representative of the normal product lifecycle in this distribution channel.



In connection with the execution of the License Agreement, we and ABGI also entered into a Professional Services Agreement (the “PSA”) pursuant to which we have agreed to provide services to ABGI in connection with its sale and processing of the tests within the Territories. Services will be provided pursuant to a statement of work to be entered into from time to time between the parties. Such statements of work will also specify the fees to be paid by ABGI to Interleukin for such services. The PSA has no set term and may be terminated by either party, subject to certain conditions. For the year ended December 31, 2013, the Company earned \$5,250 in fees from the PSA. No fees were earned in the year ended December 31, 2014.

Our research and development expenses are focused on our own development and commercialization efforts related primarily to our PerioPredict® and Osteoarthritis genetic tests. We are also focusing on seeking potential commercial partners to validate our technology within their specific business model as a collaboration with little or no cost to us. This is different than in prior years when our development focus was concentrated in research and development to bring new test configurations to market.

We recognize revenue from genetic testing services when there is persuasive evidence of an arrangement, service has been rendered, the sales price is determinable and collectability is reasonably assured. Service is deemed to be rendered when the results have been reported to the individual who ordered the test. To the extent that tests have been prepaid but results have not yet been reported, recognition of all related revenue is deferred. During the fourth quarter of 2013, we concluded that sufficient historical customer genetic test redemption patterns existed to determine the period of time after which the likelihood of test redemption was remote for Inherent Health tests purchased. Based on our analysis of the redemption data, we estimate that period of time to be three years after the sale of a genetic test kit. Prior to making this determination, revenue was recognized only on test kits returned and processed. Beginning in the fourth quarter of 2013, we began to recognize breakage revenue based on the likelihood of test redemption becoming remote. The term remote requires statistical analysis of customer redemption patterns for all tests sold and returned. We analyzed redemption patterns from 2009 through 2014. Included in genetic test revenue in the fourth quarter of 2013 is \$213,000 of breakage revenue related to unredeemed genetic test kits from 2009 and 2010. Included in genetic test revenue in the year ended December 31, 2014 is \$309,000 of breakage revenue related to unredeemed genetic test kits from 2011. We expect to continue to recognize breakage revenue and the corresponding deferred cost of goods as well as analyze the data on a quarterly basis based on the historical analysis.

On May 17, 2013, we entered into a Common Stock Purchase Agreement (the “2013 Purchase Agreement”) with various accredited investors (the “2013 Investors”), pursuant to which we sold securities to the 2013 Investors in a private placement transaction (the “May 2013 Private Placement”). In the May 2013 Private Placement, we sold an aggregate of 43,715,847 shares of our common stock at a price of \$0.2745 per share for gross proceeds of \$12,000,000. The 2013 Investors also received warrants to purchase up to an aggregate of 32,786,885 shares of common stock at an exercise price of \$0.2745 per share (the “2013 Warrants”). The 2013 Warrants are all currently exercisable and have a term of seven years from the date they became exercisable.

In addition, pursuant to the 2013 Purchase Agreement, each 2013 Investor had the right, at any time on or before June 30, 2014 (the “Expiration Date”), to purchase at one or more subsequent closings its pro rata share of up to an aggregate

of 18,214,936 additional shares of common stock at a purchase price of \$0.2745 per share and warrants to purchase up to an aggregate of 13,661,201 shares of common stock at an exercise price of \$0.2745 per share . The Expiration Date was extended until December 31, 2014, and this right expired unexercised.

On December 23, 2014, we entered into a Securities Purchase Agreement (the “2014 Purchase Agreement”) with various accredited investors (the “2014 Investors”), pursuant to which we sold to the 2014 Investors in a private placement transaction (the “December 2014 Private Placement”) an aggregate of 50,099,700 shares of our common stock at a price of \$0.1003 per share for gross proceeds of approximately \$5.025 million. The 2014 Investors also received warrants to purchase up to an aggregate of 50,099,700 shares of common stock at an exercise price of \$0.1003 per share (the “2014 Warrants”). The 2014 Warrants are all currently exercisable and have a term of seven years.

On December 23, 2014, we also entered into a venture loan and security agreement (the “Loan Agreement”) with Horizon Technology Finance Corporation (the “Lender”) under which we have borrowed \$5.0 million (the “December 2014 Debt Transaction”). The loan bears interest at a floating rate equal to the One Month LIBOR Rate (with a floor of 0.50%) plus 8.50%. In the event that the One Month LIBOR Rate, as reported in the Wall Street Journal, exceeds 0.50%, the interest rate will be adjusted by an amount equal to the difference between such rates at the end of that particular month. At December 31, 2014, the rate was 9.0% per annum. The loan is to be repaid in forty-five (45) monthly payments consisting of fifteen (15) monthly payments of only interest followed by thirty (30) equal monthly payments of principal and interest. In addition, at the end of the repayment term (or at early termination of the loan) a final payment equal to 4.5% of the loan will be due and payable. Our obligations under the Loan Agreement are secured by a first priority security interest in substantially all of our assets other than our intellectual property. We have also agreed not to pledge or otherwise encumber our intellectual property assets, subject to certain exceptions. In connection with the Loan Agreement, we issued to the Lender and its affiliates warrants to purchase a total of 2,492,523 shares of common stock at an exercise price of \$0.1003 per share, which we refer to herein as the Lender Warrants. The Lender Warrants have a term of ten (10) years.

We recognize revenue from genetic testing services when there is persuasive evidence of an arrangement, service has been rendered, the sales price is determinable and collectability is reasonably assured. Service is deemed to be rendered when the results have been reported to the individual who ordered the test. To the extent that tests have been prepaid but results have not yet been reported, recognition of all related revenue is deferred. During the fourth quarter of 2013, we concluded that sufficient historical customer genetic test redemption patterns existed to determine the period of time after which the likelihood of test redemption was remote for Inherent Health tests purchased. Based on our analysis of the redemption data, we estimate that period of time to be three years after the sale of a genetic test kit. Prior to making this determination, revenue was recognized only on test kits returned and processed. Beginning in the fourth quarter of 2013, we began to recognize breakage revenue related to genetic tests kits utilizing the remote method. Under the remote method, breakage revenue should be recognized when the likelihood of the customer exercising rights of redemption becomes remote. The term remote requires statistical analysis of customer redemption patterns for all tests sold and returned. We analyzed redemption patterns from 2009 through 2014. Included in genetic test revenue in the fourth quarter of 2013 is \$213,000 of breakage revenue related to unredeemed genetic test kits from 2009 and 2010. Included in genetic test revenue in the year ended December 31, 2014 is \$309,000 of breakage revenue related to unredeemed genetic test kits from 2011. We expect to continue to recognize breakage revenue and the corresponding deferred cost of goods as well as analyze the data on a quarterly basis based on the historical analysis.

In the genetic test business, competition is in flux and the markets and customer base are not well established. Adoption of new technologies by consumers requires substantial market development and customer education. Historically, we have focused on our relationship with our primary customer, Alticor, a significant direct marketing company, in order to assist us in developing the market for our products and educating our potential customers. Our challenge in 2015 and beyond will be to develop the market for our personalized health products, in particular our PerioPredict® test. We continue to allocate considerable resources to commercialization of our PerioPredict® and Inherent Health® brands of genetic tests. Due to the early stage of these initiatives, we cannot predict with certainty fluctuations we may experience in our genetic test revenues or whether revenues derived from the Preferred Participation Agreement with RHSC and its affiliates or from our arrangements with Alticor-affiliated entities will ever be material, or if material, will be sustained in future periods.

## Liquidity and Capital Resources

As of December 31, 2014, we had cash and cash equivalents of \$11.5 million.

Cash used in operations was \$5.7 million for the year ended December 31, 2014 compared to \$4.0 million for the year ended December 31, 2013. Cash used in operations is primarily impacted by operating results, and to a lesser extent, by changes in working capital, in particular the impact of changes in accounts receivable and deferred revenue on cash balances.

Cash used in investing activities was \$88,000 for the year ended December 31, 2014, compared to \$832,000 for the year ended December 31, 2013. Capital additions were \$98,000 for the year ended December 31, 2014, partially offset by a \$10,000 refund from our landlord related to the surrender of the approximately 6,000 square feet of subleased office and laboratory space as of March 31, 2014. Approximately \$28,000 of the 2014 fixed asset additions relate to internal use software, \$5,000 relates to the addition of laboratory equipment, \$16,000 relates to the addition of a new server, and \$49,000 relates to improvements to our laboratory access server. Capital additions were \$838,000 for the year ended December 31, 2013, partially offset by \$6,000 related to a trade in of commercial lab equipment. Approximately \$661,000 of genetic test laboratory automation processing equipment was purchased for the introduction of our PerioPredict<sup>®</sup> genetic test beginning in January 2014. In addition, \$139,000 relates to the development of internal-use software. At December 31, 2013, \$375,000 of laboratory equipment and \$47,000 of internal-use software is reflected in accounts payable with a corresponding entry to fixed assets.

Cash provided by financing activities was \$9.7 million for the year ended December 31, 2014 compared to \$11.1 million for the year ended December 31, 2013. On May 17, 2013, we entered into the 2013 Purchase Agreement with the 2013 Investors, pursuant to which we sold an aggregate of 43,715,847 shares of our common stock, at a price of \$0.2745 per share for net cash proceeds of \$11.0 million. On December 23, 2014, we entered into the 2014 Purchase Agreement with the 2014 Investors, pursuant to which we sold an aggregate of 50,099,700 shares of our common stock at a price of \$0.1003 per share for gross proceeds of approximately \$5.025 million. On December 23, 2014, we also entered into a venture loan and security agreement with Horizon Technology Finance Corporation under which we have borrowed \$5.0 million. The aggregate net cash proceeds from the December 2014 Private Placement and the December 2014 Debt Transaction were \$9.7 million.

The amount of cash we generate from operations is currently not sufficient to continue to fund operations and grow our business. We expect that our current financial resources, including the proceeds from the December 2014 Private Placement and the December 2014 Debt Transaction will be adequate to maintain our current and planned operations at least through the next twelve months. We believe our success depends on our ability to generate significant revenues for the PerioPredict<sup>®</sup> test, through potential partners. The timing of any revenues that we may receive for the PerioPredict<sup>®</sup> test is uncertain at this time, and is contingent upon a number of factors, including our ability to consummate arrangements with other partners to promote the PerioPredict<sup>®</sup> test, our partners' ability to develop reimbursed insurance plans and to develop a viable market for such plans, and the timing of utilization of the PerioPredict<sup>®</sup> test pursuant to insured plans, or other possible arrangements. We do not expect to receive any significant revenues from the PerioPredict<sup>®</sup> test until early in 2016, at the earliest, and the timing of any such revenues may be substantially later. We may never receive significant revenues from the PerioPredict<sup>®</sup> test.

Until such time, if ever, that we generate revenues sufficient to fund operations, we may fund our operations by issuing common stock, debt or other securities in one or more public or private offerings, as market conditions permit, or through the incurrence of debt from commercial lenders. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of our existing stockholders will be diluted, and the terms may include liquidation or other preferences that adversely affect the rights of our stockholders. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring debt, making capital expenditures or declaring dividends. There can be no assurance that additional funds will be available when we need them on terms that are acceptable to us, or at all. If adequate funds are not available to us on a timely basis, we may be required to delay, limit, reduce or cease activities or operations or enter into licenses or other arrangements with third parties on terms that may be unfavorable to us or sell, license or relinquish rights to develop or commercialize our products, technologies or intellectual property. However, no assurance can be given at this time as to whether we will be able to achieve these objectives. The financial statements do not include any adjustment relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might be necessary should we be unable to continue as a going concern.

## **Results of Operations**

*Years Ended December 31, 2014 and 2013*



Total revenue was \$1.8 million for the year ended December 31, 2014 compared to \$2.4 million for the year ended December 31, 2013. The decrease in total revenue in 2014 is attributable to a higher level of promotional activity in 2013 by Amway that resulted in a larger volume of pre-paid test kits returned for processing, and therefore recognized as revenue, in 2013 compared to 2014. The decrease in revenue was partially offset by \$309,348 of breakage revenue recognized in the year ended December 31, 2014, compared to \$213,233 of breakage revenue recognized in the year ended December 31, 2013. In addition, we earned \$150,923 of royalties for the year ended December 31, 2014 from our license agreement with ABGI, compared to \$198,960 of royalties earned in the year ended December 31, 2013.

During the year ended December 31, 2014, 44% of our sales revenue came through our Merchant Network and Channel Partner Agreement with Amway Global compared to 38% during the year ended December 31, 2013. During the same periods, 32% and 36%, respectively, of our revenue came from sales through ABG's promotional product bundle program.

Cost of revenue for the year ended December 31, 2014 was \$1.4 million, or 79.3% of revenue, compared to \$1.6 million, or 67.2% of revenue, for the year ended December 31, 2013. The increase in the cost of revenue as a percentage of revenue in the year ended December 31, 2014 compared to the year ended December 31, 2013 is primarily attributable to the fixed laboratory costs being applied to a lower volume of genetic tests being processed in the period. Deferred cost of revenue related to breakage revenue was \$13,200 for the year ended December 31, 2014 compared to \$8,400 for the year ended December 31, 2013.

Research and development expenses were \$843,000 for the year ended December 31, 2014, compared to \$722,000 for the year ended December 31, 2013. The increase of \$121,000, or 16.8%, is primarily attributable to increased compensation related to employee annual salary performance increases as well as separation payments for departing staff.

Selling, general and administrative expenses were \$5.8 million for the year ended December 31, 2014, compared to \$6.6 million for the year ended December 31, 2013. The 12% decrease is primarily attributable to the increased spending in 2013 related to initial marketing activities in preparation for the introduction of the PerioPredict® test that did not recur in 2014, as well as decreased consulting and professional expenses and lower sales commissions paid to Amway Global as part of our Merchant Network and Channel Partner Agreement.

Interest expense was \$11,250 for the year ended December 31, 2014, as compared to \$472,000 for the year ended December 31, 2013. For 2014, \$11,250 of interest expense was related to the venture loan and security agreement entered into with Horizon Technology Finance Corporation on December 23, 2014. For 2013, \$174,000 of interest expense was related to our credit facility with Pyxis and \$298,000 related to non-cash interest expense representing the increase in the fair value of the contingent liability associated with the 2013 Warrants issued in the May 2013 Private Placement. The 2013 Warrants were issued on May 17, 2013 but a portion of the 2013 Warrants was contingent on shareholder approval of an increase in authorized common shares, which occurred August 9, 2013. The 2013 Warrants were initially recorded as a liability and on removal of the contingency they were marked to fair value on August 9, 2013 and recorded as equity, with the increase in fair value being recorded as non-cash interest expense.

### **Critical Accounting Policies and Estimates**

Our discussion and analysis of our financial condition and results of operations are based upon our financial statements. The preparation of these financial statements and related disclosures in conformity with accounting principles generally accepted in the United States of America requires us to (i) make judgments, assumptions and estimates that affect the reported amounts of assets, liabilities, revenue and expenses; and (ii) disclose contingent assets and liabilities. A critical accounting estimate is an assumption that could have a material effect on our consolidated financial statements if another, also reasonable, amount were used or a change in the estimates is reasonably likely from period to period. We base our accounting estimates on historical experience and other factors that we consider reasonable under the circumstances. However, actual results may differ from these estimates. To the extent there are material differences between our estimates and the actual results, our future financial condition and results of operations will be affected. Our most critical accounting policies and estimates upon which our financial condition depends, and which involve the most complex or subjective decisions or assessments are set forth in Note 3 to our financial statements included in Item 8 presented elsewhere herein.

## BUSINESS

### Overview

Interleukin Genetics, Inc. is a molecular diagnostics company that develops and commercializes unique genetic tests to guide better prevention and treatment of chronic diseases of aging. Our overall mission is to provide genetic tests and testing services to empower physicians, dentists, and wellness-oriented individuals, to maintain or improve their health, or the health of their patients. Our business focuses on personalized health, by providing genetic tests that are actionable and provide strong clinical value. Our tests are made available through healthcare providers or, for some of our tests, directly to end users. We have patents covering the use of specific patterns of gene variations for a number of common chronic diseases.

### Our Products

Our genetic tests that are currently being commercialized are:

*PerioPredict*<sup>®</sup>: This test analyzes patterns of genetic variations that change the biology to amplify inflammatory responses of individuals who carry these genetic patterns. The test identifies individuals who are at increased risk for more severe periodontal disease and disease progression, and require more preventive care. In November 2013, we announced the introduction of PerioPredict<sup>®</sup>, our next-generation version of the PST<sup>®</sup> genetic test. The genetic test utilizes an expansion of previous genetic markers that now cover all major ethnic groups. We no longer offer the PST<sup>®</sup> genetic test.

*Weight Management Genetic Test*: This test determines whether individuals will lose weight more predictably on a low fat, low carbohydrate or balanced diet and whether normal or vigorous exercise is needed to most efficiently lose existing body fat. This test is marketed under our Inherent Health<sup>®</sup> brand. The test results guide more effective long term weight loss.

*Bone Health Genetic Test*: This test is designed to identify whether an individual is more likely to be susceptible to spine fractures and low bone mineral density associated with osteoporosis. This test is marketed under our Inherent Health<sup>®</sup> brand.

*Heart Health Genetic Test*: This test is designed to identify genetic predisposition to excess inflammation, which is a risk factor for heart attack. This test is marketed under our Inherent Health<sup>®</sup> brand.

*Nutritional Needs Genetic Test*: This test is designed to identify DNA variations in genes crucial to B-vitamin metabolism and the ability to manage oxidative stress. This test is marketed under our Inherent Health<sup>®</sup> brand.

*Wellness Select Genetic Test:* This allows buyers to purchase any combination of Inherent Health® genetic tests at a discounted price. This is marketed under our Inherent Health® brand.

We have entered into an Amended and Restated Preferred Participation Agreement with Renaissance Health Services Corporation, or RHSC, the exclusive distributor of the Delta Dental brand in eight states, with respect to reimbursement for our PerioPredict® test (as amended and restated, we refer to this agreement as the “Preferred Participation Agreement”). We market our Inherent Health® brand of genetic assessment tests primarily through our commercial relationships with Alticor affiliated companies such as Amway.

In addition to the currently marketed genetic tests listed above, we have developed an Osteoarthritis (OA) genetic test to identify individuals at increased risk for progression of OA and its complications, such as knee replacement; and a cardiovascular disease (CVD) test to identify individuals at increased risk for a second heart attack. Either test may have clinical utility, and therefore may be useful to physicians in managing patient care, and to pharmaceutical companies in developing disease modifying drugs to prevent progression of OA, or to assess and refine the value of drugs indicated for prevention of secondary CVD events. In early 2015, we entered into an arrangement with Isis Pharmaceuticals, Inc. pursuant to which we are providing testing services to support Isis clinical trials. We are exploring additional opportunities to collaborate on drug clinical trials, and to expand the use of our genetic tests in clinical practice.

### **Genetic Tests and the Future of Healthcare and Wellness**

Until recently, patients with physical symptoms, such as pain or altered function, were treated by physicians and dentists based on how early the disease was discovered and the severity of damage produced. Management of chronic diseases has largely focused on identifying factors that “cause” the disease and ways to alter or reverse the disease after it has been diagnosed. Some causes, such as bad cholesterol in heart disease, are used for public health awareness and for patient testing to draw attention to early management. Common examples of altering or reversing initiating factors include calorie reduction in the case of being overweight, reducing levels of LDL cholesterol in the case of heart disease, reduction of bacteria in the case of periodontal disease, and increasing estrogen levels in the case of osteoporosis. However, it is now well established that while initiating factors are essential for disease, the severity of chronic diseases and their complications are mostly the result of modifying factors, such as smoking and genetics, that alter an individual’s response to the disease initiator and rate of damage produced.

The future of healthcare has been described as P4 medicine<sup>1</sup>: Personalization, which path are you on; Predictive, can we identify that you are on the disease path prior to development of severe disease; Prevention, if we can identify early which path you are on, what can we do to tilt the curve down to extend the years of wellness or prevent the disease complications entirely. The last P is Participatory, to acknowledge the individual's responsibility in managing and preventing chronic diseases.

Many people have the mistaken impression that genetics dictate how an individual will look or feel and that there is nothing one can do to change that genetic destiny. While it is true that some genetics have a permanent effect on a person's appearance or condition (referred to as a phenotype), the vast majority of genetic influences of one's phenotype can be modified. An active field of research in healthcare today is to better understand the interaction between our environment and our genes. The scientific community is learning more each day about the role and significance of genetic variations, such as single nucleotide polymorphisms, or SNPs, and haplotypes, on an individual's health. SNP and haplotype analysis coupled with detailed knowledge of environmental factors now is an important area of study in order to improve human health. A SNP may cause a gene to make a different amount of a protein for a given condition, change the timing of protein synthesis or make a variant form of the protein; each of these changes may lead to a discernible biological impact. However, certain lifestyle changes can influence significantly whether a set of genes are activated or inactivated despite the variation in the gene. Thus while the propensity for physiological impact is always present for a given set of genes and their variants, whether or not the condition manifests itself is often controlled by our environment and the lifestyle choices we make.

We have focused our research, development and commercialization efforts on identifying combinations of SNP variations that alter biology involved in inflammation or metabolic disease. We have worked with several universities throughout the world to identify genetic variations that influence the body's inflammatory response. Our scientific advisory board includes Sir Gordon Duff, one of the pioneers in the understanding of the role that genetics plays in inflammatory disease pathways. In addition, we have conducted clinical studies for various indications throughout the world involving tens of thousands of individuals to demonstrate clinical value of our tests. To date, some of our clinical research collaborations include, or have included, studies at: Stanford University; the University of North Carolina at Chapel Hill; the Mayo Clinic; Brigham & Women's Hospital (Harvard Medical School); University of California at San Francisco; University of California at San Diego; New York University Medical Center; University of Sheffield, (UK); Yonsei University Medical Center, (Korea); Tongji Medical College, (China); and Tuft's University Medical Center. We have also conducted research with the Geisinger Clinic.

Inflammation is one of the body's most basic protective mechanisms, and the understanding of the role of inflammation in disease and various other conditions has increased over the past few years. It is generally accepted that many chronic conditions begin with a challenge to the tissues of the body and that the inflammatory response system of an individual mediates the clinical manifestation. It is also now thought that SNP variations in the genes that influence the inflammatory process can have an important impact on a person's risk/trajectory of a disease for the same set of initiating events or conditions.

Typical inflammatory diseases include periodontitis and rheumatoid arthritis. In recent years, inflammation has been found to affect several other major diseases of aging that were not previously considered inflammatory diseases, including heart disease and osteoarthritis. For example, an individual who has a strong inflammatory response may be more successful in clearing a bacterial infection than an individual with a less robust inflammatory response. However, that strong inflammatory response may actually cause that individual to be at increased risk for a more severe course in one or more of the chronic diseases that generally affect people in mid to later life, osteoporosis, osteoarthritis, and periodontal disease. Individuals' gene variations influence the severity of the risks and predispositions to these diseases.

## **Our Approach to Test Development**

We seek to develop tests that may reduce the risk of certain chronic conditions and illnesses or guide more effective prevention or treatment for particular conditions. In order to do so, we believe a genetic test should be useful, understandable, credible and provide actionable guidance. The action resulting from the information we seek to provide through our genetic tests could be some form of medical preventive care or treatment, dietary alteration, lifestyle change, or more careful monitoring of the person's condition. Before developing a genetic test, we make it a priority to understand its clinical value and market potential.

<sup>1</sup> Weston AD, Hood L (2004). Systems biology, proteomics, and the future of health care: toward predictive, preventative, and personalized medicine. *J Proteome Res* 3(2):179-196.

Multiple genes and complex gene interactions along with environmental factors determine the probability of an individual contracting many common diseases. We may develop a test based on our proprietary genetic markers or public markers including important SNPs we have identified, if: a) clinical studies show that their effect has a critical and unique influence on the clinical expression of disease, or b) the genetic markers guide the development or use of lifestyle, preventive measures or therapeutic agents that modulate the specific actions of those genetic factors. The effects of our genetic factors must be sufficiently powerful so that our proprietary genetic markers cannot be excluded from a test panel without substantially reducing the practical clinical usefulness of the test. For example, clinical studies have shown that in patients with a history of heart disease, higher levels of inflammation (as measured by certain markers such as C-reactive protein, a transient marker for inflammation) are one predictor for future heart attacks. Indeed, published studies indicate that chronic underlying inflammation is a critical factor for increased heart attack risk. We believe that our proprietary genetic variations reliably identify those individuals who have a lifelong tendency to experience elevated inflammation and therefore to have higher inflammation-based risk for heart disease. Development efforts will continue to use our proprietary genetic technology as part of a broader genetic panel that predicts an individual's risk for disease as he or she ages or predicts a patient's likelihood of severe complications from disease or response to specific treatment if the individual has already been diagnosed with disease.

For each targeted clinical area that meets our criteria, we may develop one or more proprietary tests that are anchored by our intellectual property, plus additional candidate genes that have been validated and shown to be of value. Other genes that are added to a test panel may be in-licensed or may be available from the public domain. For example, our osteoporosis risk assessment panel includes multiple SNPs covered by our intellectual property, plus additional genes that have been validated as risk factors for osteoporosis. Since knowledge about the genes involved in human health will continue to evolve over many years, we may introduce test panels that initially have our proprietary genetic factors with successive versions of additional genes.

We also believe that combining, in non-obvious ways, single gene variations to create a unique or novel tool may result in new, proprietary intellectual property for us. For example, our weight management genetic test panel involves five SNPs in four genes that we combined into novel patterns. We have filed patent applications covering this product.

In the past few years, the use of haplotypes has become a standard approach to genetic risk assessment for complex diseases. Haplotypes are blocks of genetic variations that are inherited together from one parent and in some cases the specific block of variations has functional significance beyond the biological functions attributable to the individual SNPs. The same SNP may have very different effects on gene function in different individuals depending on the haplotype context. We believe that we have expertise, experience and intellectual property related to the use of haplotypes in assessing genetic risk for complex diseases and we have filed patent applications in this area as well.

## **Business Strategy**

Our revenue model consists of:

- reimbursement for the processing of our PerioPredict® genetic test by insurance providers;
- sales of our Inherent Health® brand of genetic tests either directly to end users or through partnerships such as with Alticor affiliated companies;
- sales of our Inherent Health® brand of genetic tests to commercial distribution partners such as regional weight loss centers; and
- license fees and royalties for intellectual property used in the sale of partner genetic tests.

Our primary business focus and strategy is to continue our commercialization efforts with our PerioPredict® genetic test. In addition, we plan to continue to develop and sell tests for our own business needs under the Inherent Health® brand.

We market our Inherent Health® brand of genetic assessment tests primarily through our relationships with Alticor's Amway Global Company and Access Business Group LLC. Under these agreements, Amway's independent business owners, or IBOs, are able to purchase genetic tests. We believe our proprietary genetic test brands supports the efforts of Amway to develop personalized consumer products for their IBOs' customers. Sales with Amway through these business arrangements began in December 2009.

### **Our Products and Product Development Pipeline**

We are focused on commercializing our existing genetic tests, primarily PerioPredict®, and further development of our tests for cardiovascular disease, osteoarthritis progression/severity, and weight management. Our plan is to develop and commercialize tests that (1) identify healthy individuals who have a higher probability of increased risk for early or more severe health risks, (2) allow for an individual to understand which lifestyles will be best suited for his or her needs and (3) may be used in patients who have already been diagnosed with a specific disease to identify those patients who are more likely to develop severe disease complications and to guide better treatment and prevention of progression.



