November 11, 2011

Zacks Small-Cap Research

Brian Marckx, CFA
bmarckx@zacks.com
Ph (312) 265-9474

scr.zacks.com 111 North Canal Street Chicago, IL 60606

Interleukin Genetics (ILIU-OTC)

ILIU: Q3 Solid. No Surprises. Development on Schedule.

Current Recommendation	**Outperform**
Prior Recommendation	N/A
Date of Last Change	03/28/2011
Current Price (11/11/11)	$0.40
Target Price	**$1.60**

OUTLOOK

85% revenue growth in 2010 was a direct result of mainstream media attention of Interleukin's weight management test. Large weight loss clinics have expressed interest in the test – further movement in this direction could come following publication of related clinical trial data. ILIU's periodontal disease test, currently in a large clinical trial, could launch in 2012 supported with insurance reimbursement. The test could have multi-hundred million $ potential.

An investment in ILIU is not without significant risk and our financial model assumes favorable outcomes of a number of current "unknowns". Despite the risks, we feel the current share price under-represents the true value of the company. We are maintaining our Outperform rating and $1.60 price target.

SUMMARY DATA

52-Week High	**$0.49**
52-Week Low	**$0.20**
One-Year Return (%)	**-19.51**
Beta	**1.76**
Average Daily Volume (sh)	**17,908**
Shares Outstanding (mil)	**37**
Market Capitalization ($mil)	**$12**
Short Interest Ratio (days)	**3.49**
Institutional Ownership (%)	**8**
Insider Ownership (%)	**6**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**-27.5**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**N/A**
P/E using 2011 Estimate	**N/A**
P/E using 2012 Estimate	**N/A**
Zacks Rank	**N/A**

Risk Level	**High,**
Type of Stock	**N/A**
Industry	**Med-Biomed/Gene**

ZACKS ESTIMATES

Revenue
(in '000s of $)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2010	369 A	573 A	545 A	511 A	1,997 A
2011	719 A	797 A	765 A	840 E	3,121 E
2012					6,899 E
2013					24,773 E

Earnings per Share

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2010	-$0.06 A	-$0.05 A	-$0.04 A	-$0.03 A	-$0.18 A
2011	-$0.03 E	-$0.04 A	-$0.03 A	-$0.03 E	-$0.13 E
2012					-$0.10 E
2013					$0.04 E

Zacks Projected EPS Growth Rate - Next 5 Years % **N/A**

© Copyright 2011, Zacks Investment Research. All Rights Reserved.

WHAT'S NEW

Q3 RESULTS

Interleukin reported financial results for the third quarter ending September 30, 2011 on November 10th. While revenue came in slightly below our estimate, the difference was more than made up from a very strong gross margin and continued operating expense cost control. As we have noted in the past, management has done an impressive job over the last several quarters with minimizing cash burn, trimming costs and increasing efficiencies. The current quarter was no exception and despite the marginal miss on the top line, these cost and efficiency initiatives resulted in EPS beating our estimate by a penny.

Interleukin continues to make meaningful progress with completing enrollment of the PST (periodontal disease test) study - and noted on the call that their previous timeline (1H 2012) for