### *Genetic Test for Risk of Periodontal Disease*

Periodontitis is a chronic inflammatory disease initiated by specific bacteria that activate host mechanisms destroying the bone and connective tissues that support the teeth. Between 8% and 13% of the worldwide adult population exhibit severe generalized periodontitis, with many more having clinical signs of moderate disease. Substantial data support the current concept that specific bacteria are essential to initiation and progression of chronic periodontitis, but host modifiers such as smoking, diabetes, and genetic influences determine the rate of progression and disease severity. Interleukin-1 (IL-1) is well-established as one of the critical regulators of periodontal disease, and studies in non-human primates have shown that drugs specifically blocking IL-1 alone or dramatically and significantly reduces tissue destruction and bone loss, even when the bacterial challenge is not reduced. Current preventative treatments for gum disease are more routine cleanings and good oral hygiene.

There are nearly 175 million individuals covered by dental insurance in the U.S. Most typical insurance plans now reimburse for two cleanings per year per individual. Many plans cover more cleanings for individuals already diagnosed with severe periodontal disease. However the current system of prevention is a “one size fits all model,” and there is little evidence to support two visits per year for everyone. Some individuals could need 3-4 preventive visits per year and many people could need only one or potentially fewer cleanings. Our belief is that there is a need for a greater optimization or preventative dental care to improve outcomes and reduce long term oral healthcare expenses.

On November 25, 2013 we announced the introduction of PerioPredict<sup>®</sup>, the Company’s new next-generation version of the PST<sup>®</sup> genetic risk test for periodontal disease. Like the original PST<sup>®</sup> test, PerioPredict<sup>®</sup> is a genetic test that analyzes genetic variations associated with inflammation and identifies individuals who are at increased risk for more severe periodontal disease. The PerioPredict<sup>®</sup> genetic test identifies specific polymorphisms (genetic variations) in genes that regulate the production of interleukin cytokines. Higher gingival levels of these proteins are associated with destruction of soft tissue attachment and bone, and increased severity of periodontitis in certain patient populations. Results from several clinical studies indicate that certain inflammatory cytokine levels in the gingival crevicular fluid were significantly higher in PerioPredict<sup>®</sup> positive patients than in patients who were PerioPredict<sup>®</sup> negative. PerioPredict<sup>®</sup> testing need only be done once in a lifetime and identifies “at risk” patients early on to enable targeted treatment. This objective information allows the dentist and hygienist to better guide treatment to reduce complications and costs associated with more severe periodontitis. The test also helps to establish long-term patient relationships based on the patient’s genetic predisposition. The new and improved sample collection device now utilizes a simple, easy-to-use cheek swab. The new test also utilizes an expansion of previous genetic markers that now cover all major ethnic groups including Hispanic, African-American, and Asian, in addition to Caucasian. The PerioPredict<sup>®</sup> test identifies adults at increased risk for severe disease who would not have otherwise been identified by a history of smoking or diabetes.

During the year ended December 31, 2014, we began initial efforts to commercialize the PerioPredict<sup>®</sup> genetic test, exclusively through a pilot marketing program conducted by Renaissance Health Services Corporation (RHSC), based on the validation study (referred to as the Michigan Personalized Prevention Study —“MPPS”) with the University of Michigan and RHSC. The objective of the MPPS is to improve dental care by identifying and using certain risk

factors to set preventative treatment regimens. On August 6, 2012, we announced that we had received top line results from the MPPS, and on June 10, 2013, we announced the publication of the MPPS in the *Journal of Dental Research*. The study examined data from 5,117 patients monitored for 16 consecutive years. These results indicate that in Low Risk patients (those with none of three risk factors: smoking, diabetes, and PerioPredict®) there was no significant difference between two dental preventive visits per year and one preventive visit per year in the percentage of patients who had tooth extractions over the 16 year monitoring period; 13.8% versus 16.4%, respectively. In addition, these results indicate that in High Risk patients (those with any one of the three risk factors, with PerioPredict being the most common of the three), two preventive visits per year significantly reduced the percentage of patients who had extractions over a 16 year monitoring period compared to one preventive visit per year; 16.9% vs. 22.1%. There was also a positive relationship between number of risk factors and the percentage of patients with extractions. For patients with two or three risk factors, and smoking plus PerioPredict® positive represented approximately 67% of those patients, two cleanings annually did not appear to be sufficient to control risk for tooth loss.

On February 25, 2013, we entered into a Preferred Participation Agreement with RHSC, for itself and on behalf of certain of its affiliates and subsidiaries, which was amended and restated on November 1, 2013. Pursuant to this agreement, affiliates of RHSC have agreed to reimburse us a fixed price for each PerioPredict® genetic test that we process for a customer of affiliates of RHSC. In addition, if during the term of the agreement we offer the PerioPredict® test to any other person or party for a lower price, such lower price shall then be applicable to tests processed for a customer of such affiliates of RHSC for the remainder of the term of the agreement. RHSC and its affiliates will continue to receive the preferred pricing (or any lower market price during the term) only for so long as affiliates of RHSC continue to: (a) work to develop and to offer dental plans for which a significant portion of employees of RHSC's affiliates' customers are eligible that provide for use of the PerioPredict® test and reimbursement of the test at the agreed upon price (such plans, hereinafter referred to as "Reimbursed Dental Plans"); and (b) exercise their commercially-reasonable best efforts to maximize the number of customers that offer a Reimbursed Dental Plan. This agreement has a term of three years beginning on February 25, 2013, but may be terminated earlier (1) upon the mutual written agreement of us and RHSC, (2) if either party becomes the subject of bankruptcy, insolvency, liquidation or other similar proceedings, or (3) in the event of an uncured breach of the Agreement by either party.

PerioPredict® is solely available through Interleukin Genetics. The web site for the PerioPredict® test is [www.PerioPredict.com](http://www.PerioPredict.com). The original PST® test is no longer available through any of its former distributors. The PerioPredict® genetic test will be used in any Reimbursed Dental Plans offered by RHSC, and reimbursed insurance plans offered by other insurers.

### ***Inherent Health® Brand of Genetic Tests***

#### *Weight Management Genetic Test*

On any given day one in three adult women and one out of four adult men in the U.S. are dieting. This is a total of approximately 63 million individuals. The diet market can be broken down into four levels of dieters. The majority of individuals dieting are in do-it-yourself programs (55 million) with the remaining majority distributed through various national mass market retailers such as Jenny Craig, Weight Watchers, Nutrisystems, Medifast (approximately 5 million). A small category of programs are led by regional, boutique fitness centers and spas or dieticians (1 to 2 million) such as the Canyon Ranch and finally the remainder those in most need are being medically treated (~200,000) with the majority undergoing bariatric surgery. Several estimates have been published for the total number of weight related services and specialty products being provided in the U.S. Estimated annual expenditures range from \$40 to \$50 billion in the U.S. with the majority of these costs being paid out of pocket by individuals.

Our Weight Management Genetic Test helps take the guesswork out of finding an effective diet and exercise solution by revealing actionable steps to achieve weight goals based on genetics. The test determines whether a low fat, low carbohydrate or balanced diet may be best and whether normal or vigorous exercise is needed to most efficiently lose existing body fat. The test provides new information beyond traditional assessments, so that nutritional intake and fitness routines can be tailored for improved, sustainable results. This test identifies five SNPs in four human genes: fatty acid binding protein 2 (FABP2); adrenergic receptor beta 2 (ADRB2 –two variations); adrenergic receptor beta 3 (ADRB3); and peroxisome proliferator-activated receptor gamma (PPAR- ). These markers are involved in certain physiological pathways relating to body weight. Certain patterns of markers are associated with differential response to certain diet and exercise regimens.

We have conducted a number of studies that demonstrate a gene-diet interaction based on the multi-locus patterns noted above. The first study, completed in 2010, involved subjects who originally participated in Stanford University's A TO Z weight loss study. Individuals from the A TO Z study were contacted to participate in this retrospective genotype-diet interaction study. In the original study, 311 overweight/obese (body mass index, 27-40 kg/m<sup>2</sup>), nondiabetic, premenopausal, generally healthy women were randomly assigned for 12 months to either the Atkins-like (very low carbohydrate), Zone-like (low carbohydrate), LEARN-like (balanced), or Ornish-like (low fat) diets for the primary purpose of losing weight. The extensive data collected in that study included dietary intake assessment (three unannounced 24-hour recalls for each time point administered by a dietitian and analyzed using NDS-R, University of Minnesota), anthropometric measures including weight, and related physiological variables, all collected at baseline,

two, six, and 12 months.

Although Stanford University had retained plasma samples from the original A TO Z study, the Institutional Review Board (IRB) reviewing the project first requested that we recruit and collect DNA under informed consent. Recruitment first began in August 2008 and ended in February 2009. A TO Z study participants eligible for inclusion in the study were those who provided both consent for the current study as well as a sufficient sample of DNA for genotyping (N=138). Those who completed the full 12-month protocol of the original A TO Z study totaled 121. The first set of analysis (N=138) showed a diet-gene interaction as determined by the test's pattern assignments. As a result of promising preliminary results from the genetic analysis of this subset of subjects who participated in the A TO Z study, our research collaborators at Stanford University received IRB approval in 2011 to extract DNA from retained plasma samples from all subjects who participated in the study. We successfully obtained DNA and genotyped 291 of the 311 subjects. Preliminary analysis conducted solely by Interleukin in March 2012, demonstrated that subjects with three different genetic test patterns had different weight loss responses at 12 months depending on the diets to which they were assigned. The analysis from the larger dataset showed that further improved weight loss could be achieved if certain of the test's original diet assignments were modified. As a result, in March 2012, we updated our laboratory information management system's reporting and generated new diet recommendations for each pattern to provide customers the latest information from the new research.

Another study was conducted on the Weight Management Genetic Test with MetroWest Medical Center Hospital (MWM) as a prospective, real world setting trial. Thirty-four overweight male & female hospital employees were enrolled in a corporate wellness program. All study participants were counseled on diet and exercise by dietitians and exercise physiologists employed by MWM for the wellness program. Diet guidance included the American Heart Association diet and 500kcal reduction in caloric intake. Fourteen subjects were randomly given the Weight Management Genetic Test and diet guidance based on test results 2 weeks after baseline. Weight measurements and blood samples were taken at baseline, 24, 49, 86 and 100 days. The results of the study showed that those subjects who had taken the test lost statistically significantly more weight during the period than those who had not taken the test. Additional research studies on the Weight Management test are in progress.

### *Bone Health Genetic Test*

Our Bone Health Genetic Test is designed to identify whether an individual is more likely to develop spine fractures and low bone mineral density associated with osteoporosis. Although it typically starts later in life, early intervention can help prevent osteoporosis. Preventive measures can reduce the risk for bone loss and fractures, which in the case of vertebral fractures leads to a hunched over appearance. The test identifies a SNP in each of three genes involved in processes that affect bone; estrogen receptor alpha (ER1 Xba1), vitamin D receptor (VDR), and interleukin-1 (IL-1). Certain patterns of variations are associated with increased risk of spine fracture and/or low bone mineral density. The test can be used as an aid to making diet, exercise, and other lifestyle choices to maintain and improve bone health.

### *Heart Health Genetic Test*

Our Heart Health Genetic Test is designed to identify genetic predisposition to excess inflammation, which is a risk factor for heart attack. The genetic analysis identifies individuals that have a lifelong tendency to overproduce certain chemicals in the body that lead to inflammation. Overproduction of these chemicals may start a chain reaction that ultimately may lead to a heart attack. Knowing genetic risk will enable individuals to take specific actions to decrease overall risk. The test identifies three SNPs in two genes involved in inflammation, IL-1 alpha and IL-1 beta. Certain IL-1 variations are associated with increased inflammation, which is a risk factor for early heart attack. The test may be used as an aid to making diet, exercise, and other lifestyle choices to reduce inflammation-based risk.

### *Nutritional Needs Genetics Test*

Our Nutritional Needs Genetics Test is designed to identify DNA variations in genes crucial to B-vitamin metabolism and the ability to manage oxidative stress. Individuals with certain variations in these genes may be at increased risk for ineffective utilization of B-vitamins and potential for cell damage caused by oxidative stress, both of which can in some cases lead to increased risk for certain diseases. The test identifies the presence or absence of human genotypic markers methylenetetrahydrofolate reductase (MTHFR) and transcobalamin II (TCN2) involved in vitamin B metabolism and markers superoxide dismutase 2 (SOD2), glutathione S-transferase 1 deletions (GSTM1), paraoxonase 1 (PON1), X-ray repair cross complementing group 1 (XRCC1) in response to oxidative stress. Certain variations are associated with less efficient B-vitamin metabolism or reduced activity of endogenous anti-oxidant systems. The test may be used to aid individuals in deciding whether to supplement their diet with B vitamins and/or antioxidants.

### *Wellness Select Genetic Test*

Our Wellness Select Genetic Test allows buyers to purchase any combination of Inherent Health® genetic tests at a discounted price.

### *Genetic Test Pipeline*

In addition to the genetic tests listed above that we currently market, we are also focusing our genetic test development efforts on the following programs:

*Cardiovascular Disease: Use of IL-1 pro-inflammatory genetic variations to guide drug development and use to prevent secondary CVD events*

Inflammation is well-documented to contribute to acute cardiovascular (CVD) events through biological effects on multiple components of the atherothrombotic cardiovascular disease process. Inflammatory biomarkers such as high-sensitivity C-reactive protein (hsCRP) identify individuals at high risk for both first and recurrent CVD events even in individuals without elevated lipid levels. We have previously reported that individuals with elevated oxidized phospholipids, as represented by Lp(a), are at increased risk for coronary artery atherosclerosis (Tsimikas et al. 2005), but the linear relationship was only present in individuals who tested positive for our pro-inflammatory IL-1 genetic patterns (Tsimikas et al. 2014). In addition, the combination of high Lp(a) levels and presence of the pro-inflammatory IL-1 genetic variations in one of our tests was predictive of which of those patients developed secondary CVD events in the next 4 years. The combination was significantly better than either factor alone and suggests that the bad lipids are working in part through the gene variations in our test.

We have recently announced a collaboration with ISIS Pharmaceuticals to use our IL-1 genetic test in a Phase 2 study of their anti-sense drug that has been shown in Phase 1 to reduce Lp(a) levels. Other companies are testing IL-1 blocking drugs for various indications, including Novartis which is in current clinical trial of Canakinumab for secondary CVD events. We believe that our proprietary IL-1 genetic patterns that identify patients who over-produce IL-1 may have value in guiding development and use of drugs that directly or indirectly target IL-1 effects on CVD events.

### *Osteoarthritis Genetic Test*

Osteoarthritis, or OA, is the most common adult joint disease, increasing in frequency and severity in all aging populations. The estimated U.S. prevalence is 20-40 million patients or five times that of rheumatoid arthritis. The most common forms of OA involve the hand, knee, hip and spine. Total knee replacements number over 250,000 per year and total hip replacements number over 300,000 per year in the United States. OA may involve a single joint or multiple joints in the same individual, with current therapy focused on pain relief, as there is no FDA-approved therapy that arrests or reverses the joint deterioration. The etiology of OA is multifactorial involving both mechanical and biochemical factors. OA progression is associated with accelerated cartilage degradation leading to joint space narrowing, painful joint disruption, and functional compromise. OA disease progression is characterized by a proinflammatory gene expression pattern in cartilage and in joint synovial fluid, with a reactive increase in bone density in the subchondral bone. Large amounts of data provide support for a central role of interleukins in the pathogenesis of OA including animal susceptibility models, models of IL-1-targeted therapy, genetic association studies, and elevated interleukin gene expression in patients with generalized OA. Genetic variations in the interleukin-1 gene cluster have been previously determined to be associated with multiple clinical phenotypes in OA. Our OA program plans to investigate whether interleukin gene variations together with several other inflammatory gene variations is associated with the occurrence of multi-joint OA for the development of a genetic risk assessment test.

We have published findings on the genetics of OA in the *Annals of Rheumatic Diseases*. We reported that a novel, patent-pending panel of genetic markers was highly predictive of which patients with knee OA were likely to develop severe disease as they age. The studies were done as a collaboration between Interleukin and New York University Hospital for Joint Diseases. This observation has been validated in a study together with the Thurston Arthritis Research Center at the University of North Carolina at Chapel Hill using their 1,154-patient longitudinal study to evaluate the role of genetic factors in OA progression. In addition, we reported that patients with radiographic signs of early knee osteoarthritis were genetically different from those without radiographic signs of the disease and progressed to moderate or severe OA at a much greater frequency. Of those individuals who were completely free of radiographic signs of knee OA at the onset of the study, only 8.5 percent progressed to moderate or severe disease, whereas 33 percent of those with very early radiographic signs of disease exhibited progression. Those with early signs of OA were more likely than those who had no signs of disease to carry certain genetic factors, including variations in both the IL-1 receptor antagonist gene (IL1RA) and the DVWA gene that is involved in collagen formation. The combination of early radiographic signs of disease and carriage of gene variations associated with OA progression appears to identify individuals at increased risk for severe OA. We have filed patent applications on these findings. The validation study was published in *Osteoarthritis and Cartilage*. The published paper reports that individuals with radiographic knee osteoarthritis (OA) with a specific pattern of gene variations in the interleukin-1

receptor antagonist gene (IL1RN), which is involved in controlling inflammation, were more likely to progress to severe disease than those without the gene variations. In addition, the effect of these gene variations was particularly important in those with high body mass index, while not having a strong effect in those with lower body mass index.

We believe this information may allow pharmaceutical companies that are developing the first disease-modifying OA drugs (DMOADs) to screen patients and include in their clinical trials only those patients who have progressive disease. There is currently no mechanism for selecting high risk patients, and multiple clinical DMOAD studies have failed due to excessive numbers of patients with no progression of disease. The results may be useful for setting the dose of hyaluronic acids in the treatment of osteoarthritis pain. The genetic test could help identify those patients who need increased frequency dosing regimens or higher doses of the compound. This genetic information may also assist the rheumatologist in managing the medical and surgical options of individual patients. Additional studies identified a different set of genetic markers that were predictive of which patients started with knee OA and subsequently developed hand problems. We intend to search for marketing and sales partners to introduce the tests into the medical channel.

### **Laboratory Testing Procedure**

To conduct a genetic risk assessment test, the end-user collects cells from inside the cheek using a buccal swab brush and submits it by mail to our laboratory. Samples are processed only with a requisition signed by either a customer's physician, one provided by Interleukin Genetics or a patient's dentist and a customer consent for the genetic test. Our CLIA-certified clinical laboratory performs the ordered genetic test using stringent standard operating protocols. Following state and country regulations the test results are provided directly to the customer and/or the designated health care provider.



We process test samples in our CLIA-certified genetic testing laboratory. The regulatory requirements associated with a CLIA-certified clinical laboratory are addressed under the section titled “Government Regulation.” We have upgraded the systems and processes for the laboratory with the addition of high volume analytical equipment as well as updated protocols for all of the laboratory processes. We currently hold licenses for all US states that require a genetic test processing license and meet the regulatory requirements as needed for other countries.

## **Marketing and Distribution Strategy**

### ***PerioPredict®***

PerioPredict® is available only through Interleukin Genetics. Dentists are provided test sample collection kits at no charge for use with patients with reimbursement for the PerioPredict® test through employer benefit plans. Licensed dentists and physicians may purchase the test directly from Interleukin Genetics for use on patients that do not have reimbursement for the test. We have subcontracted with a fulfillment center to provide genetic test kits to dental offices that have patients covered under insurance plans offered by RHSC and other payers. We also have dental hygiene educators working with the dental offices that do not have prior experience with PerioPredict® to assist in the educational process for utilization of the genetic test. We do not expect to receive any significant revenues from PerioPredict® until 2016, at the earliest, and the timing of any such revenues may be substantially later. We may never receive significant revenues from this product. See “Part I, Item 1A. Risk Factors - The timing and amount of revenues, if any, that we may receive pursuant to the Preferred Participation Agreement with RHSC and its affiliates, or any other agreements we may enter into with other payors or large employers is uncertain” for a discussion of the risks associated with the timing and amount of any revenues we may receive from the PerioPredict® test.

### ***Inherent Health®***

We market our Inherent Health® brand of genetic tests using our e-commerce website and under contract with Amway and several regional weight management focused organizations. Amway sells the Inherent Health Weight Management test in the U.S. and six countries in Europe. The European tests are processed through two European laboratories that have been validated for quality assurance purposes by Interleukin Genetics. We receive a royalty payment from each test processed in Europe but do not receive a test processing fee. We have developed a complete e-commerce solution for our Inherent Health® brand of genetic tests, [www.inherenthealth.com](http://www.inherenthealth.com). We have subcontracted with a fulfillment center to distribute tests to customers ordering via our online store. The e-commerce solution has provided a friendly and easy to use method for the purchase of our genetic tests. We are partnered with a number of websites that have established a link to our site in order to distribute tests. We pay these sites commissions for all orders made via a click through from their site to ours.

## Intellectual Property

Our intellectual property is focused on the discoveries that link variations in key inflammation and metabolic genes to various conditions or illnesses. We initially concentrated our efforts on variations in the genes for the interleukin family of cytokines, because these compounds appear to be one of the strongest control points for the development and severity of inflammation. Some of our tests may include our proprietary genetic variations plus other gene variations that may be publicly available or in-licensed by Interleukin Genetics.

We have and have been granted patents and pending applications directed to single SNPs and SNP patterns in gene clusters as they relate to use for identifying individuals on a rapid path to several medical conditions or for use in guiding the selection of diets, exercise, vitamin needs, preventive care and also therapeutic agents. Groups of SNPs are often inherited together as patterns called haplotypes. We have a U.S. patent issued on haplotypes in an interleukin gene cluster and their biological and clinical significance. We believe these patents are controlling relative to interleukin SNPs and haplotype patterns that would be used for genetic risk assessment tests.

Our patents are “use” patents that claim that a SNP, or set of SNPs in unique patterns can be used in a novel way to predict disease development or progression, predict responses to preventive or therapeutic interventions and identify specific actions that improve health outcomes. We currently own rights in 11 issued U.S. patents that have expiration dates between 2015 and 2029, and have 11 additional U.S. patent applications pending, that are based on novel associations between particular gene sequences and certain metabolic and inflammatory conditions and disorders. The 11 issued U.S. patents relate to genetic tests for, periodontal disease, osteoporosis, coronary artery disease, and other diseases associated with interleukin inflammatory haplotypes. Our newest patent applications relate to the commercial use of SNP panels in the fields of weight management, periodontal disease, osteoporosis and osteoarthritis. If granted, we expect many of these patents are not likely to expire until between 2028 and 2031.

Our intellectual property and proprietary technology are subject to numerous risks, which we discuss in “Risk Factors”. Our commercial success will depend at least in part on our ability to obtain appropriate patent protection on our therapeutic and diagnostic products and methods and our ability to avoid infringing on the intellectual property of others.

We have been granted a number of corresponding foreign patents and have a number of foreign counterparts of our U.S. patents and patent applications pending.

## **Competition**

The competition in the field of personalized health is changing. The markets and customer base are not well established. There are a number of companies involved in identifying and commercializing genetic markers. The companies differ in product end points and target customers. There are companies that market individual condition genetic tests for complex diseases to consumers and those that sell only to physicians. There are companies that market testing services for rare monogenic diseases mainly to physicians. There are companies that sell genome scanning services to provide customers (usually the consumer directly) reports on large numbers of SNPs or the person's entire genome. There are also technology platform companies that sell SNP testing equipment.

The key competitive factors affecting the success of any genetic test is its perceived benefit by the user, price (potentially including availability of reimbursement) and the level of market acceptance. In the case of newly introduced products requiring "change of behavior" (such as genetic risk assessment tests), we believe the presence of multiple competitors may accelerate market acceptance and penetration through increasing awareness. Moreover, two different genetic risk assessment tests for the same disease may in fact test or measure different components, and thus, actually be complementary when given in parallel as an overall assessment of risk, rather than being competitive with each other. Furthermore, the primary focus of most companies in the field is performing gene-identification research for pharmaceutical companies for therapeutic purposes, with genetic risk assessment testing being a secondary goal. In contrast, our primary business focus is developing and commercializing genetic risk assessment tests for health risks and forward-integrating these tests with additional products and services.

For a discussion of the risks associated with competition, see "Risks Related to Our Business, Our Financial Results and Need for Financing - We could become subject to intense competition from other companies, which may damage our business." under "Risk Factors".

## **Government Regulation**

The testing services that we provide are regulated by federal and state governmental authorities. Failure to comply with the applicable laws and regulations can subject us to civil and criminal penalties, loss of licensure, certification, or accreditation. We believe that we are currently in compliance with all applicable government regulations. We cannot predict what new legislation or regulations governing our operations will be enacted by legislative bodies or promulgated by agencies that regulate its activities, or what changes in interpretations of existing regulations may be adopted.

*CLIA and Other Laboratory Licensure*

Our clinical laboratory must hold certain licenses, certifications, and permits to conduct our business. Laboratories that perform testing on human specimens for the purpose of providing information for the diagnosis, prevention or treatment of disease or assessment of health are subject to the Clinical Laboratory Improvement Amendments of 1988 (CLIA). CLIA requires such a laboratory to be certified by the federal government and mandates compliance with various operational, personnel, facilities, administration, quality and proficiency testing requirements intended to insure that testing services are accurate, reliable and timely. Requirements for testing under CLIA vary based on the level of complexity of the testing performed. Laboratories performing high complexity tests, such as genetic tests, must comply with more stringent requirements than laboratories performing moderate or waived testing.

As a condition of CLIA certification, our laboratory is subject to survey and inspection every other year, in addition to being subject to additional random inspections. The biennial survey is conducted by the Centers for Medicare & Medicaid Services, or CMS, a CMS agent (typically a state agency), or, if the laboratory is accredited, a CMS-approved accreditation organization.

CLIA provides that a state may adopt laboratory regulations that are more stringent than those under federal law. In some cases, state licensure programs actually substitute for the federal CLIA program. In other instances, the state's regulations may be in addition to the CLIA requirements. In addition, our laboratory holds multiple state licenses to the extent that we accept specimens from one or more of these states, each of which require out-of-state laboratories to obtain licensure. If a laboratory is out of compliance with state laws or regulations governing licensed laboratories, penalties for violation vary from state to state but may include suspension, limitation, revocation or annulment of the license, assessment of financial penalties or fines, or imprisonment. We believe that we are in material compliance with all applicable licensing laws and regulations.

We may become aware from time to time of other states that require out-of-state laboratories to obtain licensure to accept specimens from the state, and other states may impose such requirements in the future. If we identify any other state with such requirements, or if we are contacted by any other state advising us of such requirements, we intend to follow all instructions from the state regulators regarding compliance with such requirements.

Laboratories must renew certification every two years, which typically includes an inspection of the laboratory. Our laboratory was most recently inspected in October 2013 and no deficiencies or other issues were noted and our CLIA license was renewed.

### *Food and Drug Administration*

Although the Food and Drug Administration (FDA) has consistently claimed that it has the authority to regulate laboratory-developed tests, or LDTs, that are validated by the developing laboratory and performed only by that laboratory, it has generally exercised enforcement discretion in not otherwise regulating most tests developed and performed by high complexity CLIA-certified laboratories.

In July 2010, FDA held a public meeting in which FDA officials including those from the Office of In Vitro Diagnostic Products (OIVD), within the Center for Devices and Radiological Health (CDRH) announced their intention to develop a regulatory framework for LDTs that would be based on the risks posed by such tests. In particular, FDA officials stated that laboratory developed tests offered directly to consumers would no longer be subject to enforcement discretion. Concomitant with that meeting, FDA sent letters to more than a dozen companies offering direct-to-consumer, or DTC, genetic tests, including us, stating that their tests appeared to be subject to regulation as medical devices and requesting information on how the companies planned to come into compliance with FDA requirements. The FDA letter inquired about our Inherent Health brand of DTC genetic tests and stated that these tests appeared to meet the definition of a “device” under the Federal Food, Drug, and Cosmetic (FD&C) Act. The letter requested that the Company provide FDA with the clearance or approval number for the tests or with the basis for determination that the tests do not require FDA clearance or approval. In the letter, FDA offered to meet with us, “to discuss whether there are tests you are promoting that do not require review by FDA and what information you would need to submit in order for your products to be legally marketed.”

On November 1, 2010, we met with the director and staff members of the OIVD to present information on our tests. At FDA’s request, we submitted a plan in December 2010 and requested a follow-up meeting to obtain feedback on the plan from OIVD personnel. We have had no further communications regarding our products with the FDA. In addition, we have received no communication from the FDA relative to our periodontal disease test which is only available through licensed health practitioners.

In March 2011, FDA convened an expert advisory panel to discuss and make recommendations on scientific issues concerning DTC genetic tests that make medical claims. The panel expressed a variety of concerns regarding DTC genetic testing and recommended that certain tests not be permitted to be sold DTC. We submitted a position paper to the FDA in advance of the meeting and presented testimony to the panel at a public meeting on March 8, 2011. After that meeting, the OIVD director publically stated that FDA would likely take a case-by-case approach with respect to which types of genetic tests may be offered DTC. He also stated that OIVD planned to issue three guidance documents addressing oversight of laboratory developed tests. However, he did not provide a timeframe for OIVD's release of these documents. In March 2012, an FDA spokesperson stated that FDA's plan to adjust its enforcement discretion policy for LDT's is currently under "administrative review."

As of now, the FDA has not issued the promised additional guidance, but we continue to expect that it will do so in the future. Before any draft or final guidance is issued, however, the FDA will be required, to provide Congress at least sixty days prior notice in accordance with the requirements of the Food and Drug Administration Safety and Innovation Act, or FDASIA. The notice must include anticipated details of the action. FDASIA was signed into law on July 9, 2012, and the notice requirement will sunset five years thereafter.

The FDA issued a Draft Guidance for Industry and Food and Drug Administrative Staff on In Vitro Companion Diagnostic Devices on July 14, 2011, which, if finalized, is intended to assist companies developing in vitro companion diagnostics and companies developing therapeutic products that depend on the use of a specific in vitro companion diagnostic for the safe and effective use of the product. The FDA defined an in vitro companion diagnostic device, or IVD Companion Diagnostic Device, as a device that provides information that is essential for the safe and effective use of a corresponding therapeutic product. This definition is much narrower than the commonly used term "companion diagnostic," which refers generally to tests that may be useful, but are not necessarily a determining factor in the safe and effective use of the therapeutic product. The FDA expects that the therapeutic sponsor will address the need for an approved or cleared IVD Companion Diagnostic Device in its therapeutic product development plan. The sponsor of the therapeutic product can decide to develop its own IVD Companion Diagnostic Device, partner with a diagnostic device sponsor to develop the appropriate IVD Companion Diagnostic Device, or explore modification of an existing IVD diagnostic device (its own or another sponsor's) to accommodate the appropriate intended use. The FDA has approved a number of drug/diagnostic device companions in accordance with the Draft Guidance. However, this guidance will not apply to the LDTs that are used as companion diagnostics that merely provide useful information and are not linked to a specific drug indication.

*HIPAA and Other Privacy Laws*

The Administrative Simplification provisions of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) established for the first time comprehensive federal protection for the privacy and security of health information. The Health Information Technology for Economic and Clinical Health Act (HITECH), part of the American Recovery and Reinvestment Act of 2009, significantly expanded the scope of HIPAA and increased penalties for violating HIPAA. The HIPAA standards apply to three types of organizations (“Covered Entities”): health plans, health care clearing houses, and health care providers who conduct certain health care transactions electronically. They also apply to vendors of Covered Entities called “Business Associates” that access protected health information to provide services to or perform functions on behalf of Covered Entities. Covered Entities and Business Associates must have in place administrative, physical and technical standards to guard against the misuse of individually identifiable health information. We are not currently a Covered Entity subject to the HIPAA privacy and security standard. It is possible that in the future we will become a Covered Entity (for example if any of the tests that we perform become reimbursable by insurers). Regardless of our own Covered Entity status, HIPAA may apply to our customers, such as health care providers and health plans. Even though we are not directly subject to HIPAA, we could be subject to penalties, lawsuits and experience other adverse consequences if we wrongfully acquire protected health information, aid and abet a HIPAA violation by a customer or if we obtain or disclose protected health information maintained by a Covered Entity without authorization in violation of HIPAA. In addition, some lawsuits, including class action lawsuits, have been pursued at the state level against both covered entities and entities that are not directly subject to HIPAA for breach of confidentiality and security violations.

Our activities must also comply with other applicable privacy laws, including state data security laws that apply to personal data of our employees as well as our customers. “Personal data” includes information such as name coupled with social security number, state issued identification number, or financial account number. State data security laws impose specific security measures for the protection of personal data and require notification to affected individuals and government authorities in the event of breach. Non-compliance may result in government investigations, fines and significant negative publicity for our company.

Many states protect health information with confidentiality laws that are more stringent than HIPAA and that are not preempted by HIPAA. Most states protect certain categories of sensitive health information, such as infectious disease status or behavioral health history. Genetic information, including genetic test results, is often a protected category of health information. We must comply with all of these state-imposed laws. There are also international privacy laws, such as the European Data Directive, that impose restrictions on the access, use, and disclosure of health information and personal data across national lines.

In addition to health care privacy and data security laws, many states have adopted laws governing genetic testing and the use and disclosure of genetic test results. These laws typically require a specific form of written consent in advance of genetic testing and require special protections for test results. Given the complexity of genetic testing and the variety of techniques available for evaluating similar clinical conditions, these laws can be difficult to apply, making compliance more complex and potentially delaying implementation of a testing program when parties

disagree on interpretation. Our failure to comply with these laws may result in fines, government enforcement, privacy litigation and adverse publicity for our company.

If we become subject to HIPAA or other state or federal privacy and security laws, we will have to establish and maintain an active compliance program. We will subject to audit and investigation and may also be audited in connection with a complaint. We would also be subject to prosecution and/or administrative enforcement and increased civil and criminal penalties for non-compliance, including a new, four-tiered system of monetary penalties adopted under HITECH. We would also subject to enforcement by state attorneys general who were given authority to enforce HIPAA under HITECH.

We are subject to laws and regulations related to the protection of the environment, the health and safety of employees and the handling, transportation and disposal of medical specimens, infectious and hazardous waste and radioactive materials. For example, the U.S. Occupational Safety and Health Administration, or OSHA, has established extensive requirements relating specifically to workplace safety for healthcare employers in the U.S. This includes requirements to develop and implement multi-faceted programs to protect workers from exposure to blood-borne pathogens, such as HIV and hepatitis B and C, including preventing or minimizing any exposure through needle stick injuries. For purposes of transportation, some biological materials and laboratory supplies are classified as hazardous materials and are subject to regulation by one or more of the following agencies: the U.S. Department of Transportation, the U.S. Public Health Service, the United States Postal Service and the International Air Transport Association. We generally use third-party vendors to dispose of regulated medical waste, hazardous waste and radioactive materials and contractually require them to comply with applicable laws and regulations.



### *GINA Legislation*

In 2008, the Congress passed and the President signed into law, the Genetic Information Non-discrimination Act or GINA. GINA prohibits certain entities from discriminating using genetic information, which includes information from genetic tests, genetic tests of family members and family medical history. It also includes information about an individual's or family member's request for or receipt of genetic services. This law generally prohibits health insurers or health benefit plans from:

- increasing the group premium or contribution amounts (such as co-payments) based on genetic information;
- requesting or requiring an individual or family member to undergo a genetic test; or
- requesting, requiring or purchasing genetic information prior to or in connection with enrollment, or at any time for underwriting purposes.

The law also prohibits employers and certain other entities, including employment agencies, from using genetic information in employment decision-making and from requesting, requiring, or purchasing genetic information. It also strictly limits such entities from disclosing genetic information.

In October 2009, the Department of Health and Human Services issued a proposed rule to modify the HIPAA Privacy Rule to implement Title I of GINA. Final regulations were adopted in January, 2013. Among other things, this rule revises the definition of health information under HIPAA to include genetic information.

GINA applies to some of our customers and to us as an employer. We could be subject to penalties, lawsuits or experience other adverse consequences if our operations violate GINA or cause another entity to violate GINA.

### *Federal Trade Commission*

The Federal Trade Commission (FTC) has jurisdiction over the advertisements of many types of products, including most medical devices, and prohibits unfair or deceptive trade practices. Advertising for our tests, including statements made on our website, is subject to FTC requirements. In recent years, the FTC instituted enforcement actions against several dietary supplement companies for false and misleading marketing practices and advertising of certain products, including those intended for weight loss. These enforcement actions have resulted in consent decrees and

monetary payments by the companies involved. Although the FTC has never threatened an enforcement action against us for the advertising of our products, there can be no assurance that the FTC will not question the advertising for our products in the future.

## **Employees**

As of January 1, 2015, we had 15 full time employees. Our employees are not represented by any collective bargaining unit, and we believe our relations with our employees are good.

## **Properties**

We leased approximately 19,000 square feet of office and laboratory space at 135 Beaver Street, Waltham, Massachusetts 02452, pursuant to a lease that was to expire on March 31, 2014. In April 2010, we entered into a sublease for approximately 6,000 square feet of unused office and laboratory space. The sublease expired on March 31, 2014. On February 7, 2014, we executed an amendment to the master lease extending the term of our lease for approximately 13,000 square feet for an additional three years expiring in March 2017. The subleased space was not included in the amendment and was returned to the landlord.

## **Legal Proceedings**

We are currently not a party to any material legal proceedings.

## MANAGEMENT

### The Board of Directors and Management

We are managed under the direction of our Board of Directors. Pursuant to the terms of the 2014 Purchase Agreement, the number of persons which constitutes the entire Board will remain at seven (7), and shall continue to be composed of:

two (2) Class I directors with terms ending at the 2016 annual meeting of stockholders, consisting of one (i) independent director (currently William C. Mills III) and one director designated by Pyxis Innovations Inc. (“Pyxis”) (currently Joseph M. Landstra);

two (2) Class II directors with terms ending at the 2017 annual meeting of stockholders, consisting of the (ii) Company’s Chief Executive Officer (currently Kenneth Kornman) and one director designated by Bay City Capital Fund V, L.P. (“Bay City”) (currently Dayton Misfeldt); and

three (3) Class III directors with terms ending at the 2015 annual meeting of stockholders, consisting of one (iii) director designated by Pyxis (currently Roger C. Colman), one independent director (currently James Weaver), and one director designated by Bay City (currently Lionel Carnot).

The 2014 Purchase Agreement also provides that a board member designated by Pyxis shall serve on the Audit Committee and a board member designated by Bay City shall serve on each of the Audit Committee, the Compensation Committee and the Nominating Committee. Currently, Joseph Landstra serves as the Pyxis designee on the Audit Committee, Lionel Carnot serves as the Bay City designee on the Audit and Nominating Committees and Dayton Misfeldt serves as the Bay City designee on the Compensation Committee.

Set forth below are the names of our directors and our executive officers, their ages, their position in the company, their principal occupations or employment for at least the past five years, the length of their tenure as directors and, for our directors, the names of other public companies in which they hold or have held directorships during the past five years.

| <b>Name</b>                    | <b>Age</b> | <b>Position with the Company</b>   |
|--------------------------------|------------|--|
| Kenneth S. Kornman, DDS, Ph.D. | 67         | Chief Executive Officer, President and Chief Scientific Officer and Director |
| Stephen DiPalma                | 56         | Interim Chief Financial Officer  |

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|                            |    |                                    |
|----------------------------|----|------------------------------------|
| Scott Snyder               | 53 | Chief Marketing Officer            |
| James M. Weaver            | 50 | Director and Chairman of the Board |
| Lionel Carnot(1)(2)        | 46 | Director                           |
| Roger C. Colman (2)(3)     | 60 | Director                           |
| Joseph M. Landstra (1)     | 36 | Director                           |
| William C Mills III (1)(3) | 59 | Director                           |
| Dayton Misfeldt(3)         | 40 | Director                           |

(1)Member of our Audit Committee

(2)Member of our Nominating Committee

(3)Member of our Compensation Committee

KENNETH S. KORNMAN, DDS, Ph.D. is Interleukin's co-founder and serves as our Chief Executive Officer, co-founder, President and Chief Scientific Officer. He was a member of our Board of Directors from August 2006 through April 2010, and in connection with our former Chief Executive Officer's resignation on August 23, 2012, the Board of Directors appointed Dr. Kornman as a director to fill the vacancy created by the former Chief Executive Officer's resignation. Prior to founding the Company in 1986, Dr. Kornman was a Department Chairman and Professor at The University of Texas Health Center at San Antonio. He has also been a consultant and scientific advisor for many major oral care and pharmaceutical companies. Dr. Kornman currently holds an academic appointment at Harvard University. He holds multiple patents in the pharmaceutical area, has published three books and more than 125 scientific papers and has lectured and consulted worldwide on the transfer of technology to clinical practice. Dr. Kornman also holds an MS (Periodontics) and Ph.D. (Microbiology-Immunology) from the University of Michigan. Our Board of Directors has concluded that Dr. Kornman should serve as a director because of his prior executive management experience, his scientific expertise and his knowledge of the dental and biotechnology industries. Dr. Kornman has not served on any other public company boards in the past five years.

STEPHEN DIPALMA has been our Interim Chief Financial Officer since September, 2014. Mr. DiPalma is Managing Director at Danforth Advisors, LLC, where he has served since April 2014. He brings more than 25 years of experience in life sciences and healthcare, including founding two start-ups, working with venture-backed companies, subsidiaries of Fortune 100 firms and publicly traded companies, and his work with Danforth Advisors clients. Previously, he served as the CFO of two public companies, and as CFO, COO, CEO or Director of eight privately held companies, in addition to his consulting clients. Mr. DiPalma participated in the successful reorganization of Cambridge Biotech from Chapter 11 bankruptcy protection into Aquila BioPharmaceuticals, led the effort to take RXi Pharmaceuticals public, and has extensive experience in international fund raising and corporate structuring. He was formerly Chairman of the Board of Cognoptix Inc., and is on the Board of Directors of Phytera, Inc. Mr. DiPalma received his M.B.A. from Babson College and his B.S. from the University of Massachusetts-Lowell.

SCOTT SNYDER joined Interleukin Genetics, Inc. as Chief Marketing Officer in January 2013. Mr. Snyder brings nearly 25 years of marketing and operational management experience in life sciences and consumer healthcare. Most recently, from 2009 to 2012, Mr. Snyder served as Vice President and General Manager at Bausch & Lomb, where he guided the private, equity-led turnaround of the company's flagship contact lens care business. Previously, he spent 20 years at Johnson & Johnson (J&J) in a career spanning all of J&J's business sectors including pharmaceuticals, medical devices and consumer products. While at J&J, Mr. Snyder helped lead the post-acquisition integration of dental products company Orapharma, Inc. and reshaped the company's commercial model. Early in his career at J&J, Mr. Snyder was selected for an expatriate assignment in Europe and has held multiple global roles throughout his career. He served as a U.S. Navy Officer, holds a B.S. Degree in Communications from Northwestern University, and received an MBA from the Kellogg School of Management.

JAMES M. WEAVER initially joined the Board of Directors in July 2007 as a designee of Pyxis. He served as Chairman of our Board from September 2007 until March 11, 2014, when he announced that he was resigning as a director due to his resignation from Alticor Corporate Enterprises (an affiliate of Pyxis) to pursue other interests. On March 31, 2014, Mr. Weaver was re-elected as an independent director and was also re-appointed as Chairman of the Board. He is the former Vice President of Alticor Corporate Enterprises, a member of the Alticor Inc. family of companies, which is engaged in the principal business of offering products, business opportunities, and manufacturing and logistics services in more than 80 countries and territories worldwide. In this role, Mr. Weaver was responsible for managing the current portfolio of Alticor's companies and directs its acquisition and growth. Prior to joining Alticor in June 2007, Mr. Weaver worked for X-Rite Inc. where he held various leadership positions, including Senior Vice President and General Manager, Vice President of marketing and software development, Vice President of marketing and product development, as well as lead executive on several acquisitions. Mr. Weaver also founded and held the position of President and Chief Executive Officer of Bold Furniture Inc, and has held various leadership positions at Steelcase Inc. and Bissell Inc. Mr. Weaver received a Bachelor's degree in general studies from the University of Michigan in Ann Arbor and serves on several non-profit and private company boards. Our Board of Directors has concluded that Mr. Weaver should serve as a director because of his prior senior management experience and judgment and his extensive sales and marketing experience in the consumer product industry. Mr. Weaver has not served on any other public company boards in the past five years.

LIONEL CARNOT joined the Board of Directors in May 2013. Mr. Carnot is an Investment Partner at Bay City Capital LLC, a leading, global life sciences investment firm, and has been extensively involved in the firm's activities since he joined The Pritzker Organization in 2000. Prior to The Pritzker Organization, Mr. Carnot was a Principal at Oracle Partners, a healthcare hedge fund. He also held several positions in the pharmaceutical industry, including Product Manager for Prozac at Eli Lilly as well as several sales and marketing positions at Rhone-Poulenc Rohrer (now Sanofi). Mr. Carnot was also a strategy and management consultant to the biopharmaceutical industry while at Booz Allen & Hamilton and Accenture Strategic Services. Mr. Carnot is a member of the Board of Directors of Merus B.V., Madrigal Pharmaceuticals and Tallikut Pharmaceuticals, and is a former member of the board of Reliant Pharmaceuticals, Pathway Diagnostics, BioSeek and Nexus Dx. Mr. Carnot holds an MBA with Distinction from INSEAD and an MS with honors in Molecular Biology from the University of Geneva. Our Board of Directors has concluded that Mr. Carnot should serve as a director because of his prior management, consulting and board experience in the biotechnology and diagnostic industries, coupled with scientific, technical, sales and marketing, finance, and business development expertise. Mr. Carnot has not served on any other public company boards in the past five years.

ROGER C. COLMAN joined the Board of Directors in March 2011. Mr. Colman is Vice President of Corporate Development for Alticor Corporate Enterprises a member of the Alticor family of companies. He joined Alticor in 1994 from Readi-Bake, Inc., where he held positions as an operations and distribution executive. Mr. Colman earned a Bachelor of Science degree and a Master's of Business Administration degree from Grand Valley State University in Allendale, Michigan. Our Board of Directors has concluded that Mr. Colman should serve as a director because of his prior executive management experience, including assisting Amway affiliate operations in over 30 countries in diverse roles which included business process improvement and strategic planning, and prior experience serving on corporate boards. Mr. Colman has not served on any other public company boards in the past five years.

JOSEPH M. LANDSTRA joined the Board of Directors on March 31, 2014. Mr. Landstra has been with Alticor Inc., a member of the Alticor family of companies, since May 2009, and is currently Director of Finance. Prior to his role with Alticor, Mr. Landstra was Controller for Dickinson Press Inc. from April 2008 to May 2009 and with X-Rite Inc. from 2003 to April 2008, completing his time with X-Rite as European Controller. Mr. Landstra also worked for Deloitte & Touche LLP supporting a broad range of audit clients. Mr. Landstra is Certified Public Accountant in the state of Michigan. Mr. Landstra serves on the Board of Directors for Gurwitsch UK Limited and Metagenics, Inc. and is on the Board of Managers for Gurwitsch Products, L.L.C., all of which are in the Alticor family of companies. Mr. Landstra earned a Bachelor of Science degree in Accountancy from Calvin College in Grand Rapids, Michigan. The Board of Directors has concluded that Mr. Landstra should serve as a director because of his prior senior executive management experience, his background in the nutrigenomic medical foods and nutraceuticals business through his current position at Alticor, and his broad-based financial and business expertise. Mr. Landstra has not served on any other public company boards in the past five years.

WILLIAM C. MILLS III joined the Board of Directors in April 2010. He currently serves as Chairman of the Board of Directors and CEO of Stereotaxis, Inc. (NASDAQ: STXS), a medical device company that markets robotic cardiology instrument navigation systems designed to enhance the treatment of arrhythmias and coronary disease. He has over 33 years of venture capital experience, having held positions from 2004 until 2009 as a managing member of EGS Healthcare Capital Partners; from 1999-2004 as a Partner in the Boston office of Advent International; from 1988-1999 as a General Partner of The Venture Capital Fund of New England; and from 1981-1988 as a Managing General Partner of Ampersand Ventures/PaineWebber Ventures. Currently, he is Chairman of the Board of Managers of Ascension Health Ventures III, LLC. Mr. Mills received his A.B. in Chemistry, cum laude, from Princeton University, his S.M. in Chemistry from the Massachusetts Institute of Technology and his M.S. in Management from MIT's Sloan School of Management. Except as noted above, Mr. Mills has not served on any other public company boards in the past five years.

DAYTON MISFELDT joined the Board of Directors in May 2013. Mr. Misfeldt is an Investment Partner at Bay City Capital LLC, a leading, global life sciences investment firm, and focuses on biopharmaceutical investment opportunities. Prior to joining Bay City Capital in May 2000, Mr. Misfeldt was a Vice President at Roth Capital Partners where he worked as a sell-side analyst covering the biopharmaceutical industry. Mr. Misfeldt has also worked as a Project Manager at LifeScience Economics. Mr. Misfeldt received a B.A. in Economics from the University of California, San Diego. Mr. Misfeldt currently serves on the Board of Directors of Sunesis Pharmaceuticals, Inc, a publicly traded biopharmaceutical company and several private company boards. Our Board of Directors has concluded that Mr. Misfeldt should serve as a director because he has financial expertise and strong understanding of the biotechnology industry, which the Board believes makes him an important resource for the Board as it assesses both financial and strategic decisions. Except as noted above, Mr. Misfeldt has not served on any other public company boards in the past five years.

## **Director Independence**

Our Board of Directors has determined that the following members qualify as independent directors under the definition promulgated by The NASDAQ Stock Market LLC (“NASDAQ”): Lionel Carnot, Roger C. Colman, Joseph M. Landstra, William C. Mills III, and Dayton Misfeldt.



## EXECUTIVE AND DIRECTOR COMPENSATION

## Summary Compensation Table

The following table sets forth the total compensation awarded or paid to, accrued or earned during the fiscal years ended December 31, 2014 and 2013 by our Chief Executive Officer, our Former Chief Financial Officer, our Chief Marketing Officer and our Interim Chief Financial Officer (there were no other executive officers employed by us as of December 31, 2014). We refer to these individuals as our “Named Executive Officers.”

| Name and Principal Position   | Fiscal Year | Salary (\$) | Bonus (\$) | Stock Awards (\$)(1) | Option Awards (\$)(2) | Non-Equity Incentive Plan Compensation (\$) | Change in Pension Value and Nonqualified Deferred Compensation Earnings (\$) | All Other Compensation (\$)(3) | Total (\$)  |
|---|-------------|-------------|------------|----------------------|-----------------------|---|--|--------------------------------|-------------|
| Kenneth S. Kornman<br>Chief Executive Officer, President and Chief Scientific Officer | 2014        | \$360,000   | \$41,400   | \$—                  | \$527,800             | \$—   | \$—  | \$3,296                        | \$932,496   |
|   | 2013        | \$360,000   | \$—        | \$—                  | \$854,775             | \$—   | \$—  | \$3,296                        | \$1,218,071 |
| Eliot M. Lurier (4)<br>Former Chief Financial Officer                                 | 2014        | \$188,588   | \$—        | \$—                  | \$—                   | \$—   | \$—  | \$17,694                       | \$206,252   |
|   | 2013        | \$252,539   | \$—        | \$—                  | \$284,925             | \$—   | \$—  | \$1,500                        | \$538,964   |
| Scott Snyder<br>Chief Marketing Officer   | 2014        | \$265,000   | \$25,758   | \$—                  | \$171,600             | \$—   | \$—  | \$43,828                       | \$506,186   |
|   | 2013        | \$257,865   | \$—        | \$—                  | \$314,433             | \$—   | \$—  | \$33,294                       | \$605,592   |
| Stephen DiPalma (5)<br>Interim Chief Financial Officer                                | 2014        | \$66,894    | \$—        | \$—                  | \$—                   | \$—   | \$—  | \$—                            | \$66,894    |

(1) The assumptions used to determine the fair value of the stock awards and option grants for 2014 and 2013 are as follows:

|                          | 2014       |   | 2013       |   |
|--------------------------|------------|---|------------|---|
| Risk-Free interest rate: | 1.53       | % | 1.56       | % |
| Expected life:           | 5.73 years |   | 5.73 years |   |
| Expected volatility:     | 144.74     | % | 144.35     | % |
| Dividend yield:          | 0          | % | 0          | % |

Using these assumptions, the weighted average grant date fair value of options granted in 2014 and 2013 was \$0.32 and \$0.34, respectively.

Amounts represent the grant date fair value of stock awards and option grants. The 2013 option award amount for Dr. Kornman consists of the grant date fair value of options for 2,250,000 shares granted in October 2013. The 2014 option award for Dr. Kornman consists of the grant date fair value of options for 2,030,000 shares granted in January 2015 as part of 2014 compensation. The 2013 option award amount for Mr. Lurier consists of the grant date fair value of options for 750,000 shares granted in October 2013. The 2013 option award amount for Mr. Snyder consists of the grant date fair value of options for 200,000 and 675,000 shares granted in January 2013 and October 2013, respectively. The 2014 option award for Mr. Snyder consists of the grant date fair value of options for 660,000 shares granted in January 2015 as part of 2014 compensation.

Dr. Kornman received reimbursement of \$3,296 for life insurance in 2013 and 2014. Mr. Lurier and Mr. Snyder each received a \$1,500 401K company contribution in 2013. Mr. Snyder also received a \$1,500 401K company contribution in 2014. Mr. Snyder received \$31,794 and \$42,328 in reimbursed travel per the terms of his employment agreement in 2013 and 2014, respectively. Mr. Lurier received \$17,694 in accrued vacation pay upon his resignation on September 5, 2014.

(4) Mr. Lurier resigned as our Chief Financial Officer in September 2014.

Mr. DiPalma joined us as our Interim Chief Financial Officer in September 2014. Mr. DiPalma is Managing Director at Danforth Advisors, LLC, and we have entered into a consulting agreement with Danforth Advisors, LLC, pursuant to which Danforth provides us with finance, accounting and administrative functions, including interim chief financial officer services. We pay Danforth an agreed upon hourly rate for such services and reimburse Danforth for expenses. Mr. DiPalma is compensated by Danforth and not by Interleukin. The amounts set forth above represent the amounts we paid to Danforth under the terms of the consulting agreement for Mr. DiPalma's services.

#### Narrative Disclosure to Summary Compensation Table

The compensation paid to our named executive officers in 2014 and 2013 summarized in our Summary Compensation Table above is generally determined in accordance with employment agreements that we have entered into with each of our Named Executive Officers. The material terms of these agreements are discussed under the caption "Employment Agreements" below.

#### Outstanding Equity Awards at Fiscal Year-End

The following table shows stock option awards outstanding (vested and unvested) and unvested stock awards outstanding as of December 31, 2014, including both awards subject to performance conditions and non-performance-based awards, for each of the executive officers in the Summary Compensation Table.

| Name | Option Awards   |   |  |                             | Stock Awards           |                                    |              |  |
|------|---|---|--|-----------------------------|------------------------|------------------------------------|--------------|--|
|      | Number of Securities Underlying Unexercised Options Exercisable | Number of Securities Underlying Unexercised Options Unexercisable | Equity Incentive Plan Awards: Number of Securities | Options Exercise Price (\$) | Option Expiration Date | Number of Shares or Units of Stock | Market Value | Equity Incentive Plan Awards: Number of Unearned |

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|                        | (#)     |           | Underlying<br>Unexercised<br>Unearned<br>Options<br>(#) |           |            | That<br>Have<br>Not<br>Vested<br>(#) | Stock<br>That<br>Have<br>Not<br>Vested<br>(\$) | Shares,<br>Units<br>or Other<br>Rights<br>That<br>Have Not<br>Vested<br>(#) | of<br>Unearned<br>Shares,<br>Units<br>or Other<br>Rights<br>That<br>Have Not<br>Vested<br>(\$) |
|------------------------|---------|-----------|---|-----------|------------|--------------------------------------|--|---|--|
| Kenneth S.<br>Kornman  | 25,000  | —         | —   | \$ 1.40   | 4/2/2018   | —                                    | —  | —   | —  |
|                        | 75,000  | —         | —   | \$ 0.48   | 11/12/2018 | —                                    | —  | —   | —  |
|                        | 24,000  | 6,000     | —   | \$ 0.745  | 4/06/2020  | —                                    | —  | —   | —  |
|                        | 75,000  | 25,000    | —   | \$ 0.46   | 5/06/2021  | —                                    | —  | —   | —  |
|                        | 175,000 | 125,000   | —   | \$ 0.34   | 12/21/2022 | —                                    | —  | —   | —  |
|                        | 703,125 | 1,546,875 | —   | \$ 0.3799 | 10/22/2023 | —                                    | —  | —   | —  |
| Eliot M. Lurier        | —       | —         | —   | —         | —          | —                                    | —  | —   | —  |
| Scott Snyder           | 50,000  | 150,000   | —   | \$ 0.29   | 1/2/2023   | —                                    | —  | —   | —  |
|                        | 210,939 | 464,061   | —   | \$ 0.3799 | 10/22/2023 | —                                    | —  | —   | —  |
| Stephen DiPalma<br>(1) | 16,667  | 83,333    | —   | \$ 0.25   | 9/8/2024   | —                                    | —  | —   | —  |

(1) Represents a warrant for 100,000 shares granted in September 2014 to Danforth Advisors, LLC.

## Employment Agreements

### *Kenneth S. Kornman, DDS, Ph.D.*

On November 12, 2008, we entered into an employment agreement with Dr. Kornman, our President and Chief Scientific Officer, for a three-year term, commencing on March 31, 2009, the date his previous employment agreement expired. Effective March 31, 2012, this agreement was extended through November 30, 2012. Under this agreement, Dr. Kornman received an initial annual salary of \$360,000 and is eligible to receive annual bonuses solely at the discretion of the Board of Directors. Dr. Kornman's annual salary may be increased in the sole discretion of the Board of Directors. Under the agreement, on November 12, 2008 Dr. Kornman received a stock option to purchase 75,000 shares of common stock, at an exercise price of \$0.48 per share, which was the closing price as reported on the NYSE Amex on the grant date. The option was immediately exercisable with respect to 30,000 shares and vests with respect to an additional 15,000 shares on each of March 31, 2010, 2011, and 2012. Under the agreement, Dr. Kornman is entitled to participate in employee benefit plans that we provide or may establish for the benefit of our executive management generally. In addition, while Dr. Kornman remains employed by us, we will reimburse him \$3,296 annually for payment of life insurance premiums.

The agreement is terminable immediately by us with cause or upon thirty days prior written notice without cause. The agreement is terminable by Dr. Kornman upon thirty days prior written notice. If we terminate Dr. Kornman without cause or Dr. Kornman terminates his employment with good reason, then, in addition to payment of any accrued, but unpaid compensation prior to the termination, we must continue to pay his base salary and to provide health insurance benefits until the earlier of (1) expiration of the agreement or (2) twelve months. If we terminate Dr. Kornman in connection with a Cessation of our Business (as defined in the agreement), then, in addition to payment of any accrued, but unpaid compensation prior to the termination, we must continue to pay his base salary and to provide health insurance benefits until the earlier of (1) expiration of the agreement or (2) three months. The agreement also includes non-compete and non-solicitation provisions for a period of twelve months following the termination of Dr. Kornman's employment.

On March 31, 2010, Dr. Kornman was issued 12,500 shares of restricted stock under a restricted stock agreement dated April 30, 2008. In April 2010, as part of the year-end compensation process, the Compensation Committee granted Dr. Kornman an option to purchase 30,000 shares of our common stock. This option is exercisable at \$0.745 per share and vests as to 20% of the shares on each of the first five anniversaries of the date of grant.

In May 2011, the Compensation Committee granted Dr. Kornman an option to purchase 100,000 shares of our common stock. This option is exercisable at \$0.46 per share and vests as to 25% of the shares on each of the first four anniversaries of the date of grant.

On April 25, 2012, the Company executed an amendment, effective as of March 31, 2012, to Dr. Kornman's employment agreement to extend the term through November 30, 2012. In connection with Mr. Bender's resignation on August 23, 2012, the Board of Directors appointed Dr. Kornman as Chief Executive Officer in addition to his role as President and Chief Scientific Officer. The Board of Directors also appointed Dr. Kornman as a director to fill the vacancy created by Mr. Bender's resignation. On November 29, 2012, the Company entered into a second amendment to Dr. Kornman's employment agreement to extend the term through November 30, 2015.

In December 2012, the Compensation Committee granted Dr. Kornman an option to purchase 300,000 shares of our common stock. This option is exercisable at \$0.34 per share and vests as to 25%, 33% and 42% of the shares on each of the first three anniversaries of the date of grant.

In October 2013, Dr. Kornman was granted an option to purchase 2,250,000 shares of our common stock. This option has an exercise price of \$0.3799, the fair value of our common stock on the grant date of the option, and will vest as to ¼ of the shares on the first anniversary of the grant date, and as to 1/36 of the remaining shares at the end of each month thereafter beginning on October 31, 2014. In January 2015, Dr. Kornman was granted an option to purchase 2,030,000 shares of our common stock. This option has an exercise price of \$0.26, the fair value of our common stock on the grant date of the option, and will vest as to 1/48 of the shares at the beginning of each month beginning on February 1, 2015.

***Eliot M. Lurier***

On April 30, 2008, we entered into an employment agreement with Eliot M. Lurier for the position of Chief Financial Officer. The agreement had an initial term of one year and was automatically renewable for successive one year periods unless at least 60 days prior notice is given by either us or Mr. Lurier. The agreement provided for an initial annual base salary of \$217,000 which could be increased in the sole discretion of the Compensation Committee of our Board. Mr. Lurier also received a signing bonus of \$15,000 after his first four months of employment. On April 30, 2008, Mr. Lurier was granted an option to purchase 40,000 shares of our common stock at an exercise price equal to \$1.49, which was the closing price as reported on the NYSE Amex on the grant date. The option vested in equal annual installments of 8,000 shares on each of the first five anniversaries of the grant date. The agreement also included non-compete and non-solicitation provisions for a period of six months following the termination of Mr. Lurier's employment.

In April 2010, as part of the year-end compensation process, the Compensation Committee granted Mr. Lurier an option to purchase 60,000 shares of our common stock. This option was exercisable at \$0.745 per share and vested as to 20% of the shares on each of the first five anniversaries of the date of grant. In March 2011, as part of the year-end compensation process, the Compensation Committee granted Mr. Lurier an option to purchase 100,000 shares of our common stock. This option was exercisable at \$0.36 per share and vested as to 25% of the shares on each of the first four anniversaries of the date of grant. In December 2012, the Compensation Committee granted Mr. Lurier an option to purchase 200,000 shares of our common stock. This option was exercisable at \$0.34 per share and vested as to 25%, 33% and 42% of the shares on each of the first three anniversaries of the date of grant. In October 2013, Mr. Lurier was granted an option to purchase 750,000 shares of our common stock. This option had an exercise price of \$0.3799, the fair value of our common stock on the grant date of the option, and vested as to ¼ of the shares on the first anniversary of the grant date, and as to 1/36 of the remaining shares at the end of each month thereafter beginning on October 31, 2014.

Mr. Lurier resigned effective September 5, 2014. All options granted to Mr. Lurier terminated as of December 4, 2014.

***Scott Snyder***

On December 26, 2012, we entered into an employment agreement with Scott Snyder for the position of Chief Marketing Officer beginning on January 2, 2013. The agreement provides for a minimum annual base salary of \$265,000, and for 2013 and 2014 he is eligible for a bonus pursuant to the Bonus Plan as described below under “-Executive Bonus Plan.” For 2015 and any subsequent year in which he is employed, he is eligible for a bonus of up to 30% of his base salary, based on factors such as evaluation of individual performance, our financial performance, economic conditions generally, and the policy terms applicable to such bonus. Mr. Snyder is entitled to a maximum of \$34,000 in expense reimbursement in calendar year 2013, and an additional \$16,000 for the six months ending June 30, 2014, for travel and housing expenses from his residence to Interleukin’s offices. On July 23, 2013, the Compensation Committee agreed to amend Mr. Snyder’s employment agreement and increase the aggregate amount of travel and lodging expenses that may be reimbursed to an aggregate of \$60,000. On January 22, 2015, the Compensation Committee agreed to reimburse Mr. Snyder up to an aggregate amount of \$40,000 for travel and lodging expenses incurred in 2015. Upon hire, Mr. Snyder was granted an option to purchase 200,000 shares of our common stock at an exercise price of \$0.29 on January 2, 2013, the grant date of the option. The option vests in three installments of 50,000, 66,000 and 84,000 shares on each of the first three anniversaries of the grant date.

Mr. Snyder’s agreement is terminable at will by us or Mr. Snyder. If we terminate Mr. Snyder without cause, then we will pay Mr. Snyder, in addition to any accrued, but unpaid compensation prior to termination, an amount equal to six months of his base salary in effect at the time of the termination.

In October 2013, Mr. Snyder was granted an option to purchase 675,000 shares of our common stock. This option has an exercise price of \$0.3799, the fair value of our common stock on the grant date of the option, and will vest as to ¼ of the shares on the first anniversary of the grant date, and as to 1/36 of the remaining shares at the end of each month thereafter beginning on October 31, 2014. In January 2015, Mr. Snyder was granted an option to purchase 660,000 shares of our common stock. This option has an exercise price of \$0.26, the fair value of our common stock on the grant date of the option, and will vest as to 1/48 of the shares at the beginning of each month beginning on February 1, 2015.



## Bonus Plan

On December 21, 2012, the Compensation Committee approved a Bonus Plan (the “Bonus Plan”) for our executives. Under the terms of the Bonus Plan:

1. Executives were not entitled to a non-discretionary bonus for the year ending December 31, 2013.

Provided the Company meets certain earnings and revenue targets for the six months ending June 30, 2014 and

2. Executive is employed by the Company as of June 30, 2014, Executive shall receive a bonus equal to 30% of such Executive’s base salary.

Provided the Company meets certain earnings and revenue targets for the year ending December 31, 2014 and

3. Executive is employed by the Company as of December 31, 2014, Executive shall receive a bonus equal to 15% of such Executive’s base salary.

On February 26, 2014, the Compensation Committee approved an Employee Bonus Plan (the “Employee Bonus Plan”) that replaces the Bonus Plan approved on December 21, 2012. Under the Employee Bonus Plan, bonuses may be awarded upon the achievement of corporate goals, however, the Compensation Committee has absolute discretion as to whether bonuses will be awarded and the size of any bonus, notwithstanding whether any such corporate goals are met or not.

## Director Compensation

The following table shows the total compensation paid or accrued during the fiscal year ended December 31, 2014 to William C. Mills III and James Weaver. No other director was paid or accrued compensation during the fiscal year ended December 31, 2014.

| Name (a)                 | Fiscal Year | Fees Earned or Paid in Cash (\$) | Stock Awards (\$) | Option Awards (\$) | All Other Compensation (\$) | Total (\$) |
|--------------------------|-------------|----------------------------------|-------------------|--------------------|-----------------------------|------------|
| William C. Mills III (1) | 2014        | \$ 55,000                        | —                 | \$—                | —                           | \$55,000   |
| James Weaver (1)         | 2014        | \$ 49,637                        | —                 | \$43,750           | —                           | \$93,387   |

The following table shows the total number of outstanding and vested stock options, and shares of outstanding and (1) restricted common stock as of December 31, 2014, the last day of our fiscal year, that have been issued as director compensation.

| Name                 | # of Stock<br>Options<br>Outstanding | # of Stock<br>Options<br>Vested | Shares of<br>Common Stock<br>Restricted |
|----------------------|--------------------------------------|---------------------------------|---|
| William C. Mills III | 100,000                              | 50,169                          | —                                       |
| James Weaver         | 125,000                              | —                               | —                                       |

On April 29, 2010, our Board of Directors adopted the following policy for compensation of non-employee directors:

· for service as a director, an annual retainer of \$20,000;

· for service as the chair of a committee, an annual retainer of \$7,500;

· for service as a non-chair member of a committee, an annual retainer of \$5,000;

· for each Board or committee meeting attended in person, by teleconference or by video, \$1,500; and

· upon initial election or appointment to the Board, a grant of an option to purchase 15,000 shares of our common stock at an exercise price equal to the closing price of the common stock on the date of grant, with such option to vest in four equal annual installments on each of the first four anniversaries of the grant date.

Directors who are designated by Pyxis and BCC pursuant to contractual arrangements, are not eligible to receive the foregoing compensation. All of our directors are reimbursed for reasonable out-of-pocket expenses incurred in attending Board and committee meetings.

In addition, on March 31, 2014, James M. Weaver, our former Chairman of the Board, was re-elected as a director and was also re-appointed as Chairman of the Board. Mr. Weaver formerly served as a representative of Pyxis on the Board, but left Alticor to pursue other interests, and resigned from our Board effective March 11, 2014. Pursuant to the terms of an Offer Letter entered into between Mr. Weaver and the Company, Mr. Weaver will receive in consideration for his service as Chairman of the Board an annual retainer of \$50,000 payable in arrears in quarterly installments of \$12,500 on the last day of each calendar quarter and prorated for any partial quarter. Mr. Weaver also received a non-qualified stock option to purchase 125,000 shares of our common stock, at an exercise price equal to \$0.35 (the closing price of the common stock on March 31, 2014), such option to vest as to 1/3 of the shares on March 31, 2015 and as to 1/24 of the remaining shares at the end of each month beginning on April 30, 2015. In addition, Mr. Weaver is entitled to be compensated in accordance with the policy for compensation of non-employee directors as set forth above.

### Equity Compensation Plan Information

The following table provides certain aggregate information with respect to all of our equity compensation plans in effect as of December 31, 2014.

| Plan category  | Number of securities to be issued upon exercise of outstanding options, warrants and rights<br>(a) | Weighted average exercise price of outstanding options, warrants and rights<br>(b) | Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))<br>(c) |
|--|--|--|--|
| Equity compensation plans approved by security holders(1)  | 4,523,900  | \$ 0.39  | 6,669,052  |
| Equity compensation plans not approved by security holders | —  | —  | —  |
| Total  | 4,523,900  | \$ 0.39  | 6,669,052  |

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These plans consist of our 2000 Employee Stock Compensation Plan (the “2000 Plan”), our 2004 Employee, Director and Consultant Stock Plan (the “2004 Plan”), our 2013 Employee, Director and Consultant Equity Incentive Plan (the “2013 Plan”) and our 2012 Employee Stock Purchase Plan (the “2012 ESPP”). The number of shares set forth in (1) column (a) consists of shares subject to outstanding options under the 2000 Plan, the 2004 Plan and the 2013 Plan as of December 31, 2014. The number of shares set forth in column (c) consists of 6,165,100 shares remaining available for issuance under the 2013 Plan and 503,952 shares remaining available for issuance under the 2012 ESPP as of December 31, 2014.

## CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Pursuant to the written charter of our Audit Committee, the Audit Committee is responsible for reviewing and approving, prior to our entry into any such transaction, all transactions in which we are a participant and in which any of the following persons has or will have a direct or indirect material interest: our executive officers; our directors; the beneficial owners of more than 5% of our securities; the immediate family members of any of the foregoing persons; and any other persons whom the Board determines may be considered related persons, any such person being referred to as a “related person.”

The following is a description of arrangements that we have entered into with related persons since January 1, 2012. We believe that the transactions described below were made on terms no less favorable to us than could have been obtained from unaffiliated third parties.

On August 17, 2006, we entered into a stock purchase agreement and further amended the note purchase agreement with Pyxis Innovations Inc., dated October 23, 2002, to, among other things, provide for the establishment of a \$14.3 million convertible credit facility with Pyxis. Pyxis is our majority stockholder and a wholly-owned subsidiary of Alticor Inc. On June 10, 2008, we drew down \$4.0 million under the convertible credit facility, leaving \$10.3 million of available credit, and issued a convertible promissory note to Pyxis in that amount. In 2009, we drew down \$3.0 million under this credit facility, leaving \$7.3 million of remaining availability. In 2010, we drew down an additional \$2.0 million under the credit facility leaving \$3.3 million of remaining availability. In 2011, we drew down an additional \$2.0 million and in 2012 we drew \$1.3 million of remaining availability. There was no remaining availability to borrow under the credit facility and the aggregate principal amount of \$14,316,255, plus interest, was due and payable in full on March 31, 2014. Pyxis had the right to convert the principal amount into shares of common stock at a conversion price equal to \$5.68 per share, and immediately prior to the closing of the May 2013 Private Placement, Pyxis converted all of the principal amount outstanding into 2,521,222 shares of our common stock.

On October 26, 2009, we entered into a Merchant Network and Channel Partner Agreement with Amway Corp. d/b/a Amway Global, a subsidiary of Alticor. Pursuant to this Agreement, Amway Global sells our Inherent Health brand of genetic tests through its e-commerce Web site via a hyperlink to our e-commerce site. Amway Global receives a commission equal to a percentage of net sales received by us from Amway Global customers. The agreement has an initial term of 12 months and is automatically renewable for successive 12-month terms. The agreement may be terminated by either party upon 120 days written notice. As of the date of this prospectus, we have paid Amway Global approximately \$2.6 million in commissions under this agreement, including \$726,000 in 2012 and \$367,000 in 2013 and \$160,000 in the nine months ended September 30, 2014.

Beginning in September 2012 and again in 2013, Access Business Group LLC (“ABG”), an affiliate of Alticor, a related party, placed purchase orders totaling approximately \$3.3 million consisting of weight management kits. The kits are included as part of a promotional bundle of products that Amway is now selling to their Individual Business Owners

(IBOs). Of the \$3.3 million in orders \$1.8 million was received in 2013 for the 2014 program and \$1.5 million for the 2013 program. Cash for the kits purchased for the 2013 program was received in the first quarter of 2013 and cash for the kits purchased for the 2014 program was received by December 31, 2013. As a component of the promotional program, and not reflective of actual product expiry, the kits were required to be redeemed by a certain date. The initial program required redemption by December 31, 2013, but the date of required redemption was extended such that the revenues will remain deferred until those kits are redeemed or the breakage analysis determines the probability of eventual redemption is remote. In February 2014, we removed the redemption date requirement, for which ABG paid us \$519,000 as a retrospective increase in the product purchase price. In October 2014, we received \$250,000 as a retrospective increase in the product purchase price for unsold kits as consideration for extending the required redemption date of the 2014 promotional program to December 31, 2017. Cash received for these kits will be treated as deferred revenues until specific kits are returned for processing or on the final allowed redemption date of December 31, 2017.

On September 21, 2012, we entered into a License Agreement with Access Business Group International LLC (“ABGI”), an affiliate of Pyxis. Pursuant to the License Agreement, we have granted ABGI and its affiliates a non-exclusive license to use the technology related to our Weight Management genetic test and to sell the Weight Management test in Europe, Russia and South Africa (the “Territories”). ABGI, or a laboratory designated by ABGI or an affiliate of ABGI, will be responsible for processing the tests, and we will receive a royalty for each test sold, which royalty will increase if certain pending patent applications are issued. The License Agreement has an initial term of five years from the date of first commercial sale of the Weight Management test under the agreement. Thereafter, the term will automatically renew for additional one-year periods unless at least 60 days prior notice is delivered by either party. To date, we have been paid \$198,960 and \$128,790 under this agreement in 2013 and 2014 respectively.

In connection with the execution of the License Agreement, we and ABGI also entered into a Professional Services Agreement (the “PSA”) pursuant to which we have agreed to provide services to ABGI in connection with its sale and processing of the tests within the Territories. Services will be provided pursuant to a statement of work to be entered into from time to time between the parties. Such statements of work will also specify the fees to be paid by ABGI to us for such services. The PSA has no set term and may be terminated by either party, subject to certain conditions. As of the date of this prospectus, we have been paid \$5,250 under this agreement, all being received in 2013.

On June 29, 2012, we entered into an agreement with Pyxis to exchange the 5,000,000 shares of Series A Convertible Preferred Stock then held by Pyxis for 5,000,000 shares of newly designated Series A-1 Preferred Stock. Concurrently therewith, we completed a financing with DDMI pursuant to which DDMI purchased 500,000 shares of Series B Preferred Stock for gross proceeds of \$3,000,000. The rights, preferences and privileges of the Series A-1 Preferred Stock and the Series B Preferred Stock were set forth in a certificate of designations, preferences and rights filed with the Delaware Secretary of State on June 29, 2012. Each share of Series A-1 Preferred Stock and Series B Preferred Stock was convertible at the option of the holder into such number of fully paid and nonassessable shares of common stock determined by dividing the applicable original purchase price by the Series A-1 Conversion Price (\$0.3196) or the Series B Conversion Price (\$0.2745), as applicable. Immediately prior to the closing of the May 2013 Private Placement: (i) Pyxis converted all 5,000,000 outstanding shares of Series A-1 Preferred Stock into 28,160,200 shares of our common stock and (ii) DDMI, converted all 500,000 outstanding shares of Series B Preferred Stock into 10,928,961 shares of our common stock.

We have also entered into an agreement with Pyxis containing certain terms for allocating opportunities as permitted under Section 122(17) of the Delaware General Corporation Law. This agreement regulates and defines the conduct of certain of our affairs as they may involve this stockholder and its affiliates, and the powers, rights, duties and liabilities of us and our officers and directors in connection with corporate opportunities. Except under certain circumstances, this stockholder and its affiliates have the right to engage in the same or similar activities or lines of business or have an interest in the same classes or categories of corporate opportunities as we do. If Pyxis, its affiliates, or one of our directors appointed by Pyxis acquire knowledge of a potential transaction or matter that may be a corporate opportunity for both such stockholder and its affiliates and us, to the fullest extent permitted by law, such stockholder and its affiliates will not have a duty to inform us about the corporate opportunity or be liable to us or to our stockholders for breach of any fiduciary duty as a stockholder of ours for not informing us of the corporate opportunity, keeping it for its own account, or referring it to another person. Additionally, except under limited circumstances, if an officer or employee of Pyxis who is also one of our directors is offered a corporate opportunity, such opportunity shall not belong to us. In addition, we agreed that such director will have satisfied his duties to us and not be liable to us or to you in connection with such opportunity. The terms of these agreements will terminate on the date that no person who is a director, officer or employee of ours is also a director, officer, or employee of Pyxis.

On February 25, 2013, we entered into a Preferred Participation Agreement with Renaissance Health Service Corporation (an affiliate of DDMI), for itself and on behalf of certain of its affiliates and subsidiaries, which was amended and restated on November 1, 2013. Pursuant to this agreement, affiliates of RHSC have agreed to reimburse us a fixed price for each PerioPredict<sup>®</sup> genetic test that we process for a customer of affiliates of RHSC. In addition, if during the term of the agreement we offer the PerioPredict<sup>®</sup> test to any other person or party for a lower price, such lower price shall then be applicable to tests processed for a customer of such affiliates of RHSC for the remainder of the term of the agreement. RHSC and its affiliates will continue to receive the preferred pricing (or any lower market price during the term) only for so long as affiliates of RHSC continue to: (a) work to develop and to offer dental plans for which a significant portion of employees of RHSC's affiliates' customers are eligible that provide for use of the PerioPredict<sup>®</sup> test and reimbursement of the test at the agreed upon price (such plans, hereinafter referred to as "Reimbursed Dental Plans"); and (b) exercise their commercially-reasonable best efforts to maximize the number of customers that offer a Reimbursed Dental Plan. This agreement has a term of three years beginning on February 25, 2013, but may be terminated earlier (1) upon the mutual written agreement of us and RHSC, (2) if either party becomes the subject of bankruptcy, insolvency, liquidation or other similar proceedings, or (3) in the event of an uncured breach of the Agreement by either party.

On May 17, 2013, we closed a private placement transaction (the “May 2013 Private Placement”), pursuant to which we sold to various accredited investors an aggregate of 43,715,847 shares of our common stock at a price of \$0.2745 per share for gross proceeds of \$12,000,000. The investors also received Warrants to purchase up to an aggregate of 32,786,885 shares of common stock an exercise price of \$0.2745 per share. The Warrants were exercisable as to 63% of the shares immediately and the remaining 37% of the shares became exercisable on August 9, 2013. The Warrants have a term of seven years from the date they became exercisable. The following beneficial owners of more than 5% of our securities participated in the May 2013 Private Placement:



| Purchaser                                  | Shares     | Warrant<br>Shares | Purchase Price |
|--|------------|-------------------|----------------|
| Bay City Capital Fund V, L.P.              | 20,187,464 | 15,140,598        | \$5,541,458.87 |
| Bay City Capital Fund V Co-Investment Fund | 384,699    | 288,524           | \$105,599.88   |
| Growth Equity Opportunities Fund III, LLC  | 15,429,122 | 11,571,842        | \$4,235,293.99 |
| Merlin Nexus IV, LP                        | 5,143,041  | 3,857,281         | \$1,411,764.75 |

On May 17, 2013, we also entered into a Registration Rights Agreement with the investors in the May 2013 Private Placement, Pyxis, DDMI and BTIG LLC (the placement agent in the May 2013 Private Placement), pursuant to which we were required to file a registration statement on Form S-1 within 45 days of May 17, 2013 to cover the resale of (i) the shares sold in the May 2013 Private Placement and the shares of common stock underlying the warrants issued in the May 2013 Private Placement, (ii) the shares of common stock issued to Pyxis upon conversion of the Series A-1 Preferred Stock and the outstanding debt, (iii) the shares of common stock issued to DDMI upon the conversion of the Series B Preferred Stock, and (iv) the shares of Common Stock underlying warrants issued to BTIG LLC as placement agent compensation.

On December 23, 2014, we closed the December 2014 Private Placement, pursuant to which we sold to various accredited investors an aggregate of 50,099,700 shares of our common stock at a price of \$0.1003 per share for gross proceeds of \$5.0 million. The investors also received 2014 Private Placement Warrants to purchase up to an aggregate of 50,099,700 shares of common stock at an exercise price of \$0.1003 per share with a term of seven years. The following beneficial owners of more than 5% of our securities participated in the December 2014 Private Placement:

| Purchaser                                  | Shares     | Warrant<br>Shares | Purchase Price |
|--|------------|-------------------|----------------|
| Bay City Capital Fund V, L.P.              | 25,996,552 | 25,996,552        | \$2,607,454.17 |
| Bay City Capital Fund V Co-Investment Fund | 495,400    | 495,400           | \$49,688.62    |
| Growth Equity Opportunities Fund III, LLC  | 19,868,965 | 19,868,965        | \$1,992,857.17 |

In addition, Stephen DiPalma, our Interim Chief Financial Officer, purchased 249,252 shares of our common stock and received a 2014 Private Placement Warrant to purchase 249,252 shares of common stock in the December 2014 Private Placement for a purchase price of \$25,000.

On December 23, 2014, we also entered into a Registration Rights Agreement with the investors in the December 2014 Private Placement and BTIG LLC (the placement agent in the December 2014 Private Placement), pursuant to which we are required to file a registration statement on Form S-1 within 45 days of December 23, 2014 to cover the resale of (i) the shares sold in the December 2014 Private Placement and the shares of common stock underlying the 2014 Private Placement Warrants and (ii) the shares of Common Stock underlying warrants issued to BTIG LLC as placement agent compensation. The failure on the part of Interleukin to satisfy certain deadlines described in the Registration Rights Agreement may subject us to payment of certain monetary penalties.



## PRINCIPAL STOCKHOLDERS

The following table sets forth certain information with respect to the beneficial ownership of our common stock as of January 1, 2015 for (a) the executive officers named in the Summary Compensation Table of this proxy statement, (b) each of our directors, (c) all of our current directors and executive officers as a group, and (d) each stockholder known to us to beneficially own more than five percent of our common stock. Beneficial ownership is determined in accordance with the rules of the SEC and includes voting or investment power with respect to the securities. We deem shares that may be acquired by an individual or group within 60 days following January 1, 2015 pursuant to the exercise of options or warrants to be outstanding for the purpose of computing the percentage ownership of such individual or group, but are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person shown in the table. Except as otherwise indicated, we believe that the stockholders named in the table have sole voting and investment power with respect to all shares shown to be beneficially owned by them based on information provided to us by these stockholders. Percentage ownership is based on a total of 172,683,342 shares of our common stock issued and outstanding on January 1, 2015.

| Name and Address of Beneficial Owner(1)  | Amount and Nature of Beneficial Ownership | Percent    |
|--|---|------------|
| Five Percent Stockholders  |   |            |
| Pyxis Innovations Inc. (2)<br>7575 Fulton Street, East<br>Ada, MI 49355                                | 37,565,478                                | 21.8 %     |
| Bay City Capital LLC (3)<br>750 Battery Street Suite 400<br>San Francisco, CA 94111                    | 88,985,189                                | 41.5 %     |
| Growth Equity Opportunities Fund III LLC (4)<br>1954 Greenspring Drive Suite 600<br>Timonium, MD 21093 | 66,738,894                                | 32.7 %     |
| Delta Dental of Michigan, Inc. (5)<br>4100 Okemos Road<br>Okemos, MI 48864                             | 10,928,961                                | 6.3 %      |
| Merlin Nexus IV LP (6)<br><br>424 West 33 <sup>rd</sup> Street Suite 330<br>New York, NY 10001         | 9,000,322                                 | 5.1 %      |
| Directors and Executive Officers   |   |            |
| Kenneth S. Kornman, DDS, Ph.D. (7)<br>Eliot M. Lurier  | 2,392,309<br>—                            | 1.4 %<br>— |
| Scott Snyder (8)   | 420,872                                   | *          |
| Stephen DiPalma (9)  | 498,504                                   | *          |
| James M. Weaver  | —   | —          |
| Lionel Carnot (10)   | 88,985,189                                | 41.5 %     |
| Roger C. Colman (11)   | —   | —          |

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|  |            |        |
|--|------------|--------|
| Joseph M. Landstra (11)  | —          | —      |
| William C. Mills, III (12)   | 54,915     | *      |
| Dayton Misfeldt (10)   | 88,985,189 | 41.5 % |
| All current executive officers and directors as a Group (9 persons) (13) | 92,351,789 | 42.6 % |

\* Represents less than 1% of the issued and outstanding shares.

(1) Unless otherwise indicated, the address for each person is our address at 135 Beaver Street, Waltham, MA 02452.

Based on a Schedule 13D/A filed on January 7, 2015 with the SEC by Pyxis Innovations Inc. (“Pyxis”) and affiliated entities. Pyxis is a wholly-owned subsidiary of Alticor Inc. Alticor Inc. is a wholly-owned subsidiary of Solstice Holdings Inc. Solstice Holdings Inc. is a wholly-owned subsidiary of Alticor Global Holdings Inc. Pyxis reports (2) sole voting and dispositive power over the shares, however, Alticor Inc., Solstice Holdings Inc., and Alticor Global Holdings Inc. have the power to direct the voting and disposition of these securities held by Pyxis by virtue of their direct or indirect control of Pyxis.

Based on a Schedule 13D/A filed on January 6, 2015 with the SEC by Bay City Capital LLC (“BCC”) and affiliated entities. BCC is the manager of Bay City Capital Management V LLC (“Management V”), which is the general partner of Bay City Capital Fund V, L.P. (“Fund V”), and Bay City Capital Fund V Co-Investment Fund, L.P. (3) (“Co-Investment V”). BCC is also an advisor to Fund V and Co-Investment V. The shares consist of (i) 46,184,016 shares of common stock and 41,137,150 shares of common stock issuable upon the exercise of warrants held by Fund V, and (ii) 880,099 shares of common stock and 783,924 shares of common stock issuable upon the exercise of warrants held by Co-Investment V.

Based on a Schedule 13D/A filed on January 2, 2015 with the SEC by Growth Equity Opportunities Fund III, LLC (4) (“GEOF”) and affiliates. The shares consist of 35,298,087 shares of common stock and 31,440,807 shares of common stock issuable upon the exercise of warrants held by GEOF.

(5) Based on a Schedule 13D/A filed on January 16, 2015 with the SEC by Delta Dental Plan of Michigan, Inc. (“DDMI”).

Based on a Schedule 13G/A filed on February 17, 2015 with the SEC by Merlin BioMed Private Equity Advisors, (6) LLC. The shares consist of 5,143,041 shares of common stock and 3,857,281 shares of common stock issuable upon the exercise of warrants held by Merlin Nexus IV, LP (“Merlin Nexus”).

Consists of (i) 238,127 shares of common stock held by Dr. Kornman, (ii) 898,723 shares of common stock held by a limited partnership of which Dr. Kornman is a general partner and (iii) 1,255,459 shares of common stock (7) issuable upon the exercise of options that are currently exercisable or become exercisable within 60 days of January 1, 2015. Dr. Kornman disclaims beneficial ownership of the shares held by the limited partnership, except to the extent of his pecuniary interest therein.

Consists of (i) 38,307 shares of common stock held by Mr. Snyder and (ii) 382,565 shares of common stock (8) issuable upon the exercise of options that are currently exercisable or become exercisable within 60 days of January 1, 2015.

Consists of (i) 249,252 shares of common stock held by Mr. DiPalma and (ii) 249,252 shares of common stock (9) issuable upon the exercise of warrants that are currently exercisable or become exercisable within 60 days of January 1, 2015.

Appointed to the Board of Directors as a designee of BCC pursuant to the terms of the 2014 Purchase Agreement. Includes the shares of our common stock and shares of common stock issuable upon the exercise of warrants outstanding detailed in Note (3) above held by the entities affiliated with BCC. The voting and dispositive (10) decisions with respect to the shares held by Fund V and Co-Investment V are made by the members of the investment committee of its general partner, Management V. Messrs. Carnot and Misfeldt serve on this investment committee. Each disclaims beneficial ownership of such shares, except to the extent of his actual pecuniary interest therein.

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- Appointed to the Board of Directors as a designee of Pyxis pursuant to the terms of the 2014 Purchase Agreement. We have been advised that this director does not, directly or indirectly, have voting or dispositive power over the shares of stock held by Pyxis.
- (12) Consists of 54,915 shares of common stock issuable upon the exercise of options that are currently exercisable or become exercisable within 60 days of January 1, 2015.

(13) See Notes 7 through 12 above.

## SELLING STOCKHOLDERS

This prospectus covers the resale from time to time by the selling stockholders in the table below of:

43,715,847 shares and 32,786,885 shares underlying the Warrants issued to the Purchasers in the May 2013 Private Placement;

· 28,160,200 shares issued to Pyxis pursuant to the Series A-1 Conversion;

· 2,521,222 shares issued to Pyxis pursuant to the Debt Conversion;

· 10,928,961 shares issued to DDMI pursuant to the Series B Conversion; and

· 2,295,082 shares underlying the BTIG Warrants

Pursuant to the Registration Rights Agreement executed in connection with the May 2013 Private Placement, we have filed with the SEC a registration statement on Form S-1, of which this prospectus forms a part, under the Securities Act of 1933, as amended, or the Securities Act, to register these resales. The selling stockholders identified in the table below may from time to time offer and sell under this prospectus any or all of the shares of our common stock described under the column “Number of Shares Offered Hereby” in the table below.

The table below has been prepared based upon the information furnished to us by the selling stockholders. The selling stockholders identified below may have sold, transferred or otherwise disposed of some or all of their shares since the date on which the information in the following table is presented in transactions exempt from or not subject to the registration requirements of the Securities Act. Information concerning the selling stockholders may change from time to time and, if necessary, we will amend or supplement this prospectus accordingly.

Any selling stockholders who are affiliates of broker-dealers and any participating broker-dealers are deemed to be “underwriters” within the meaning of the Securities Act, and any commissions or discounts given to any such selling stockholder or broker-dealer may be regarded as underwriting commissions or discounts under the Securities Act. The selling stockholders have informed us that they do not have any agreement or understanding, directly or indirectly, with any person to distribute their shares of common stock.

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The following table sets forth the name of each selling stockholder and the number of shares of our common stock beneficially owned by the stockholder before this offering. The number of shares disclosed in the table below as beneficially owned are those beneficially owned as determined under the rules of the SEC. Such information is not necessarily indicative of ownership for any other purpose. Under the rules of the SEC, a person is deemed to be a beneficial owner of a security if that person has or shares voting power, which includes the power to vote or to direct the voting of such security, or investment power, which includes the power to dispose of or to direct the disposition of such security. In computing the number of shares beneficially owned by a selling stockholder and the percentage of ownership of that selling stockholder, shares underlying options or warrants (including the Warrants issued in the Private Placements) held by that selling stockholder that are convertible or exercisable, as the case may be, within 60 days of March 31, 2014 are included. Those shares, however, are not deemed outstanding for the purpose of computing the percentage ownership of any other selling stockholder. Each selling stockholder's percentage of ownership in the following table is based upon 172,683,342 shares of our common stock outstanding as of January 1, 2015.

Except as noted below, none of the selling stockholders held any position or office or had any other material relationship with us or with any of our predecessors or affiliates within the past three years.

| Name   | Shares Beneficially Owned Prior to the Offering (1) |             | Number of Shares Offered Hereby | Shares Beneficially Owned Following the Offering (1) |             |
|--|---|-------------|---------------------------------|--|-------------|
|  | Number of Shares                                    | Percent (%) |                                 | Number of Shares                                     | Percent (%) |
| Bay City Capital Fund V, L.P. (2)<br>750 Battery Street, Suite 400<br>San Francisco, CA 94111                    | 87,321,166  | 40.8 %      | 35,328,062                      | 51,993,104   | 26.1 %      |
| Bay City Capital Fund V Co-Investment Fund, L.P. (3)<br>750 Battery Street, Suite 400<br>San Francisco, CA 94111 | 1,664,023   | *           | 673,223                         | 990,800  | *           |



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| Name  | Shares Beneficially Owned Prior to the Offering (1) |             | Number of Shares Offered Hereby | Shares Beneficially Owned Following the Offering (1) |             |
|---|---|-------------|---------------------------------|--|-------------|
|   | Number of Shares                                    | Percent (%) |                                 | Number of Shares                                     | Percent (%) |
| Growth Equity Opportunities Fund III, LLC (4)<br>c/o New Enterprise Associates, Inc.<br>1954 Greenspring Drive, Suite 600<br>Timonium, MD 21093 | 66,738,894  | 32.7 %      | 27,000,964                      | 39,737,930   | 20.6 %      |
| Merlin Nexus IV, LP (5)<br>424 West 33 <sup>rd</sup> Street<br>Suite 330<br>New York, NY 10001  | 9,000,322   | 5.1 %       | 9,000,322                       | 0  | -           |
| Condor Trading LP (6)<br>600 Montgomery Street<br>6 <sup>th</sup> Floor<br>San Francisco, CA 94111  | 637,521   | *           | 637,521                         | 0  | -           |
| Millennium Trust Company, LLC, Custodian FBO<br>Keith C. Stone IRA (7)<br>2001 Spring Road<br>Suite 700<br>Oak Brook, IL 60523                  | 430,516   | *           | 430,516                         | 0  | -           |
| Millennium Trust Company, LLC, Custodian FBO<br>Keith C. Stone Roth IRA (8)<br>2001 Spring Road<br>Suite 700<br>Oak Brook, IL 60523             | 207,007   | *           | 207,007                         | 0  | -           |
| CDB Advisory Group, LLC (9)<br>1 Essex Place<br>Bronxville, NY 10708  | 3,888,395   | 2.2 %       | 2,550,091                       | 1,338,304  | *           |
| IRA FBO Michael Bird Pershing LLC as Custodian<br>Rollover Account (10)<br>One Pershing Plaza – 7 <sup>th</sup> Floor<br>Jersey City, NJ 07399  | 528,395   | *           | 528,395                         | 0  | -           |
| Roth IRA FBO Michael Bird Pershing LLC as<br>Custodian Rollover<br>Account (11)<br>One Pershing Plaza – 7 <sup>th</sup> Floor                   | 83,789  | *           | 83,798                          | 0  | -           |

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Jersey City, NJ 07399

|  |            |      |   |            |           |       |
|--|------------|------|---|------------|-----------|-------|
| Millennium Trust Company, LLC, Custodian FBO<br>Michael Bird Roth IRA (12)<br>2001 Spring Road<br>Suite 700<br>Oak Brook, IL 60523 | 62,842     | *    |   | 62,842     | 0         | -     |
| Pyxis Innovations Inc. (13)<br>7575 Fulton Street East<br>Ada, MI 49355  | 37,565,478 | 21.8 | % | 30,681,422 | 6,884,056 | 4.0 % |
| Delta Dental Plan of Michigan,<br>Inc. (14)<br>4100 Okemos Road<br>Okemos, MI 48864  | 10,928,961 | 6.3  | % | 10,928,961 | 0         | -     |

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| Name  | Shares Beneficially Owned Prior to the Offering (1) |             | Number of Shares Offered Hereby | Shares Beneficially Owned Following the Offering (1) |             |
|---|---|-------------|---------------------------------|--|-------------|
|   | Number of Shares                                    | Percent (%) |                                 | Number of Shares                                     | Percent (%) |
| Keith C. Stone (15)<br>c/o BTIG, LLC<br>600 Montgomery Street, 6 <sup>th</sup> Floor<br>San Francisco, CA 94111 | 1,991,591   | 1.1 %       | 688,525                         | 1,303,088  | *           |
| BTIG, LLC (16)<br>600 Montgomery Street, 6 <sup>th</sup> Floor<br>San Francisco, CA 94111                       | 2,603,928   | 1.5 %       | 1,606,557                       | 997,371  | *           |

\*

Less than one percent.

We do not know when or in what amounts the selling stockholders may offer shares for sale. The selling stockholders might not sell a portion or all of the shares offered by this prospectus. Because the selling stockholders may offer all or some of the shares pursuant to this offering, we cannot estimate the number of the (1) shares that will be held by the selling stockholders after completion of the offering. However, for purposes of this table, we have assumed that, after completion of the offering, none of the shares covered by this prospectus will be held by the selling stockholders, and all of the shares not covered by this prospectus will be held by the selling stockholders.

Number of shares offered hereby consists of (i) 20,187,464 shares issued in the May 2013 Private Placement and (ii) up to 15,140,598 shares issuable upon exercise of 2013 Warrants issued in May 2013 Private Placement. Number of shares beneficially owned prior to the offering also includes (i) 25,996,552 shares issued in the (2) December 2014 Private Placement and (ii) up to 25,996,552 shares issuable upon exercise of 2014 Warrants issued in the December 2014 Private Placement. Two of our directors, Lionel Carnot and Dayton Misfeldt, are affiliates of Bay City Capital Fund V, L.P. Number of shares beneficially owned in the table above does not include the shares owned by BayCity Capital Fund V Co-Investment Fund, L.P., which may be deemed to be beneficially owned by Bay City Capital Fund V, L.P. See Note (3).

Number of shares offered hereby consists of (i) 384,699 shares issued in the May 2013 Private Placement and (ii) up to 288,524 shares issuable upon exercise of 2013 Warrants issued in May 2013 Private Placement. Number of shares beneficially owned prior to the offering also includes (i) 495,400 shares issued in the December 2014 (3) Private Placement and (ii) up to 495,400 shares issuable upon exercise of 2014 Warrants issued in the December 2014 Private Placement. Two of our directors, Lionel Carnot and Dayton Misfeldt, are affiliates of Bay City Capital Fund V Co-Investment Fund, L.P. Number of shares beneficially owned in the table above does not include the shares owned by BayCity Capital Fund V, L.P., which may be deemed to be beneficially owned by Bay City Capital Fund V Co-Investment Fund, L.P. See Note (2).

Number of shares offered hereby consists of (i) 15,429,122 shares issued in the May 2013 Private Placement and (ii) up to 11,571,842 shares issuable upon exercise of 2013 Warrants issued in May 2013 Private Placement. (4) Number of shares beneficially owned prior to the offering also includes (i) 19,868,965 shares issued in the December 2014 Private Placement and (ii) up to 19,868,965 shares issuable upon exercise of 2014 Warrants issued in the December 2014 Private Placement.

Number of shares beneficially owned prior to the offering and offered hereby includes (i) 5,143,041 shares issued (5) in the May 2013 Private Placement and (ii) up to 3,857,281 shares issuable upon exercise of 2013 Warrants issued in the May 2013 Private Placement.

Number of shares beneficially owned prior to the offering and offered hereby includes (i) 364,298 shares issued in the May 2013 Private Placement and (ii) up to 273,223 shares issuable upon exercise of 2013 Warrants issued in the May 2013 Private Placement. Number of shares beneficially owned in the table above does not include the shares owned by BTIG, LLC, which may be deemed to be beneficially owned by Condor Trading LP, the parent (6) company of BTIG, LLC. See Note (15). Condor Trading LP is an affiliate of a broker-dealer, and has certified to us that it purchased the shares of common stock and Warrants in the Private Placement in the ordinary course of business and, at the time of purchase, had no agreements or understandings, directly or indirectly, with any person to distribute the common stock purchased in the May 2013 Private Placement or the shares of common stock issuable upon exercise of the 2013 Warrants.

Number of shares beneficially owned prior to the offering and offered hereby includes (i) 246,009 shares issued in the May 2013 Private Placement and (ii) up to 184,507 shares issuable upon exercise of 2013 Warrants issued in the May 2013 Private Placement. Number of shares beneficially owned in the table above does not include the shares directly owned by Keith C. Stone. See Note (14). Keith C. Stone is an affiliate of a broker-dealer, and has (7) certified to us that Millennium Trust Company, LLC, Custodian FBO Keith C. Stone IRA purchased the shares of common stock and 2013 Warrants in the May 2013 Private Placement in the ordinary course of business and, at the time of purchase, had no agreements or understandings, directly or indirectly, with any person to distribute the common stock purchased in the May 2013 Private Placement or the shares of common stock issuable upon exercise of the 2013 Warrants.

Number of shares beneficially owned prior to the offering and offered hereby includes (i) 118,290 shares issued in the May 2013 Private Placement and (ii) up to 88,717 shares issuable upon exercise of 2013 Warrants issued in the May 2013 Private Placement. Number of shares beneficially owned in the table above does not include the shares directly owned by Keith C. Stone. See Note (14). Keith C. Stone is an affiliate of a broker-dealer, and has certified (8) to us that Millennium Trust Company, LLC, Custodian FBO Keith C. Stone Roth IRA purchased the shares of common stock and 2013 Warrants in the May 2013 Private Placement in the ordinary course of business and, at the time of purchase, had no agreements or understandings, directly or indirectly, with any person to distribute the common stock purchased in the May 2013 Private Placement or the shares of common stock issuable upon exercise of the 2013 Warrants.

Number of shares beneficially owned prior to the offering and offered hereby includes (i) 1,457,195 shares issued in the May 2013 Private Placement and (ii) up to 1,092,896 shares issuable upon exercise of 2013 Warrants issued in the May 2013 Private Placement. Number of shares beneficially owned prior to and following the offering (9) includes 1,338,304 shares that are not registered for resale pursuant to this prospectus. CDB Advisory Group, LLC is an affiliate of a broker-dealer, and has certified to us that it purchased the shares of common stock and 2013 Warrants in the May 2013 Private Placement in the ordinary course of business and, at the time of purchase, had no agreements or understandings, directly or indirectly, with any person to distribute the common stock purchased in the May 2013 Private Placement or the shares of common stock issuable upon exercise of the 2013 Warrants.

Number of shares beneficially owned prior to the offering and offered hereby includes (i) 301,940 shares issued in the May 2013 Private Placement and (ii) up to 226,455 shares issuable upon exercise of 2013 Warrants issued in the May 2013 Private Placement. Number of shares beneficially owned in the table above does not include 170,000 shares directly owned by Michael Bird. Michael Bird is an affiliate of a broker-dealer, and has certified to us that Millennium Trust Company, LLC, Custodian FBO Michael Bird IRA purchased the shares of common (10) stock and 2013 Warrants in the May 2013 Private Placement in the ordinary course of business and, at the time of purchase, had no agreements or understandings, directly or indirectly, with any person to distribute the common stock purchased in the May 2013 Private Placement or the shares of common stock issuable upon exercise of the 2013 Warrants. Since the May 2013 Private Placement, Michael Bird transferred his shares of common stock and warrants held in the name of Millennium Trust Company, LLC, Custodian FBO Michael Bird IRA to IRA FBO Michael Bird Pershing LLC as Custodian Rollover Account.

Number of shares beneficially owned prior to the offering and offered hereby includes 83,789 shares issued in the May 2013 Private Placement. Number of shares beneficially owned in the table above does not include 170,000 shares directly owned by Michael Bird. Michael Bird is an affiliate of a broker-dealer, and has certified to us that Millennium Trust Company, LLC, Custodian FBO Michael Bird Roth IRA purchased the shares of common (11) stock and Warrants in the May 2013 Private Placement in the ordinary course of business and, at the time of purchase, had no agreements or understandings, directly or indirectly, with any person to distribute the common stock purchased in the May 2013 Private Placement or the shares of common stock issuable upon exercise of the 2013 Warrants. Since the May 2013 Private Placement, Michael Bird transferred his shares of common stock held in the name of Millennium Trust Company, LLC, Custodian FBO Michael Bird Roth IRA to Roth IRA FBO Michael Bird Pershing LLC as Custodian Rollover Account.

Number of shares beneficially owned prior to the offering and offered hereby includes up to 62,842 shares issuable upon exercise of 2013 Warrants issued in the May 2013 Private Placement. Number of shares beneficially owned in the table above does not include 170,000 shares directly owned by Michael Bird. Michael (12) Bird is an affiliate of a broker-dealer, and has certified to us that Millennium Trust Company, LLC, Custodian FBO Michael Bird Roth IRA purchased the shares of common stock and 2013 Warrants in the May 2013 Private Placement in the ordinary course of business and, at the time of purchase, had no agreements or understandings, directly or indirectly, with any person to distribute the common stock purchased in the May 2013 Private Placement or the shares of common stock issuable upon exercise of the 2013 Warrants.

Number of shares beneficially owned prior to the offering and offered hereby includes 28,160,200 shares issued in the Series A-1 Conversion and 2,521,222 shares issued pursuant to the Debt Conversion. Number of shares beneficially owned prior to and following the offering includes 6,884,056 shares that are not registered for resale (13) pursuant to this prospectus. Two of our directors, Roger Colman and Joseph M. Landstra, are affiliates of Pyxis.

In addition, one of our current directors, James Weaver, was an affiliate of Pyxis during the three years prior to April 4, 2014, and three of our past directors were affiliates of Pyxis during their service as directors of the Company within the past three years: Catherine R. Ehrenberger, Glenn S. Armstrong and Thomas R. Curran, Jr. (14) Number of shares beneficially owned prior to the offering and offered hereby consists of 10,928,961 shares issued pursuant to the Series B Conversion.

(15) Number of shares offered hereby consists of up to 688,525 shares issuable upon exercise of 2013 BTIG Warrants issued as compensation for service as placement agent in the May 2013 Private Placement. Number of shares beneficially owned prior to the offering also includes, (i) 249,252 shares issued in the December 2014 Private Placement, (ii) up to 249,252 shares issuable upon exercise of 2014 Warrants issued in the December 2014 Private Placement, (iii) up to 35,892 shares issuable upon exercise of 2014 BTIG Warrants issued as compensation for service as placement agent in the December 2014 Private Placement, (iv) up to 131,147 shares issuable upon exercise of warrants issued as partial compensation for service as placement agent in a previous private placement, (v) 246,009 shares issued in the May 2013 Private Placement to Millennium Trust Company, LLC, Custodian FBO Keith C. Stone IRA, (vi) up to 184,507 shares issuable upon exercise of warrants issued in the May 2013 Private Placement to Millennium Trust Company, LLC, Custodian FBO Keith C. Stone IRA, (vii)

118,290 shares issued in the May 2013 Private Placement to Millennium Trust Company, LLC, Custodian FBO Keith C. Stone Roth IRA and (viii) up to 88,717 shares issuable upon exercise of warrants issued in the May 2013 Private Placement to Millennium Trust Company, LLC, Custodian FBO Keith C. Stone Roth IRA.

(16) Number of shares offered hereby consists of up to 1,606,557 shares issuable upon exercise of the 2013 BTIG Warrants issued as compensation for service as placement agent in the May 2013 Private Placement. Number of shares beneficially owned prior to the offering also includes (i) up to 53,839 shares issuable upon exercise of the 2014 BTIG Warrants issued as compensation for service as placement agent in the December 2014 Private Placement, (ii) up to 306,011 shares issuable upon exercise of warrants issued as compensation for service as placement agent in a previous private placement, (iii) 364,298 shares issued in the May 2013 Private Placement to Condor Trading LP and (iv) up to 273,223 shares issuable upon exercise of 2013 Warrants issued in the May 2013 Private Placement to Condor Trading LP. Condor Trading LP is the managing member of BTIG, LLC

## PLAN OF DISTRIBUTION

Each selling stockholder of the shares of our common stock and any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their shares of common stock covered hereby on the OTCQB or any other stock exchange, market or trading facility on which the shares are traded or in private transactions. These sales may be at fixed or negotiated prices. A selling stockholder may use any one or more of the following methods when selling shares of our common stock:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;

block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;

- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;

- an exchange distribution in accordance with the rules of the applicable exchange;

- privately negotiated transactions;

settlement of short sales entered into after the effective date of the registration statement of which this prospectus is a part;

- in transactions through broker-dealers that agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;

through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;

- a combination of any such methods of sale; or

- any other method permitted pursuant to applicable law.

The selling stockholders may also sell shares under Rule 144 under the Securities Act, if available, rather than under this prospectus.

Broker-dealers engaged by the selling stockholders may arrange for other broker-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling stockholders (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2440; and in the case of a principal transaction a markup or markdown in compliance with FINRA IM-2440.

In connection with the sale of shares of common stock or interests therein, the selling stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of shares of common stock in the course of hedging the positions they assume. The selling stockholders may also sell shares of common stock short and deliver these securities to close out their short positions, or loan or pledge the shares of common stock to broker-dealers that in turn may sell these securities. The selling stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or create one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The selling stockholders and any broker-dealers or agents that are involved in selling the shares may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Each selling stockholder has informed us that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the shares of common stock. In no event shall any broker-dealer receive fees, commissions and markups which, in the aggregate, would exceed eight percent (8%).

We are required to pay certain fees and expenses incurred by us incident to the registration of the shares. We have agreed to indemnify the selling stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.



Because selling stockholders may be deemed to be “underwriters” within the meaning of the Securities Act, they will be subject to the prospectus delivery requirements of the Securities Act including Rule 172 thereunder. The selling stockholders have advised us that there is no underwriter or coordinating broker acting in connection with the proposed sale of the resale shares by the selling stockholders.

We agreed to keep this prospectus effective until the earlier of (i) the date on which the shares may be resold by the selling stockholders without registration and without regard to any volume or manner-of-sale limitations by reason of Rule 144, without the requirement for Interleukin to be in compliance with the current public information under Rule 144 under the Securities Act or any other rule of similar effect or (ii) all of the shares have been sold pursuant to this prospectus or Rule 144 under the Securities Act or any other rule of similar effect. The shares will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, the resale of shares of common stock covered hereby may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the shares may not simultaneously engage in market making activities with respect to our common stock for the applicable restricted period, as defined in Regulation M, prior to the commencement of the distribution. In addition, the selling stockholders will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of shares of common stock by the selling stockholders or any other person. We will make copies of this prospectus available to the selling stockholders and have informed them of the need to deliver a copy of this prospectus to each purchaser at or prior to the time of the sale (including by compliance with Rule 172 under the Securities Act).

## DESCRIPTION OF OUR CAPITAL STOCK

The following description of our common stock and preferred stock, together with any additional information we include in any applicable prospectus supplements, summarizes the material terms and provisions of our common stock and the preferred stock that we may offer under this prospectus. For the complete terms of our common stock and preferred stock, please refer to our certificate of incorporation, as amended, and amended and restated bylaws, which are exhibits to the registration statement that includes this prospectus. The terms of our common stock and preferred stock may also be affected by Delaware law.

### **Authorized Capital Stock**

Under our certificate of incorporation, as amended, our authorized capital stock consists of 300,000,000 shares of common stock, \$0.001 par value per share, and 6,000,000 shares of undesignated preferred stock, \$0.001 par value per share. As of January 1, 2015, we had 172,683,342 shares of common stock outstanding and no shares of preferred stock outstanding.

### **Common Stock**

Holders of common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, and do not have cumulative voting rights. Subject to preferences that may be applicable to any outstanding shares of preferred stock, holders of common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by our board of directors out of funds legally available for dividend payments. All shares of common stock outstanding as of the date of this prospectus and, upon issuance and sale, all shares of common stock that we may offer pursuant to this prospectus, will be fully paid and nonassessable. The holders of common stock have no preferences or rights of conversion, exchange, pre-emption or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock. In the event of any liquidation, dissolution or winding-up of our affairs, holders of common stock will be entitled to share ratably in our assets that are remaining after payment or provision for payment of all of our debts and obligations and after liquidation payments to holders of outstanding shares of preferred stock, if any.

### ***Transfer Agent and Registrar***

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A.

## *OTCQB*

Our common stock is traded on the OTCQB under the symbol "ILIU."

## **Preferred Stock**

Under the terms of our certificate of incorporation, as amended, our board of directors is authorized to issue up to 6,000,000 shares of preferred stock in one or more series without stockholder approval. Our board of directors has the discretion to determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock. Authorizing our board of directors to issue preferred stock and determine its rights and preferences has the effect of eliminating delays associated with a stockholder vote on specific issuances.

If we offer a specific series of preferred stock under this prospectus, we will describe the terms of the preferred stock in the prospectus supplement for such offering and will file a copy of the certificate establishing the terms of the preferred stock with the SEC. To the extent required, this description will include:

- the title and stated value;
- the number of shares offered, the liquidation preference per share and the purchase price;
- the dividend rate(s), period(s) and/or payment date(s), or method(s) of calculation for such dividends; whether dividends will be cumulative or non-cumulative and, if cumulative, the date from which dividends will accumulate;
- the procedures for any auction and remarketing, if any;
- the provisions for a sinking fund, if any;
- the provisions for redemption, if applicable;
- any listing of the preferred stock on any securities exchange or market;
- whether the preferred stock will be convertible into our common stock, and, if applicable, the conversion price (or how it will be calculated) and conversion period;
- whether the preferred stock will be exchangeable into debt securities, and, if applicable, the exchange price (or how it will be calculated) and exchange period;
- voting rights, if any, of the preferred stock;
- a discussion of any material and/or special U.S. federal income tax considerations applicable to the preferred stock;
- the relative ranking and preferences of the preferred stock as to dividend rights and rights upon liquidation, dissolution or winding up of the affairs of Interleukin Genetics; and
- any material limitations on issuance of any class or series of preferred stock ranking senior to or on a parity with the series of preferred stock as to dividend rights and rights upon liquidation, dissolution or winding up of Interleukin Genetics.

**Anti-Takeover Provisions under Delaware law and our Delaware Certificate of Incorporation and Bylaws**

Our certificate of incorporation, as amended, amended and restated bylaws and provisions of Delaware law contain provisions that are intended to enhance the likelihood of continuity and stability in the composition of the board of directors and which may have the effect of delaying, deferring or preventing a future takeover or change in control of our company unless such takeover or change in control is approved by our board of directors.

These provisions, summarized below, are expected to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

***Delaware Statutory Business Combinations Provision***

We are subject to the anti-takeover provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. For purposes of Section 203, a "business combination" is defined broadly to include a merger, asset sale or other transaction resulting in a financial benefit to the interested stockholder, and, subject to certain exceptions, an "interested stockholder" is a person who, together with his or her affiliates and associates, owns (or within three years prior, did own) 15% or more of the corporation's voting stock. The statute could prohibit or delay mergers or other takeover or change in control attempts with respect to us and, accordingly, may discourage attempts to acquire us.

***Classified Board of Directors; Removal of Directors for Cause***

Our certificate of incorporation and amended and restated bylaws provide for our board of directors to be divided into three classes, as nearly equal in number as possible, serving staggered terms. Approximately one-third of our board will be elected each year. At each annual meeting of stockholders, directors elected to succeed those directors whose terms expire will be elected for a three-year term of office. All directors elected to our classified board of directors will serve until the election and qualification of their respective successors or their earlier resignation or removal. The board of directors is authorized to create new directorships and to fill such positions so created and is permitted to specify the class to which any such new position is assigned. The person filling such position would serve for the term applicable to that class. The board of directors (or its remaining members, even if less than a quorum) is also empowered to fill vacancies on the board of directors occurring for any reason for the remainder of the term of the class of directors in which the vacancy occurred. Members of the board of directors may only be removed for cause and only by the affirmative vote of a majority of our outstanding voting stock. These provisions are likely to increase the time required for stockholders to change the composition of the board of directors. For example, in general, at least two annual meetings will be necessary for stockholders to effect a change in a majority of the members of the board of directors. The provision for a classified board could prevent a party who acquires control of a majority of our outstanding common stock from obtaining control of our board of directors until our second annual stockholders meeting following the date the acquirer obtains the controlling stock interest. The classified board provision could have the effect of discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of us and could increase the likelihood that incumbent directors will retain their positions.

***Advance Notice Provisions for Stockholder Proposals and Stockholder Nominations of Directors***

Our amended and restated bylaws provide that, for nominations to the board of directors or for other business to be properly brought by a stockholder before a meeting of stockholders, the stockholder must first have given timely notice of the proposal in writing to our Secretary. For an annual meeting, a stockholder's notice generally must be delivered not less than 60 days nor more than 90 days prior to the anniversary of the previous year's annual meeting. Detailed requirements as to the form of the notice and information required in the notice are specified in the amended and restated bylaws. If it is determined that business was not properly brought before a meeting in accordance with our restated bylaws, such business will not be conducted at the meeting.

***Special Meetings of Stockholders***

Special meetings of the stockholders may be called only by the Chairman of the Board, the Chief Executive Officer or our board of directors pursuant to a resolution adopted by a majority of the directors then in office.

***No Stockholder Action by Written Consent***

Our certificate of incorporation, as amended, does not permit our stockholders to act by written consent. As a result, any action to be effected by our stockholders must be effected at a duly called annual or special meeting of the stockholders.

***Super-Majority Stockholder Vote Required for Certain Actions.***

The Delaware General Corporation Law provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or bylaws, unless the corporation's certificate of incorporation or bylaws, as the case may be, requires a greater percentage. Our certificate of incorporation, as amended, requires the affirmative vote of the holders of at least  $66\frac{2}{3}\%$  of our outstanding voting stock to amend or repeal certain provisions of our restated certificate of incorporation. This “super-majority” stockholder vote would be in addition to any separate class vote that might be required pursuant to the terms of any preferred stock that might then be outstanding. In addition, our amended and restated bylaws may only be amended by (1) the affirmative vote of the holders of at least  $66\frac{2}{3}\%$  of our outstanding voting stock or (2) the affirmative vote of not less than two-thirds of the directors then in office.

### *Effects of Authorized but Unissued Stock*

We have shares of common stock and preferred stock available for future issuance without stockholder approval, subject to any limitations imposed by the listing standards of any securities market or exchange our securities may be listed or traded on. We may utilize these additional shares for a variety of corporate purposes including for future public offerings to raise additional capital or facilitate corporate acquisitions or for payment as a dividend on our capital stock. The existence of unissued and unreserved common stock and preferred stock may enable our board of directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could have the effect of making it more difficult for a third party to acquire, or could discourage a third party from seeking to acquire, a controlling interest in our company by means of a merger, tender offer, proxy contest or otherwise. In addition, if we issue preferred stock, the issuance could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation.

### **Limitation of Liability and Indemnification of Officers and Directors**

Our certificate of incorporation, as amended, and our amended and restated bylaws limit the liability of our officers and directors to the fullest extent permitted by the Delaware General Corporation Law and provide that we will indemnify them to the fullest extent permitted by such law. We have also entered into indemnification agreements with our current and former directors and certain of our officers and key employees and expect to enter into a similar agreement with any new directors, officers or key employees.

### **DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITIES**

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers, and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been informed that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable.

### **LEGAL MATTERS**

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts, will pass upon the validity of the issuance of the securities offered by this prospectus.

## **EXPERTS**

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

## **WHERE YOU CAN FIND MORE INFORMATION**

We are subject to the reporting requirements of the Exchange Act and file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy these reports, proxy statements and other information at the SEC's public reference facilities at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. You can request copies of these documents by writing to the SEC and paying a fee for the copying cost. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the public reference facilities. SEC filings are also available at the SEC's website at <http://www.sec.gov>. Our common stock is listed on OTCQB, and you can read and inspect our filings at the offices of the Financial Industry Regulatory Authority at 1735 K Street, Washington, D.C. 20006.

We have filed a registration statement, of which this prospectus is a part, covering the securities offered hereby. As allowed by SEC rules, this prospectus does not include all of the information contained in the registration statement and the included exhibits and financial statements. You are referred to the registration statement, the included exhibits and financial statements for further information. This prospectus is qualified in its entirety by such other information.

We also maintain a website at <http://www.ilgenetics.com>, through which you can access our SEC filings. The information set forth on our website is not part of this prospectus.



**INDEX TO FINANCIAL STATEMENTS**

**For the Years Ended December 31, 2013 and 2014**

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**Report of Independent Registered Public Accounting Firm**

Board of Directors and Stockholders

Interleukin Genetics, Inc.

We have audited the accompanying balance sheets of Interleukin Genetics, Inc. (a Delaware corporation) (the “Company”) as of December 31, 2014 and 2013, and the related statements of operations, stockholders’ equity, and cash flows for the years then ended. These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company’s internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, 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. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Interleukin Genetics, Inc. as of December 31, 2014 and 2013, and the results of its operations and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 2 to the financial statements, the Company has incurred recurring losses from operations and has an accumulated deficit that 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.

/s/ Grant Thornton LLP

Boston, Massachusetts  
March 19, 2015

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**INTERLEUKIN GENETICS, INC.****BALANCE SHEETS**

|  | December 31,<br>2014 | 2013          |
|--|----------------------|---------------|
| <b>ASSETS</b>  |                      |               |
| Current assets:  |                      |               |
| Cash and cash equivalents  | \$ 11,466,807        | \$ 7,542,281  |
| Accounts receivable from related party   | 23,544               | 534,703       |
| Trade accounts receivable  | 14,013               | 8,817         |
| Inventory  | 171,575              | 190,424       |
| Prepaid expenses   | 504,719              | 676,358       |
| Total current assets   | 12,180,658           | 8,952,583     |
| Fixed assets, net  | 773,779              | 844,606       |
| Intangible assets, net   | 195,765              | 289,865       |
| Other assets   | 116,919              | 38,001        |
| Total assets   | \$ 13,267,121        | \$ 10,125,055 |
| <b>LIABILITIES AND STOCKHOLDERS' DEFICIT</b>   |                      |               |
| Current liabilities:   |                      |               |
| Accounts payable   | \$ 513,927           | \$ 835,439    |
| Accrued expenses   | 343,225              | 252,953       |
| Deferred revenue   | 3,154,498            | 3,783,441     |
| Total current liabilities  | 4,011,650            | 4,871,833     |
| Long Term Debt   | 4,738,614            |               |
| Total liabilities  | 8,750,264            | 4,871,833     |
| Stockholders' equity:  |                      |               |
| Convertible preferred stock, \$0.001 par value — 6,000,000 shares authorized; 0 and 5,500,000 shares issued and outstanding at December 31, 2014 and 2013, respectively                | —                    | —             |
| Common stock, \$0.001 par value — 300,000,000 and 150,000,000 shares authorized; 172,683,342 and 122,448,707 shares issued and outstanding at December 31, 2014 and 2013, respectively | 172,686              | 122,449       |
| Additional paid-in capital   | 125,434,483          | 119,885,371   |
| Accumulated deficit  | (121,090,312)        | (114,754,598) |
| Total stockholders' equity   | 4,516,857            | 5,253,222     |
| Total liabilities and stockholders' equity   | \$ 13,267,121        | \$ 10,125,055 |

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

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**INTERLEUKIN GENETICS, INC.****STATEMENTS OF OPERATIONS**

|   | For The Year Ended December 31, |                   |
|---|---------------------------------|-------------------|
|   | 2014                            | 2013              |
| Genetic testing   | \$ 1,641,490                    | \$ 2,168,744      |
| Other   | 168,828                         | 260,868           |
| Total revenue   | 1,810,318                       | 2,429,612         |
| Cost of revenue   | 1,435,377                       | 1,632,497         |
| Gross profit  | 374,941                         | 797,115           |
| Operating expenses:   |                                 |                   |
| Research and development                                      | 843,102                         | 721,568           |
| Selling, general and administrative                           | 5,767,138                       | 6,564,807         |
| Amortization of intangibles                                   | 94,100                          | 109,266           |
| Total operating expenses                                      | 6,704,340                       | 7,395,641         |
| Loss from operations  | (6,329,399                      | ) (6,598,526 )    |
| Other income (expense):                                       |                                 |                   |
| Interest income   | 4,935                           | 6,804             |
| Interest expense  | (11,250                         | ) (472,186 )      |
| Gain on disposal of asset                                     | —                               | 5,975             |
| Total other income (expense)                                  | (6,315                          | ) (459,407 )      |
| Loss before income taxes                                      | (6,335,714                      | ) (7,057,933 )    |
| Benefit for income taxes                                      | —                               | —                 |
| Net loss  | \$ (6,335,714                   | ) \$ (7,057,933 ) |
| Basic and diluted net loss per common share                   | \$ (0.05                        | ) \$ (0.08 )      |
| Weighted average common shares outstanding, basic and diluted | 123,768,139                     | 90,449,758        |

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

**INTERLEUKIN GENETICS, INC.****STATEMENTS OF STOCKHOLDERS' EQUITY****For the Years Ended December 31, 2014 and 2013**

|  | Convertible Preferred Stock |           | Common Stock |            | Additional Paid-in Capital | Accumulated Deficit | Total          |
|--|-----------------------------|-----------|--------------|------------|----------------------------|---------------------|----------------|
|  | Shares                      | Par Value | Shares       | Par Value  |                            |                     |                |
| Balance as of December 31, 2012  | 5,500,000                   | \$ 5,500  | 36,761,864   | \$36,762   | \$94,030,603               | \$(107,696,665)     | \$(13,623,800) |
| Net loss   | —                           | —         | —            | —          | —                          | (7,057,933 )        | (7,057,933 )   |
| Private placement of preferred stock, net of offering costs of \$1,735,000 | —                           | —         | 43,715,847   | 43,716     | 11,265,204                 | —                   | 11,308,920     |
| Conversion of preferred stock  | (5,500,000)                 | (5,500 )  | 39,089,161   | 39,089     | (33,589 )                  | —                   | —              |
| Conversion of convertible debt   | —                           | —         | 2,521,222    | 2,521      | 14,313,734                 | —                   | 14,316,255     |
| Common stock issued:   |                             |           |              |            |                            |                     |                |
| Exercise of stock options  | —                           | —         | 252,000      | 252        | 80,268                     | —                   | 80,520         |
| Cancellation of restricted stock   | —                           | —         | (2,500 )     | (2 )       | 2                          | —                   | —              |
| Employee stock purchase plan   | —                           | —         | 111,113      | 111        | 31,342                     | —                   | 31,453         |
| Stock-based compensation expense   | —                           | —         | —            | —          | 197,807                    | —                   | 197,807        |
| Balance as of December 31, 2013  | —                           | —         | 122,448,707  | \$ 122,449 | \$ 119,885,371             | \$(114,754,598)     | \$ 5,253,222   |
| Net loss   | —                           | —         | —            | —          | —                          | (6,335,714 )        | (6,335,714 )   |

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|   |   |   |             |            |                |                 |              |
|---|---|---|-------------|------------|----------------|-----------------|--------------|
| Private placement of common stock, net of offering costs of \$218,127 | — | — | 50,099,700  | 50,100     | 4,756,774      | —               | 4,806,874    |
| Warrants issued in connection with long term debt                     | — | — | —           | —          | 261,386        | —               | 261,386      |
| Employee stock purchase plan  | — | — | 134,935     | 137        | 32,017         | —               | 32,154       |
| Stock-based compensation expense                                      | — | — | —           | —          | 498,935        | —               | 498,935      |
| Balance as of December 31, 2014                                       | — | — | 172,683,342 | \$ 172,686 | \$ 125,434,483 | \$(121,090,312) | \$ 4,516,857 |

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



**INTERLEUKIN GENETICS, INC.****STATEMENTS OF CASH FLOWS**

|  | For the Year Ended December 31, |                   |
|--|---------------------------------|-------------------|
|  | 2014                            | 2013              |
| <b>CASH FLOW FROM OPERATING ACTIVITIES:</b>  |                                 |                   |
| Net loss   | \$ (6,335,714                   | ) \$ (7,057,933 ) |
| Adjustments to reconcile net loss from continuing operations to net cash used in operating activities: |                                 |                   |
| Depreciation and amortization  | 262,961                         | 229,301           |
| Stock-based compensation expense   | 498,935                         | 197,807           |
| Change in fair value of warrants   | —                               | 297,547           |
| Gain on disposal of fixed assets   | —                               | (5,975 )          |
| Changes in operating assets and liabilities:   |                                 |                   |
| Receivable from related party  | 511,159                         | 17,869            |
| Trade accounts receivable  | (5,196 )                        | 38,743            |
| Inventory  | 18,849                          | (32,186 )         |
| Prepaid expenses and other assets  | 171,639                         | (258,586 )        |
| Accounts payable   | (321,512 )                      | 356,257           |
| Accrued expenses   | 90,272                          | 87,208            |
| Other Assets (lease deposit refund)  | 10,000                          | —                 |
| Deferred revenue   | (628,943 )                      | 2,155,177         |
| Net cash used in operating activities  | (5,727,550 )                    | (3,974,771 )      |
| <b>CASH FLOWS FROM INVESTING ACTIVITIES:</b>   |                                 |                   |
| Capital additions  | (98,033 )                       | (837,696 )        |
| Proceeds from the disposal of fixed assets   | —                               | 5,975             |
| Net cash used in investing activities  | (98,033 )                       | (831,721 )        |
| <b>CASH FLOW FROM FINANCING ACTIVITIES:</b>  |                                 |                   |
| Proceeds from issuance of notes payable  | 5,000,000                       | —                 |
| Loan origination costs   | (88,918 )                       | —                 |
| Proceeds from private placement of common stock and warrants   | 5,025,000                       | 12,000,000        |
| Private placement offering costs   | (218,127 )                      | (988,626 )        |
| Proceeds from exercises of employee stock options  | —                               | 80,520            |
| Proceeds from employee stock purchase plan   | 32,154                          | 31,453            |
| Net cash provided by financing activities  | 9,750,109                       | 11,123,347        |
| Net increase in cash and equivalents   | 3,924,526                       | 6,316,855         |
| Cash and cash equivalents, beginning of period   | 7,542,281                       | 1,225,426         |
| Cash and cash equivalents, end of period   | \$ 11,466,807                   | \$ 7,542,281      |
| Supplemental disclosures of cash flow information:   |                                 |                   |
| Cash paid for interest   | \$ —                            | \$ 291,914        |
| Supplemental disclosures of non-cash investing and financing activities:                               |                                 |                   |
| Warrants issued in connection with preferred stock financing   | \$ —                            | \$ 104,907        |
| Warrants issued in connection with long term debt  | \$ 261,386                      | \$ —              |
| Conversion of debt to common stock   | \$ —                            | 14,316,255        |
| Interest related to fair value of warrants market adjustment   | \$ —                            | \$ 297,547        |

The accompanying notes are an integral part of these financial statements

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**INTERLEUKIN GENETICS, INC.**

**NOTES TO FINANCIAL STATEMENTS**

**December 31, 2014**

**Note 1—Company Overview**

Interleukin Genetics, Inc. (“Interleukin” or “the Company”) is focused on developing and commercializing personalized health products that can help individuals improve and maintain their health through preventive measures. It uses functional genomics to help in the development of risk assessment tests based on the genetic variations in people. Interleukin has commercialized genetic tests for periodontal disease risk assessment, cardiovascular risk assessment, general nutrition assessment, weight management and bone health.

The Company’s current focus is on commercializing its periodontal genetic risk assessment test and its Inherent Health® brand of genetic tests which includes the Company’s Weight Management genetic test.

**Note 2—Operating Matters and Liquidity**

The Company has experienced net operating losses since its inception through December 31, 2014. The Company had net losses of \$6.3 million and \$7.1 million for the years ended December 31, 2014 and 2013, respectively, contributing to an accumulated deficit of \$121.1 million as of December 31, 2014.

The Company continues to take steps to reduce genetic test processing costs. Cost savings are primarily achieved through test process improvements. Management believes that the current laboratory space is adequate to process high volumes of genetic tests.

On May 17, 2013, the Company entered into a Common Stock Purchase Agreement (the “2013 Purchase Agreement”) with various accredited investors (the “2013 Investors”), pursuant to which the Company sold securities to the 2013 Investors in a private placement transaction (the “May 2013 Private Placement”). In the May 2013 Private Placement, the Company sold an aggregate of 43,715,847 shares of our common stock at a price of \$0.2745 per share for gross proceeds of \$12,000,000. The 2013 Investors also received warrants to purchase up to an aggregate of 32,786,885 shares of common stock an exercise price of \$0.2745 per share (the “2013 Warrants”). The 2013 Warrants are all currently exercisable and have a term of seven years from the date they became exercisable.

In addition, pursuant to the 2013 Purchase Agreement, each 2013 Investor had the right, at any time on or before June 30, 2014 (the “Expiration Date”), to purchase at one or more subsequent closings its pro rata share of up to an aggregate of 18,214,936 additional shares of common stock at a purchase price of \$0.2745 per share and 2013 Warrants to purchase up to an aggregate of 13,661,201 shares of common stock at an exercise price of \$0.2745 per share. The Expiration Date was extended until December 31, 2014, and this option expired unexercised.

On December 23, 2014, the Company entered into a Securities Purchase Agreement (the “2014 Purchase Agreement”) with various accredited investors (the “2014 Investors”), pursuant to which the Company sold to the 2014 Investors in a private placement transaction (the “December 2014 Private Placement”) an aggregate of 50,099,700 shares of common stock at a price of \$0.1003 per share for gross proceeds of approximately \$5.025 million. The 2014 Investors also received warrants (the “2014 Warrants”) to purchase up to an aggregate of 50,099,700 shares of common stock an exercise price of \$0.1003 per share. The 2014 Warrants are all currently exercisable and have a term of seven years.

The Company's financial statements have been prepared assuming that it will continue as a going concern which contemplates the realization of assets and satisfaction of liabilities in the normal course of business. The financial statements do not include any adjustments that might result from the outcome of this uncertain realization. The Company expects to incur additional losses in 2015 and, accordingly, is dependent on financings and potential revenue to fund its operations and support the market adoption of the PerioPredict® test. The timing of any revenues that the Company may receive from the PerioPredict® test is uncertain at this time, and is contingent upon a number of factors, including the Company's ability to consummate arrangements with partners to promote the PerioPredict® test, the Company's partners' ability to develop insurance plans that provide for use of the PerioPredict® test and reimbursement of the test and to develop a viable market for such plans, and the timing of utilization of the PerioPredict® test pursuant to such plans, or other possible arrangements. The Company expects to have the cash resources necessary to support the further commercialization of the PerioPredict® test for at least the next twelve months.

The ability of the Company to realize the carrying value of its fixed assets and intangible assets is especially dependent on management's ability to successfully execute on its plan. The Company needs to generate additional funds in order to meet its financial obligations. If it is unsuccessful in doing so, the Company may not be able to realize the carrying value of its fixed assets and intangible assets.

### **Note 3—Summary of Significant Accounting Policies**

#### *Management Estimates*

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements, as well as the reported amounts of revenue and expenses during the reported periods. Actual results could differ from those estimates. The Company's most critical accounting policies are more fully discussed in these notes to the financial statements.

#### *Revenue Recognition*

Revenue from genetic testing services is recognized when there is persuasive evidence of an arrangement, service has been rendered, the sales price is determinable and collectability is reasonably assured. Service is deemed to be rendered when the results have been reported to the individual who ordered the test. To the extent that tests have been prepaid but results have not yet been reported, recognition of all related revenue is deferred. As of December 31, 2014 and December 31, 2013, the Company had deferred genetic test revenue of \$3.2 million and \$3.8 million, respectively.

Included in deferred revenue at December 31, 2014 is \$3.0 million for kits that are still outstanding one year or longer after initial kit sale, of which \$0.5 million was sold directly to consumers (credit card payments) and \$2.5 million was sold to Access Business Group LLC, an affiliate of Alticor Inc., a related party, for the Body Key promotional bundle.

During the fourth quarter of 2013, the Company concluded that sufficient historical customer genetic test redemption patterns existed to determine the period of time after which the likelihood of test redemption was remote. Based on the Company's analysis of the redemption data, the Company estimates that period of time to be three years after the sale of a genetic test kit. Prior to making this determination revenue was recognized only on test kits returned and processed.

Beginning in the fourth quarter of 2013, the Company began to recognize breakage revenue related to genetic tests kits utilizing the remote method. Under the remote method, breakage revenue should be recognized when the likelihood of the customer exercising rights of redemption becomes remote. The term remote requires statistical analysis of customer redemption patterns for all tests sold and returned. The Company analyzed redemption patterns from 2009 through 2014. Included in genetic test revenue in the fourth quarter in 2013 is \$213,000 of breakage revenue related to unredeemed genetic test kits from 2009 and 2010. Included in genetic test revenue at December 31, 2014 is \$309,000 of breakage revenue related to unredeemed genetic test kits from 2011. The Company will continue to recognize breakage revenue and the corresponding deferred cost of goods on a quarterly basis based on the historical analysis.

*Sales Commission*

The Company accounts for sales commissions due to Amway Global under the Merchant Channel and Partner Agreement in accordance with SEC Staff Accounting Bulletin (“SAB”) 104. Commissions are recorded as an expense at the time they become due which is at the point of sale. The cost of commissions was \$218,000 and \$367,000 for the years ended December 31, 2014 and 2013, respectively.

*Accounts Receivable*

Accounts receivable is stated at estimated net realizable value, which is generally the invoiced amount less any estimated discount related to payment terms. The Company offers its commercial genetic test customers a 2% cash discount if payment is made by bank wire transfer within 10 days of the invoice date. No accounts receivable reserve is required at December 31, 2014 as all accounts receivable are expected to be collected.

*Inventory*

Inventory is carried at lower of cost (first-in, first-out method) or market and no inventory reserve is deemed necessary at December 31, 2014. As the Company does not manufacture any products, no overhead costs are included in inventory. When a kit is sold, the corresponding cost of the kit is recorded as cost of goods sold and removed from inventory. The Company has contracted with a fulfillment provider to supply its PerioPredict<sup>®</sup> genetic test kits to dental offices. The agreement with the provider provides that the vendor will purchase and fulfill all materials related to the genetic test kit and delivery with the Company’s approval. The Company pays for materials and fulfillment charges when the product is shipped. Any kit components remaining at the fulfillment center are reflected in inventory with a corresponding offset to accounts payable. At December 31, 2014 and December 31, 2013, \$48,000 and \$41,000, respectively, of raw materials are at the fulfillment center and reflected in inventory with a corresponding entry to accounts payable.

Inventory consisted of the following at December 31, 2014 and 2013:

|                      | December 31, 2014 | December 31, 2013 |
|----------------------|-------------------|-------------------|
| Raw materials        | \$ 163,239        | \$ 180,948        |
| Finished goods       | 8,336             | 9,476             |
| Total inventory, net | \$ 171,575        | \$ 190,424        |

### *Stock-Based Compensation*

The Company accounts for stock-based compensation expense in accordance with FASB ASC 718, *Compensation – Stock Compensation*. The standard addresses all forms of share-based payment (SBP) awards, including shares issued under employee stock purchase plans, stock options, restricted stock and stock appreciation rights. The Company expenses SBP awards within compensation cost for SBP transactions measured at fair value. Compensation cost for the portion of awards for which the requisite service has not been rendered that are outstanding as of the effective date shall be recognized as the requisite service is rendered on or after the effective date. The compensation cost for that portion of awards shall be based on the grant-date fair value of those awards as calculated under the Black-Scholes option pricing model. Common stock purchased pursuant to our employee stock purchase plan will be expensed based upon the fair market value in excess of purchase price.

### *Income Taxes*

The Company accounts for income taxes in accordance with FASB ASC 740, *Income Taxes*, which requires the recognition of taxes payable or refundable for the current year and deferred tax liabilities and assets for the future tax consequences of events that have been recognized in the financial statements or tax returns. The measurement of current and deferred tax liabilities and assets is based on provisions of the enacted tax law; the effects of future changes in tax laws or rates are not anticipated. The Company records a valuation allowance to reduce its deferred tax assets to the amount that is more likely than not to be realized.

Significant management judgment is required in determining the Company's provision (benefit) for income taxes, its deferred tax assets and liabilities and any valuation allowance recorded against deferred tax assets. The Company has recorded a full valuation allowance against its deferred tax assets of approximately \$30.5 million as of December 31, 2014, due to uncertainties related to its ability to utilize these assets. The valuation allowance is based on management's estimates of taxable income by jurisdiction in which the Company operates and the period over which the deferred tax assets will be recoverable. In the event that actual results differ from these estimates or management adjusts these estimates in future periods, the Company may need to adjust its valuation allowance, which could materially impact its financial position and results of operations.



On January 2, 2013, President Obama signed The American Taxpayer Relief Act of 2012 (H.R. 8) legislation which extended many of the tax provisions that expired in 2011 or 2012. For financial reporting purposes, the tax impact of this legislation is taken into account in the quarter in which the legislation is enacted by Congress and signed into law by the President. Since President Obama signed the bill on January 2, 2013, the financial reporting for these legislative changes occurred in the first quarter, 2013. Therefore, for 2012, no deferred tax asset with respect to the federal R&D tax credit was recorded. In the first quarter 2013, the full deferred tax asset for the 2013 federal R&D tax credit has been recorded as a discrete item. The total impact to 2013 is a deferred tax asset of approximately \$61,000 which is fully reserved.

As a result of the Company's change in its capital structure during the quarters ended June 30, 2013 and December 31, 2014, the Company may have undergone IRC section 382 ownership changes which would limit its ability to realize the benefit of its tax attributes (i.e., federal/state net operating losses and research and development credits) during their respective carry forward periods. Furthermore, pursuant to the change in capital structure in the quarter ended June 30, 2013, the Company realized cancellation of indebtedness income under IRC section 108(e)(8), which reduced the Company's federal net operating loss carry-forward pursuant to IRC section 108(b)(2)(A), due to the fact that the Company's liabilities exceeded the fair market value of its assets. Accordingly, the Company had a reduction in its deferred tax asset and a corresponding reduction in its valuation allowance for the quarter ending June 30, 2013. The cancellation of indebtedness income resulted from a shareholder's conversion of debt of approximately \$14.3 million into common stock of the Company prior to an additional investment by an unrelated investor.

The Company reviews its recognition threshold and measurement process for recording in the financial statements uncertain tax positions taken or expected to be taken in a tax return. The Company reviews all material tax positions for all years open to statute to determine whether it is more likely than not that the positions taken would be sustained based on the technical merits of those positions. The Company did not recognize any adjustments for uncertain tax positions as of and during the year ended December 31, 2014. However, if the Company incurred interest and penalties they would be recorded in general and administrative expenses.

#### *Research and Development*

Research and development costs are expensed as incurred.

#### *Basic and Diluted Net Loss per Common Share*

The Company applies the provisions of FASB ASC 260, *Earnings per Share*, which establishes standards for computing and presenting earnings per share. Basic and diluted net loss per share was determined by dividing net loss applicable to common stockholders by the weighted average number of shares of common stock outstanding during

the period. Diluted net loss per share is the same as basic net loss per share for all the periods presented, as the effect of the potential common stock equivalents is anti-dilutive due to the loss in each period. Potential common stock equivalents excluded from the calculation of diluted net loss per share are as follows:

|                      | As of December 31, |            |
|----------------------|--------------------|------------|
|                      | 2014               | 2013       |
| Options outstanding  | 4,523,900          | 5,884,050  |
| Warrants outstanding | 89,951,079         | 37,269,125 |
| Total                | 94,474,979         | 43,153,175 |

*Comprehensive Income (Loss)*

Comprehensive income (loss) is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. During the years ended December 31, 2014 and 2013, there were no items other than net loss included in the determination of comprehensive loss.

### *Fair Value of Financial Instruments*

The Company, using available market information, has determined the estimated fair values of financial instruments. The stated values of cash and cash equivalents, accounts receivable and accounts payable approximate fair value due to the short term nature of these instruments. The fair value of warrants is calculated using the Black-Scholes pricing model.

### *Cash and Cash Equivalents*

The Company maintains its cash and cash equivalents with domestic financial institutions that the Company believes to be of high credit standing. The Company believes that, as of December 31, 2014, its concentration of credit risk related to cash and cash equivalents was not significant. Cash and cash equivalents are available on demand and are generally in excess of FDIC insurance limits.

### *Fixed Assets*

Fixed assets are stated at cost, less accumulated depreciation and amortization. Depreciation and amortization are provided using the straight-line method over estimated useful lives of three to five years. Leasehold improvements are amortized over the shorter of the estimated useful life of the asset or the remaining term of the lease.

Assets that have not yet been placed in service, have the costs incurred presented as part of Projects in Progress. Once the asset has been placed in service, the related costs are transferred to the appropriate category and depreciation commences. At December 31, 2013, Projects in Progress had a balance of \$526,000, all of which were laboratory improvement projects. All of those projects were placed in service in the first nine months of 2014. At December 31, 2014, Projects in progress had a balance of \$6,800, all of which is related to laboratory software improvements.

### *Impairment of Long-Lived Assets*

The Company evaluates its long-lived assets, including intangible assets, for impairment whenever events or changes in circumstances indicate that carrying amounts of such assets may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the future undiscounted net cash flows expected to be generated by the asset. Any write-downs, based on fair value, are to be treated as permanent

reductions in the carrying amount of the assets. The Company determined that no impairment existed related to the Company's long-lived assets at December 31, 2014 and 2013.

### *Segment Reporting*

As of December 31, 2014 and 2013, the Company has one segment, the genetic test business. The Company develops genetic tests for sale into the emerging personalized health market and performs testing services that can help individuals improve and maintain their health through preventive measures. The Company's principal operations and markets are located in the United States.

### *Recent Accounting Pronouncements*

*FASB ASC 606 ASU 2014-09 - Revenue from contracts with customers.*

In May 2014, the FASB issued amended guidance on contracts with customers to transfer goods or services or contracts for the transfer of nonfinancial assets, unless those contracts are within the scope of other standards (e.g., insurance contracts or lease contracts). The guidance requires an entity to recognize revenue on contracts with customers to depict the transfer of promised 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. The guidance requires that an entity depict the consideration by applying the following five steps:

- Identify the contract(s) with a customer.
- Identify the performance obligations in the contract.
- Determine the transaction price.
- Allocate the transaction price to the performance obligations in the contract.
- Recognize revenue when (or as) the entity satisfies a performance obligation.

The amendments in this ASU are effective for annual reporting periods beginning after December 15, 2016, including interim periods within that reporting period. Early application is not permitted. This amendment is to be either retrospectively adopted to each prior reporting period presented or retrospectively with the cumulative effect of initially applying this ASU recognized at the date of initial application. The Company is evaluating the impact of the adoption of this guidance to determine whether or not it has a material impact on the Company's financial statements.

*FASB ASC 606 ASU 2014-15 - Presentation of Financial Statements—Going Concern (Subtopic 205-40); Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern.*

In August 2014, the FASB issued ASU No. 2014-15, which applies should a company be facing probable liquidation within one year of the issuance of the financial statements, but is not actually in liquidation at the time of issuance. The applicable basis for presentation remains as a going concern, but if liquidation within one year is probable, then certain disclosures must be included in the financial statement presentation. ASU 2014-15 is effective for annual and interim periods beginning after December 15, 2016, with early adoption permitted. The Company is not electing to adopt early and is evaluating the impact of ASU 2014-15 on the Company's financial disclosures.

#### **Note 4—Related Party Transactions**

Since March 2003, the Company has maintained a broad strategic alliance with several affiliates of the Alticor Inc. family of companies, a related party, to develop and market novel nutritional and skin care products. The alliance initially included an equity investment, a multi-year research and development agreement, a licensing agreement with royalties on marketed products, the deferment of outstanding loan repayment and the refinancing of bridge financing obligations.

On October 26, 2009, the Company entered into a Merchant Network and Channel Partner Agreement with Amway Corp., d/b/a/ Amway Global (“Amway Global”), a subsidiary of Alticor Inc. Pursuant to this Agreement, Amway Global sells the Company's Inherent Health® brand of genetic tests through its e-commerce website via a hyperlink to our e-commerce site. We paid Amway Global \$218,000 and \$367,000 in commissions for the years ended December 31, 2014 and 2013, respectively, representing a percentage of net sales to their customers. The Company expenses commissions owed to Amway Global at the point of sale with the customer.

Beginning in September 2012 and again in 2013, Access Business Group LLC (“ABG”), an affiliate of Alticor, a related party, placed purchase orders totaling approximately \$3.3 million consisting of weight management kits. The kits are included as part of a promotional bundle of products that Amway is now selling to their Individual Business Owners (IBOs). Of the \$3.3 million in orders \$1.8 million was received in 2013 for the 2014 program and \$1.5 million for the 2013 program. Cash for the kits purchased for the 2013 program was received in the first quarter of 2013 and cash for

the kits purchased for the 2014 program was received by December 31, 2013. As a component of the 2013 promotional program, and not reflective of actual product expiry, the kits were required to be redeemed by December 31, 2013. In February 2014, the Company removed the redemption date requirement for the 2013 promotional program, for which ABG paid the Company \$519,000 as a retrospective increase in the product purchase price. All revenues related to the 2013 promotional program, including the \$519,000, will remain deferred until the kits are redeemed or the breakage analysis determines the probability of eventual redemption is remote. In October 2014, the Company received \$250,000 as a retrospective increase in the product purchase price for unsold kits as consideration for extending the required redemption date of the 2014 promotional program to December 31, 2017. Cash received for these kits will be treated as deferred revenues until specific kits are returned for processing or on the final allowed redemption date of December 31, 2017.

On September 21, 2012, the Company entered into a License Agreement with Access Business Group International LLC (“ABGI”), an affiliate of Pyxis. Pursuant to the License Agreement, the Company has granted ABGI and its affiliates a non-exclusive license to use the technology related to Interleukin’s Weight Management genetic test and to sell the Weight Management test in Europe, Russia and South Africa (the “Territories”). ABGI, or a laboratory designated by ABGI, will be responsible for processing the tests, and the Company will receive a royalty for each test sold, which royalty will increase if certain pending patent applications are issued. The License Agreement has an initial term of five years from the date of first commercial sale of the Weight Management test under the agreement. Thereafter, the term will automatically renew for additional one-year periods unless at least 60 days prior notice is delivered by either party. During the years ended December 31, 2014 and December 31, 2013, \$150,923 and \$198,960, respectively, related to license fees was received.

In connection with the execution of the License Agreement, the Company and ABGI also entered into a Professional Services Agreement (the "PSA") pursuant to which the Company has agreed to provide services to ABGI in connection with its sale and processing of the tests within the Territories. Services will be provided pursuant to a statement of work to be entered into from time to time between the parties. Such statements of work will also specify the fees to be paid by ABGI to Interleukin for such services. The PSA has no set term and may be terminated by either party, subject to certain conditions. For the year ended December 31, 2013, the Company has earned \$5,250 in fees from this agreement. No fees were earned in the year ended December 31, 2014.

For years ended December 31, 2014 and 2013, approximately 44% and 38%, respectively, of our revenue came from sales through our Merchant Network and Channel Partner Agreement with Amway Global, a subsidiary of Alticor, and 32% and 36%, respectively, of our revenue came from sales through ABG's promotional product bundle program.

On February 25, 2013, the Company entered into a Preferred Participation Agreement with RHSC, for itself and on behalf of certain of its affiliates and subsidiaries. RHSC is a related party through its affiliation with Delta Dental of Michigan, Inc. ("DDMI"), a stockholder of the Company. Pursuant to this agreement, affiliates of RHSC agreed to reimburse the Company a fixed price for each PerioPredict® (formerly PST®) genetic test that the Company processed for a customer of affiliates of RHSC. In addition, if during the term of the agreement the Company offered the PerioPredict® test to any other person or party for a lower price, such lower price would then be applicable to tests processed for a customer of such affiliates of RHSC for the remainder of the term of the agreement. The pricing arrangement was subject to the satisfaction of certain milestones, including that (1) within a specified timeframe, RHSC affiliates were to develop and offer dental benefit plans for which a significant portion of such affiliate's clients are eligible that provided for use of the PerioPredict® test and reimbursement of the test at the agreed upon price (each such plan, hereinafter referred to as a "Reimbursed Dental Plan") and (2) prior to a specified date, RHSC affiliates were to have sold policies for Reimbursed Dental Plans for the year beginning January 1, 2014. The Company agreed that for a one year period beginning on the date on which RHSC affiliates first offered a Reimbursed Dental Plan, it would make the PerioPredict® test available solely to RHSC affiliates and not to any other third party or person. This agreement had a term of three years beginning on February 25, 2013.

On November 1, 2013, the Company entered into an Amended and Restated Preferred Participation Agreement with RHSC, for itself and on behalf of certain of its affiliates and subsidiaries. Pursuant to this agreement, affiliates of RHSC have agreed to reimburse the Company a fixed price for each PerioPredict® genetic test that the Company processes for a customer of affiliates of RHSC. In addition, if during the term of the agreement the Company offers the PerioPredict® test to any other person or party for a lower price, such lower price shall then be applicable to tests processed for a customer of such affiliates of RHSC for the remainder of the term of the agreement. RHSC and its affiliates will continue to receive the preferred pricing (or any lower market price during the term) only for so long as affiliates of RHSC continue to: (a) work to develop and to offer Reimbursed Dental Plans for which a significant portion of employees of RHSC's affiliates' customers are eligible; and (b) exercise their commercially-reasonable best efforts to maximize the number of customers that offer a Reimbursed Dental Plan. In addition, under the terms of the amended agreement, the Company is no longer obligated to make the PerioPredict® test available solely to RHSC affiliates and not to any other third party or person. This amended agreement has a term of three years beginning February 25, 2013, unless terminated earlier (1) upon the mutual written agreement of us and RHSC, (2) if either party becomes the subject of bankruptcy, insolvency, liquidation or other similar proceedings, or (3) in the event of an

uncured breach of the amended agreement by either party.

The timing of any revenues that the Company may receive under the amended agreement with RHSC is dependent upon the timing of the offering of Reimbursed Dental Plans and the subsequent adoption of such Reimbursed Dental Plans by RHSC customers, the timing of which is very uncertain at this time and is dependent on a viable market developing for such plans. RHSC has informed us that it has presented the scientific data underlying Reimbursed Dental Plans to a number of customers and will make available Reimbursed Dental Plans as an alternative to a customer's current plan for any customer that expresses an interest in such a plan. The Company may never receive significant revenues under this agreement.

#### **Note 5—Debt Instruments**

##### *Convertible Debt*

On August 17, 2006, our credit facility with Pyxis was amended to provide the Company with access to approximately \$14.3 million of additional working capital borrowings. Any amounts borrowed thereunder accrued interest at the prime rate and required quarterly interest payments. The principal amount of any borrowing under this credit facility was convertible at Pyxis' election into a maximum of 2,521,222 shares of common stock, reflecting a conversion price of \$5.6783 per share.



This credit facility had been modified several times, including on November 29, 2012, to extend the due date to March 31, 2014.

Immediately prior to the closing of the private placement of common stock on May 17, 2013, Pyxis converted all of the principal amount of debt outstanding into 2,521,222 shares of common stock. Accordingly, there is no convertible debt outstanding at December 31, 2013 or at December 31, 2014.

#### *Venture Loan and Security Agreement*

On December 23, 2014, the Company also entered into a Loan Agreement with Horizon Technology Finance Corporation (the "Lender") under which the Company has borrowed \$5.0 million. The loan bears interest at a floating rate equal to the One Month LIBOR Rate (with a floor of 0.50%) plus 8.50%. In the event that the One Month LIBOR Rate, as reported in the Wall Street Journal, exceeds 0.50%, the interest rate will be adjusted by an amount equal to the difference between such rates at the end of that particular month. At December 31, 2014, the rate was 9.0% per annum. The loan is to be repaid in forty-five (45) monthly payments consisting of fifteen (15) monthly payments of only interest followed by thirty (30) equal monthly payments of principal and interest. In addition, at the end of the repayment term (or at early termination of the loan) a final payment equal to 4.5% of the loan will be due and payable. The Company's obligations under the Loan Agreement are secured by a first priority security interest in substantially all of its assets other than its intellectual property. The Company has also agreed not to pledge or otherwise encumber its intellectual property assets, subject to certain exceptions. In connection with the Loan Agreement, the Company issued to the Lender and its affiliates warrants to purchase a total of 2,492,523 shares of common stock at an exercise price of \$0.1003 per share, which the Company refers to herein as the Lender Warrants. The Lender Warrants have a term of ten (10) years.

Additional items associated with the term loan that were recorded as a discount on the Term Loan and that are being recorded as additional interest expense using the effective interest method over the term of the loan in the Company's consolidated statements of operations include \$88,918 in cash fees paid to the Lender and \$261,386 of the intrinsic value of the Lender Warrants. The final non-principal payment of \$225,000 will be accrued as additional interest expense also using the effective interest method over the term of the loan. As of December 31, 2014, the unamortized discount associated with the Term Loan was \$350,304.

#### **Note 6—Fixed Assets**

The useful lives and balances of fixed assets at December 31, 2014 and 2013 consisted of the following:

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|  | Useful<br>Life | 2014         | 2013         |
|--|----------------|--------------|--------------|
| Computer software, computer equipment and office equipment | 3 years        | \$ 477,222   | \$ 272,659   |
| Laboratory equipment                                       | 5 years        | 1,837,504    | 1,452,669    |
| Furniture and fixtures                                     | 5 years        | 40,349       | 40,349       |
| Leasehold improvements                                     | 5 years        | 309,618      | 309,618      |
| Website development  | 3 years        | 298,553      | 270,678      |
| Projects in Progress                                       |                | 6,750        | 525,988      |
|  |                | 2,969,996    | 2,871,961    |
| Less — Accumulated depreciation and amortization           |                | (2,196,217 ) | (2,027,355 ) |
| Total  |                | \$ 773,779   | \$ 844,606   |

Depreciation and amortization expense was \$168,861 and \$120,033, for the years ended December 31, 2014 and 2013, respectively. Fully depreciated assets of \$8,200 were retired at December 31, 2014.

**Note 7—Intangible Assets**

Intangible assets at December 31, 2014 and 2013 consisted of the following:

|  | 2014        | 2013        |
|--|-------------|-------------|
| Patent costs                               | \$1,154,523 | \$1,154,523 |
| Less — Accumulated amortization (958,758 ) | (958,758 )  | (864,658 )  |
| Total                                      | \$195,765   | \$289,865   |

Patent amortization expense was \$94,100 and \$109,266 for the years ended December 31, 2014 and 2013, respectively.

Patent costs which are being amortized on a straight-line basis over a 10-year life, are scheduled to amortize as follows:

Year ended December 31.

|       |           |
|-------|-----------|
| 2015. | 77,656    |
| 2016. | 61,119    |
| 2017. | 42,229    |
| 2018  | 14,761    |
|       | \$195,765 |

**Note 8—Accrued Expenses**

Accrued expenses at December 31, 2014 and 2013 consisted of the following:

|                        | 2014      | 2013      |
|------------------------|-----------|-----------|
| Payroll and vacation   | \$328,972 | \$198,968 |
| Other                  | 14,253    | 53,985    |
| Total accrued expenses | \$343,225 | \$252,953 |

**Note 9—Commitments and Contingencies**

*Off-Balance Sheet Arrangements*

The Company has no off-balance sheet arrangements that have, or are reasonably likely to have, a current or future material effect on its financial condition, results of operations or cash flows.

*Employment Agreements*

***Kenneth S. Kornman, DDS, Ph.D.***

On November 12, 2008, the Company entered into an employment agreement with Dr. Kornman, its President and Chief Scientific Officer, for a three-year term, commencing on March 31, 2009, the date his previous employment agreement expired. Effective March 31, 2012, this agreement was extended through November 30, 2012, and was extended again on November 20, 2012 through November 30, 2015. Under this agreement, Dr. Kornman received an initial annual salary of \$360,000 and is eligible to receive annual bonuses solely at the discretion of the Board of Directors. Dr. Kornman's annual salary may be increased in the sole discretion of the Board of Directors. Under the agreement, on November 12, 2008 Dr. Kornman received a stock option to purchase 75,000 shares of common stock, at an exercise price of \$0.48 per share, which was the closing price as reported on the NYSE Amex on the grant date. The option was immediately exercisable with respect to 30,000 shares and vests with respect to an additional 15,000 shares on each of March 31, 2010, 2011, and 2012. Under the agreement, Dr. Kornman is entitled to participate in employee benefit plans that the Company provides or may establish for the benefit of its executive management generally. In addition, while Dr. Kornman remains employed by the Company, it will reimburse him \$3,296 annually for payment of life insurance premiums.

The agreement is terminable immediately by the Company with cause or upon thirty days prior written notice without cause. The agreement is terminable by Dr. Kornman upon thirty days prior written notice. If the Company terminates Dr. Kornman without cause or Dr. Kornman terminates his employment with good reason, then, in addition to payment of any accrued, but unpaid compensation prior to the termination, the Company must continue to pay his base salary and to provide health insurance benefits until the earlier of (1) expiration of the agreement or (2) twelve months. If the Company terminates Dr. Kornman in connection with a Cessation of the Company's Business (as defined in the agreement), then, in addition to payment of any accrued, but unpaid compensation prior to the termination, the Company must continue to pay his base salary and to provide health insurance benefits until the earlier of (1) expiration of the agreement or (2) three months. The agreement also includes non-compete and non-solicitation provisions for a period of twelve months following the termination of Dr. Kornman's employment.

On March 31, 2010, Dr. Kornman was issued 12,500 shares of restricted stock under a restricted stock agreement dated April 30, 2008. In April 2010, as part of the year-end compensation process, the Compensation Committee granted Dr. Kornman an option to purchase 30,000 shares of the Company's common stock. This option is exercisable at \$0.745 per share and vests as to 20% of the shares on each of the first five anniversaries of the date of grant.

In May 2011, the Compensation Committee granted Dr. Kornman an option to purchase 100,000 shares of the Company's common stock. This option is exercisable at \$0.46 per share and vests as to 25% of the shares on each of the first four anniversaries of the date of grant.

On April 25, 2012, the Company executed an amendment, effective as of March 31, 2012, to Dr. Kornman's employment agreement to extend the term through November 30, 2012. In connection with Mr. Bender's resignation on August 23, 2012, the Board of Directors appointed Dr. Kornman as Chief Executive Officer in addition to his role as President and Chief Scientific Officer. The Board of Directors also appointed Dr. Kornman as a director to fill the vacancy created by Mr. Bender's resignation. On November 29, 2012, the Company entered into a second amendment to Dr. Kornman's employment agreement to extend the term through November 30, 2015.

In December 2012, the Compensation Committee granted Dr. Kornman an option to purchase 300,000 shares of the Company's common stock. This option is exercisable at \$0.34 per share and vests as to 25%, 33% and 42% of the shares on each of the first three anniversaries of the date of grant.

In October 2013, Dr. Kornman was granted an option to purchase 2,250,000 shares of the Company's common stock. This option has an exercise price of \$0.3799, the fair value of the Company's common stock on the grant date of the option, and will vest as to 1/4 of the shares on the first anniversary of the grant date, and as to 1/36 of the remaining shares at the end of each month thereafter beginning on October 31, 2014.

***Eliot M. Lurier***

On April 30, 2008, the Company entered into an employment agreement with Eliot M. Lurier for the position of Chief Financial Officer. The agreement had an initial term of one year and was automatically renewable for successive one year periods unless at least 60 days prior notice is given by either us or Mr. Lurier. The agreement provided for an initial annual base salary of \$217,000 which could be increased in the sole discretion of the Compensation Committee of the Company's Board. Mr. Lurier also received a signing bonus of \$15,000 after his first four months of employment. On April 30, 2008, Mr. Lurier was granted an option to purchase 40,000 shares of the Company's common stock at an exercise price equal to \$1.49, which was the closing price as reported on the NYSE Amex on the grant date. The option vested in equal annual installments of 8,000 shares on each of the first five anniversaries of the grant date. The agreement also included non-compete and non-solicitation provisions for a period of six months following the termination of Mr. Lurier's employment.

In April 2010, as part of the year-end compensation process, the Compensation Committee granted Mr. Lurier an option to purchase 60,000 shares of the Company's common stock. This option was exercisable at \$0.745 per share and vested as to 20% of the shares on each of the first five anniversaries of the date of grant. In March 2011, as part of the year-end compensation process, the Compensation Committee granted Mr. Lurier an option to purchase 100,000 shares of the Company's common stock. This option was exercisable at \$0.36 per share and vested as to 25% of the shares on each of the first four anniversaries of the date of grant. In December 2012, the Compensation Committee granted Mr. Lurier an option to purchase 200,000 shares of the Company's common stock. This option was exercisable at \$0.34 per share and vested as to 25%, 33% and 42% of the shares on each of the first three anniversaries of the date of grant. In October 2013, Mr. Lurier was granted an option to purchase 750,000 shares of the Company's common stock. This option had an exercise price of \$0.3799, the fair value of the Company's common stock on the grant date of the option, and vested as to 1/4 of the shares on the first anniversary of the grant date, and as to 1/36 of the remaining shares at the end of each month thereafter beginning on October 31, 2014.

Mr. Lurier resigned effective September 5, 2014. All options granted to Mr. Lurier terminated as of December 4, 2014, per the standard 90 day post-termination clause contained in each agreement.

*Scott Snyder*

On December 26, 2012, the Company entered into an employment agreement with Scott Snyder for the position of Chief Marketing Officer beginning on January 2, 2013. The agreement provides for a minimum annual base salary of \$265,000, and for 2013 and 2014 he is eligible for a bonus pursuant to the Bonus Plan as described below under “-Executive Bonus Plan.” For 2015 and any subsequent year in which he is employed, he is eligible for a bonus of up to 30% of his base salary, based on factors such as evaluation of individual performance, the Company’s financial performance, economic conditions generally, and the policy terms applicable to such bonus. Mr. Snyder is entitled to a maximum of \$34,000 in expense reimbursement in calendar year 2013, and an additional \$16,000 for the six months ending June 30, 2014, for travel and housing expenses from his residence to Interleukin’s offices. On July 23, 2013, the Compensation Committee agreed to amend Mr. Snyder’s employment agreement and increase the aggregate amount of travel and lodging expenses that may be reimbursed to an aggregate of \$60,000. On August 4, 2014, the Compensation Committee agreed to amend Mr. Snyder’s employment agreement again and increase the aggregate amount of travel and lodging expenses that may be reimbursed to an aggregate of \$80,000. Upon hire, Mr. Snyder was granted an option to purchase 200,000 shares of the Company’s common stock at an exercise price of \$0.29 on January 2, 2013, the grant date of the option. The option vests in three installments of 50,000, 66,000 and 84,000 shares on each of the first three anniversaries of the grant date.

Mr. Snyder’s agreement is terminable at will by the Company or by Mr. Snyder. If the Company terminates Mr. Snyder without cause, then the Company will pay Mr. Snyder, in addition to any accrued, but unpaid compensation prior to termination, an amount equal to six months of his base salary in effect at the time of the termination.

In October 2013, Mr. Snyder was granted an option to purchase 675,000 shares of the Company’s common stock. This option has an exercise price of \$0.3799, the fair value of the Company’s common stock on the grant date of the option, and will vest as to ¼ of the shares on the first anniversary of the grant date, and as to 1/36 of the remaining shares at the end of each month thereafter beginning on October 31, 2014.

*Bonus Plan*

On December 21, 2012, the Compensation Committee approved a Bonus Plan (the “Bonus Plan”) for the Company’s executives. Under the terms of the Bonus Plan:

1. Executives were not entitled to a non-discretionary bonus for the year ended December 31, 2013.

Provided the Company meets certain earnings and revenue targets for the six months ended June 30, 2014 and  
2. Executive is employed by the Company as of June 30, 2014, Executive shall receive a bonus equal to 30% of such Executive's base salary.

Provided the Company meets certain earnings and revenue targets for the year ended December 31, 2014 and  
3. Executive is employed by the Company as of December 31, 2014, Executive shall receive a bonus equal to 15% of such Executive's base salary.

On February 26, 2014, the Compensation Committee approved an Employee Bonus Plan (the "Employee Bonus Plan") that replaces the Bonus Plan approved on December 21, 2012. Under the Employee Bonus Plan, bonuses may be awarded upon the achievement of corporate goals, however, the Compensation Committee has absolute discretion as to whether bonuses will be awarded and the size of any bonus, notwithstanding whether any such corporate goals are met. Bonus accruals totaling \$146,000 were recorded in 2014 within accrued expenses on the balance sheets. In January 2015, the Board of Directors approved the 2014 bonus disbursement, which occurred in February 2015.

#### *Operating Leases*

The Company leases its office and laboratory space under a non-cancelable operating lease which was originally scheduled to expire on March 31, 2014. On February 7, 2014, the Company entered into the Second Amendment to Commercial Lease which, among other things, extends the term of the lease from March 31, 2014 to March 31, 2017 and reduced the 19,000 square feet, the amount of space under the master lease, by approximately 6,011 square feet, to approximately 13,000 square feet, which is the amount of space the Company currently occupies. In May 2010, the Company completed a sublease of the 6,011 square feet of underutilized office and laboratory space. The sublease also expired on March 31, 2014.



Future minimum lease commitments under non-cancelable lease agreements with initial or remaining terms of one year or more at December 31, 2014, are as follows:

| <b>Year Ended<br/>December 31,</b> | Lease      | Net Lease  | Office<br>Equipment | Total<br>Payments, Net |
|------------------------------------|------------|------------|---------------------|------------------------|
| 2015                               | \$ 319,854 | \$ 319,854 | \$ 1,056            | \$ 320,910             |
| 2016                               | 326,349    | 326,349    | —                   | 326,349                |
| 2017                               | 81,993     | 81,993     | —                   | 81,993                 |
|                                    | \$ 728,196 | \$ 728,196 | \$ 1,056            | \$ 729,252             |

Rent expense was \$309,891 and \$331,916 for the years ended December 31, 2014 and 2013, respectively. The February 2014 lease amendment states an initial base rent with an escalation of 2.06% of base rent in year two and another 2.06% in year three.

#### Note 10—Capital Stock

##### *Authorized Preferred and Common Stock*

As of December 31, 2014, the Company has 6,000,000 shares of preferred stock, par value \$0.001 authorized and 300,000,000 shares of common stock, par value \$0.001 authorized. As of December 31, 2014 the Company has 172,683,342 shares of common stock outstanding and the following shares of common stock are reserved for issuance:

|  | Reserved for<br>issuance | Strike<br>Price | Expiry             |
|--|--------------------------|-----------------|--------------------|
| Shares reserved under outstanding stock options and options available for grant<br>Rights associated with Employee Stock Purchase Plan | 10,689,000<br>503,952    |                 |                    |
| Warrants with common stock additional purchase rights associated with<br>December 2014 private placement                               | 50,189,431               | \$ 0.1003       | Dec<br>23,<br>2021 |
| Warrants to purchase common stock associated with December 2014 venture<br>loan and security agreement                                 | 2,492,523                | \$ 0.1003       | Dec<br>23,<br>2024 |
| Outstanding warrants issued in October 2010  | 1,750,000                | \$ 1.3000       | Mar 5,<br>2015     |
| Outstanding warrants issued in June 2012   | 437,158                  | \$ 0.2745       |                    |

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|  |             |           |                                       |
|--|-------------|-----------|---------------------------------------|
| Outstanding warrants issued in May 2013, vesting May 2013                      | 20,655,737  | \$ 0.2745 | Jun 29,<br>2017<br>May<br>17,<br>2020 |
| Outstanding warrants issued in May 2013, vesting August 2013                   | 14,426,230  | \$ 0.2745 | Aug 9,<br>2020                        |
| Total common shares reserved for issuance at December 31, 2014                 | 101,144,031 |           |                                       |
| Total common shares issued and outstanding at December 31, 2014                | 172,683,342 |           |                                       |
| Total common shares outstanding and reserved for issuance at December 31, 2014 | 273,827,373 |           |                                       |

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On May 17, 2013, the Company entered into the 2013 Purchase Agreement with the 2013 Investors, pursuant to which the Company sold securities to the 2013 Investors in a private placement transaction. The Company sold an aggregate of 43,715,847 shares of its common stock, at a price of \$0.2745 per share for gross proceeds of \$12,000,000. The 2013 Investors also received warrants (the “2013 Warrants”) to purchase up to an aggregate of 32,786,885 shares of Common Stock at an exercise price of \$0.2745 per share. The 2013 Warrants were exercisable as to 63% of the shares immediately and as to 37% of the shares following receipt of shareholder approval of a share authorization increase and have a term of seven years from the date they become exercisable. For 2013 Warrants that were exercisable upon shareholder approval of an increase in the Company’s authorized shares of common stock, the Company recorded a non-current liability at June 30, 2013 based on the allocation of the relative fair values of the common stock and 2013 Warrants issued in the private placement. In addition, the Company recognized non-cash interest expense of \$286,579 representing the increase in the fair value of the warrant liability from the date of issuance to June 30, 2013. On August 9, 2013, the Company’s shareholders’ approved an amendment to the Company’s Certificate of Incorporation to increase the number of authorized shares of common stock from 150,000,000 to 300,000,000 shares. Following the shareholder approval of the increase in authorized shares on August 9, 2013 the Company filed a certificate of amendment with the Delaware Secretary of State, which provided for adequate authorized shares for all potential common stock equivalents issued pursuant to the financing on May 17, 2013. As a result, the warrant liability reflected as a non-current liability in the June 30, 2013 balance sheet was reclassified to shareholders’ equity at its fair value as of August 9, 2013. The fair value of the warrant liability increased by approximately \$11,000 from June 30, 2013 to August 9, 2013, and was recorded as an increase to interest expense in the statement of operations for the three months ended September 30, 2013.

For its services in this transaction, the placement agent received cash compensation in the amount of approximately \$780,000 and the placement agent and an affiliate received warrants (the “2013 Placement Agent Warrants”) to purchase an aggregate of 2,295,082 shares of common stock, at an exercise price of \$0.2745 per share. The 2013 Placement Agent Warrants became exercisable on August 9, 2013, following shareholder approval of an increase in the Company’s authorized shares of common stock and expire August 9, 2020. The cash compensation and the fair value of the 2013 Placement Agent Warrants were recorded as issuance costs resulting in a reduction to shareholders’ equity.

For purposes of determining the fair value of the 2013 Warrants exercisable upon shareholder approval of an increase in the Company’s authorized shares, the Black-Scholes pricing model was used with the following assumptions:

|                         | May 17, 2013 |   | June 30, 2013 |   | August 9, 2013 |   |
|-------------------------|--------------|---|---------------|---|----------------|---|
| Risk-free interest rate | 1.35         | % | 1.58          | % | 2.53           | % |
| Expected life           | 4 years      |   | 4 years       |   | 4 years        |   |
| Expected volatility     | 144.63       | % | 145.62        | % | 146.19         | % |
| Dividend Yield          | 0            | % | 0             | % | 0              | % |

Using these assumptions, the fair value of the 2013 Warrants is \$5,072,129 on May 17, 2013, \$5,358,708 on June 30, 2013 and \$5,369,676 on August 9, 2013.

In connection with this private placement, all preferred stockholders converted their shares of Preferred Stock to common stock resulting in the issuance of 39,089,161 shares of common stock.

In addition, pursuant to the 2013 Purchase Agreement, each Investor had the right, at any time on or before June 30, 2014 (the “Exercise Date”), to purchase at one or more subsequent closings its pro rata share of up to an aggregate of 18,214,936 additional shares of common stock at a purchase price of \$0.2745 per share and 2013 Warrants to purchase up to an aggregate of 13,661,201 shares of common stock at an exercise price of \$0.2745 per share. The Exercise Date was extended until December 31, 2014, and this right expired unexercised.

In September, 2014, the Company issued warrants to the Company’s financial consultant, Danforth Advisors, to purchase up to 100,000 shares of common stock at a price of \$0.25 per share. The warrants have a ten (10) year term and vest on a monthly basis over two years, provided that, if the Company terminates the agreement without cause before the one year anniversary, 50% of the warrants immediately vest, and if the Company terminates the agreement without cause on extension after one year, the remaining 50% of the warrants immediately vest. The warrant will also become exercisable in full upon a change of control of the Company if the agreement is still in effect. The fair value of the warrants at issuance was recorded as equity totaling \$23,800 and will be amortized to consulting fees over the remaining service requirement. The fair value of these warrants at December 31, 2014 is \$13,100. The fair value calculation used the following assumptions in a Black Scholes model to determine the fair value of the warrants:

|                         | September 8,<br>2014 |   | December 31,<br>2014 |   |
|-------------------------|----------------------|---|----------------------|---|
| Risk-free interest rate | 2.48                 | % | 2.47                 | % |
| Expected life           | 10 years             |   | 9.7 years            |   |
| Expected volatility     | 119.4                | % | 124.9                | % |
| Dividend yield          | 0                    | % | 0                    | % |

On December 23, 2014, the Company entered into the 2014 Purchase Agreement with the 2014 Investors, pursuant to which it sold to the 2014 Investors in the December 2014 Private Placement an aggregate of 50,099,700 shares of common stock at a price of \$0.1003 per share for gross proceeds of approximately \$5.025 million. The 2014 Investors also received warrants to purchase up to an aggregate of 50,099,700 shares of common stock an exercise price of \$0.1003 per share. The 2014 Warrants are all currently exercisable and have a term of seven years.

For services related to this transaction, the placement agent BTIG and legal counsel received an aggregate of \$218,126 in cash fees and BTIG received 2014 warrants (“Placement Agent 2014 Warrants”) to purchase an aggregate of 89,731 shares of common stock. The cash fees and the fair value of the Placement Agent 2014 Warrants were recorded as equity issuance costs resulting in a reduction to shareholders’ equity.

The 2014 Warrants were recorded as equity at fair value on the date of issuance. Fair value of the 2014 Warrants was calculated using the following inputs in a Black-Scholes model:

|                         | December 23, 2014 |       |
|-------------------------|-------------------|-------|
| Risk-free interest rate | 1.98              | %     |
| Expected life           | 0                 | years |
| Expected volatility     | 138.4             | %     |
| Dividend yield          | 0                 | %     |

The fair value of the common stock based on the closing price on December 23, 2014 was determined to be \$5.5 million, the fair value of the investor 2014 Warrants was \$5.2 million, and the fair value of the Placement Agent 2014 Warrants was \$9,000, representing 51.5%, 48.4% and 0.1% of the total value, respectively.

The issuance was recorded as equity, with net proceeds being allocated per the proportions above.

#### *Registration Rights Agreements*

On May 17, 2013, the Company entered into a Registration Rights Agreement with the 2013 Investors, Pyxis, DDMI and the placement agent, pursuant to which the Company was required to file a registration statement on Form S-1 within 45 days to cover the resale of (i) the shares sold to the 2013 Investors and the shares of common stock underlying the 2013 Warrants, (ii) the shares of common stock issued to Pyxis upon conversion of the Series A-1 Preferred Stock and the convertible debt, (iii) the shares of common stock issued to DDMI upon the conversion of the Series B Preferred Stock, and (iv) the shares of common stock underlying the 2013 Placement Agent Warrants. The Company filed the registration statement on July 1, 2013, and it was declared effective on August 9, 2013.

In connection with the December 2014 Private Placement, on December 23, 2014, the Company also entered into a Registration Rights Agreement with the 2014 Investors and BTIG, pursuant to which the Company was required to file a registration statement on Form S-1 within 45 days of December 23, 2014 to cover the resale of (i) the shares of common stock sold to the 2014 Investors and the shares of common stock underlying the 2014 Warrants and (ii) the shares of common stock underlying the Placement Agent 2014 Warrants. The Company filed the registration statement on February 6, 2015

*Venture Loan and Security Agreement*

On December 23, 2014, the Company entered into a venture loan and security agreement with Horizon Technology Finance Corporation under which the Company has borrowed \$5.0 million. In connection with the Loan Agreement, the Company issued to the Lender and its affiliates warrants to purchase a total of 2,492,523 shares of common stock at an exercise price of \$0.1003 per share, which are referred to herein as the Lender Warrants. The Lender Warrants have a term of ten (10) years.

The Lender Warrants were recorded as equity at fair value on the date of issuance. Fair value of the Lender Warrants was calculated using the following inputs in a Black-Scholes model:

|                         | December 23, 2014 |   |
|-------------------------|-------------------|---|
| Risk-free interest rate | 2.17              | % |
| Expected life           | 10 years          |   |
| Expected volatility     | 121.6             | % |
| Dividend yield          | 0                 | % |

The fair value of the Lender Warrants at December 23, 2014 was \$261,385 and was recorded as equity and a discount to debt and will be amortized over the 45 months representing the term of the loan.

Principal payments due under the terms of the Loan Agreement are as follows:

|      |             |
|------|-------------|
| 2015 | -           |
| 2016 | 1,223,672   |
| 2017 | 1,981,623   |
| 2018 | 1,794,705   |
|      | \$5,000,000 |

#### Note 11—Stock-Based Compensation Arrangements

In June 2004, the Company's shareholders approved the adoption of the 2004 Employee Stock Compensation Plan (the 2004 Plan). The 2004 Plan provides for the award of nonqualified and incentive stock options, restricted stock, and stock awards to employees, directors, officers, and consultants of the Company. A total of 4,000,000 shares of the Company's common stock had been reserved for award under the 2004 Plan. At the Company's 2011 annual meeting, stockholders approved an amendment to the 2004 Employee, Director and Consultant Stock Plan increasing the aggregate number of shares of common stock which may be offered under the plan by an additional 2,000,000 shares.

On August 9, 2013, the Company's shareholders' approved the 2013 Employee, Director and Consultant Equity Incentive Plan (the "2013 Plan"). During the year ended December 31, 2014, the Company granted 137,000 stock options under the 2013 Plan. The 2013 Plan allows for the issuance of up to 8,860,000 additional shares of the Company's common stock pursuant to awards granted under the 2013 Plan. Additionally, the 2013 plan allows for the issuance of up to a maximum of 2,435,500 additional shares of the Company's common stock, pursuant to the cancellation, forfeiture, or expiry, of awards granted under the 2004 Plan and terminated on or after the 2013 plan approval on August 9, 2013. At December 31, 2014, the Company had recaptured 937,000 shares from the 2004 plan, leaving an aggregate of 6,165,100 shares of common stock available for grant under the 2013 Plan.

#### *Stock Option Grants*

It is the Company's policy to grant stock options with an exercise price equal to the fair market value of the Company's common stock at the grant date. Historically, the majority of the Company's stock options have been granted in connection with the employee's start date with the Company. In addition, the Company may grant stock options in recognition of promotion and/or performance.

Nonqualified and incentive stock options with a life of 10 years are granted at exercise prices equal to the fair market value of the common stock on the date of grant. Options generally vest ratably over a period of three to five years based upon continuous service.

For purposes of determining the stock-based compensation expense for stock option awards in 2014 and 2013, the Black-Scholes option-pricing model was used with the following weighted-average assumptions:

|                         | 2014       |   | 2013       |   |
|-------------------------|------------|---|------------|---|
| Risk-free interest rate | 1.53       | % | 1.56       | % |
| Expected life           | 5.73 years |   | 5.73 years |   |
| Expected volatility     | 144.74     | % | 140.35     | % |
| Dividend yield          | 0          | % | 0          | % |



Using these assumptions, the weighted average grant date fair value of options granted in 2014 and 2013 was \$0.32 and \$0.34, respectively.

### *Restricted Stock Awards*

Holders of restricted stock awards participate fully in the rewards of stock ownership of the Company, including voting and dividend rights. Recipients of restricted stock awards are generally not required to pay any consideration to the Company for these restricted stock awards. The Company measures the fair value of the shares based on the last reported price at which the Company's common stock traded on the date of the grant and compensation cost is recognized over the remaining service period. During each of the years ended December 31, 2014 and 2013, the Company granted no restricted stock awards.

### *Employee Stock Purchase Plan*

Purchases made under the Company's Employee Stock Purchase Plan are deemed to be compensatory because employees may purchase stock at a price equal to 85% of the fair market value of the Company's common stock on either the first day or the last day of a calendar quarter, whichever is lower. During the years ended December 31, 2014 and 2013, employees purchased 134,935 and 111,113 shares, respectively, of common stock at a weighted-average purchase price of \$0.24 and \$0.28, respectively, while the weighted-average market value was \$0.28 and \$0.33 per share, respectively, resulting in compensation expense of \$5,437 and \$5,522, respectively.

The following table details stock option and restricted stock activity for the years ended December 31, 2014 and 2013.

|                                  | 2014        |                                    | 2013       |                                    |
|----------------------------------|-------------|------------------------------------|------------|------------------------------------|
|                                  | Shares      | Weighted Avg.<br>Exercise<br>Price | Shares     | Weighted Avg.<br>Exercise<br>Price |
| Outstanding, beginning of period | 5,884,050   | \$ 0.43                            | 2,302,000  | \$ 1.06                            |
| Granted                          | 137,000     | 0.35                               | 4,693,800  | 0.38                               |
| Stock options exercised          | —           | 0.00                               | (252,000 ) | 0.32                               |
| Restricted stock exercised       | —           | 0.00                               | (2,500 )   | 0.00                               |
| Forfeited/Expired                | (1,497,150) | 0.53                               | (857,250 ) | 1.87                               |
| Outstanding, end of period       | 4,523,900   | \$ 0.39                            | 5,884,050  | \$ 0.43                            |
| Exercisable, end of period       | 1,645,161   | \$ 0.43                            | 588,750    | \$ 0.89                            |

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The following table details further information regarding stock options and restricted stock outstanding and exercisable at December 31, 2014:

| Range of Exercise Price:  | Stock Options/Restricted Stock Outstanding |  |                              | Stock Options/Restricted Stock Exercisable |                              |
|---------------------------|--|--|------------------------------|--|------------------------------|
|                           | Shares                                     | Weighted Avg. remaining contractual life (years) | Weighted Avg. Exercise Price | Shares                                     | Weighted Avg. Exercise Price |
| \$0.01–\$1.00             | 4,474,900                                  | 8.51   | \$ 0.38                      | 1,596,161                                  | \$ 0.39                      |
| \$1.01–\$2.00             | 45,000                                     | 3.25   | 1.40                         | 45,000                                     | 1.40                         |
| \$2.01–\$3.00             | —  | —  | —                            | —  | —                            |
| \$3.01–\$4.00             | —  | —  | —                            | —  | —                            |
| \$4.01–\$5.00             | 4,000                                      | 0.93   | 4.10                         | 4,000                                      | 4.10                         |
|                           | 4,523,900                                  | 8.45   | \$ 0.39                      | 1,645,161                                  | \$ 0.43                      |
| Aggregate intrinsic value | \$ 0                                       |  |                              | \$ 0                                       |                              |

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The aggregate intrinsic value in the preceding table is based on the last reported price at which the Company's common stock traded on December 31, 2014, of \$0.14.

The following table summarizes the status of the Company's non-vested options for the years ended December 31, 2014 and 2013:

|                                       | 2014        |                              | 2013       |                              |
|---------------------------------------|-------------|------------------------------|------------|------------------------------|
|                                       | Shares      | Weighted Avg. Exercise Price | Shares     | Weighted Avg. Exercise Price |
| Non-vested options, beginning of year | 5,295,300   | \$ 0.38                      | 925,050    | \$ 0.42                      |
| Granted                               | 137,000     | 0.35                         | 4,693,800  | 0.38                         |
| Vested                                | (1,360,436) | 0.38                         | (270,300 ) | 0.48                         |
| Forfeited                             | (1,193,125) | 0.38                         | (53,250 )  | 0.51                         |
| Non-vested options, end of year       | 2,878,739   | \$ 0.37                      | 5,295,300  | \$ 0.38                      |

Total cost for stock-based compensation arrangements is as follows:

|   | Year Ended December 31, |            |
|---|-------------------------|------------|
|   | 2014                    | 2013       |
| Stock option grants beginning of period     | \$ 492,332              | \$ 92,187  |
| Stock-based arrangements during the period: |                         |            |
| Stock option grants                         | 1,166                   | 100,638    |
| Restricted stock issued:                    |                         |            |
| Employee stock purchase plan                | 5,437                   | 5,522      |
| Director agreements                         | —                       | (540 )     |
|   | \$ 498,935              | \$ 197,807 |

As of December 31, 2014 and 2013, there was approximately \$835,551 and \$1,517,607 respectively, of total unrecognized compensation related to non-vested share-based compensation arrangements granted under the Company's stock plans. That cost is expected to be recognized over a weighted average period of approximately 2.6 years.

#### Note 12—Employee Benefit Plan

The Company sponsors a profit sharing plan covering substantially all of its employees. The profit sharing plan allows for pre-tax employee contributions. The Company may, at the discretion of the Board of Directors, match a portion of the participant contributions. The Company currently contributes 25% of any amount employees contribute, up to a maximum of \$1,500 per participant per calendar year. Company contributions vest over a period of five years based on the participant's initial service date with the Company. During the years ended December 31, 2014 and 2013, \$7,105 and \$8,841, respectively, was contributed by the Company to the plan.

### **Note 13—Income Taxes**

For the years ended December 31, 2014 and 2013, the Company recorded no tax provision or benefit. While the Company has incurred losses from operations it has not recorded an income tax benefit for 2014 or 2013 as it has recorded a valuation allowance against net operating losses and other net deferred tax assets due to uncertainties related to the ability of these tax assets to be realized.

Deferred tax assets and liabilities are determined based on the difference between financial statement and tax bases using enacted federal and state tax rates in effect for the year in which the differences are expected to reverse. As of December 31, 2014 and 2013, the expected income tax effect of the Company's deferred tax assets (liabilities) consisted of the following:

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|  | 2014         | 2013         |
|--|--------------|--------------|
| Deferred tax asset:  |              |              |
| Tax effect of:   |              |              |
| Net operating loss carryforwards                                   | \$26,754,000 | \$25,504,000 |
| Accrued expenses   | 105,000      | 49,000       |
| Amortization of definite lived intangible assets                   | 12,000       | 15,000       |
| Non-qualified stock option compensation                            | 113,000      | 69,000       |
| Depreciation   | 97,000       | 123,000      |
| Other  | 1,076,000    | 297,000      |
| Patents  | (77,000 )    | (114,000 )   |
| State net operating loss carryforwards, net of federal tax benefit | 214,000      | 19,000       |
| Research tax credit carryforwards                                  | 2,169,000    | 2,223,000    |
| Total deferred tax assets  | 30,463,000   | 28,185,000   |
| Valuation allowance  | (30,463,000) | (28,185,000) |
| Net deferred tax assets  | \$-          | \$-          |

As of December 31, 2014, the Company had gross net operating loss (NOL) and research tax credit carryforwards of approximately \$81.2 million and \$1.6 million, respectively, for federal income tax purposes, expiring in varying amounts through the year 2034. Of the \$81.2 million NOL carryforward, \$2.5 million relates to stock-based compensation and has not been reflected in the deferred taxes and when the benefit of these losses, if any, is realized, the Company will credit additional paid in capital.

As of December 31, 2014, the Company had gross NOL and research tax credit carryforwards of approximately \$4.1 million and \$0.9 million for state income tax purposes, expiring in varying amounts through the year 2034.

The Company's ability to use its NOL and tax credit carryforwards to reduce future taxes is subject to the restrictions provided by Section 382 of the Internal Revenue Code of 1986. These restrictions provide for limitations on the Company's utilization of its NOL and tax credit carryforwards following a greater than 50% ownership change during the prescribed testing period. Beginning on March 5, 2003, the Company had such a change. As a result, all of the Company's NOL carryforwards as of that date are limited as to utilization. The annual limitation may result in the expiration of certain of the carryforwards prior to utilization. In addition, the Company's equity offerings, including those in 2013 and 2014, may have resulted in qualifying changes in ownership. A formal study, which the Company has not undertaken, is required to determine applicability of restrictions, and might indicate that the Company's NOL carryforwards are subject to additional limitations on utilization.

The benefit for income taxes differs from the federal statutory rate due to the following:

|                       | 2014    | 2013    |
|-----------------------|---------|---------|
| Tax at statutory rate | (34.0)% | (34.0)% |

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|  |        |        |
|--|--------|--------|
| State taxes, net of federal benefit  | 0.0    | 0.0    |
| Research and development credit  | (1.4 ) | (1.7 ) |
| Share based payment expense  | 1.8    | 0.7    |
| Other  | 1.5    | 3.0    |
| Removal of deferred tax asset on federal net operating losses  | 0.0    | 64.1   |
| Establishment of deferred tax asset on state net operating losses and state deferred taxes, net of federal income tax benefits | (3.8 ) | 6.4    |
| Change in valuation allowance  | 36.0   | (38.6) |
| Effective tax rate   | 0.0 %  | 0.0 %  |

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**Note 14—Risks and Uncertainties**

The Company develops genetic risk assessment tests and performs research for its own benefit. As of December 31, 2014, the Company has introduced four genetic risk assessment tests commercially. Commercial success of the Company's genetic risk assessment tests will depend on their success as being deemed to be scientifically credible and cost-effective by consumers and the marketing success of the Company and its collaborative partners.

Research in the field of disease predisposing genes and genetic markers is intense and highly competitive. The Company has many competitors in the United States and abroad that have considerably greater financial, technical, marketing, and other resources available. If the Company does not discover disease predisposing genes or genetic markers and develop risk assessment tests and launch such services or products before its competitors, then the potential for significant revenues may be reduced or eliminated.

During the years ended December 31, 2014 and 2013, approximately 44% and 38%, respectively, of the Company's revenue came from sales through our Merchant Network and Channel Partner Agreement with Amway Global, a subsidiary of Alticor, and 32% and 36%, respectively, of our revenue came from sales through ABG's promotional product bundle program.

**Note 15—Subsequent Event**

In January 2015, Dr. Kornman was granted an option to purchase 2,030,000 shares of the Company's common stock. This option has an exercise price of \$0.26, the fair value of the Company's common stock on the grant date of the option, and will vest as to 1/48 of the shares at the beginning of each month beginning on February 1, 2015.

In January 2015, Mr. Snyder was granted an option to purchase 660,000 shares of the Company's common stock. This option has an exercise price of \$0.26, the fair value of the Company's common stock on the grant date of the option, and will vest as to 1/48 of the shares at the beginning of each month beginning on February 1, 2015.

**120,408,197 SHARES OF COMMON STOCK**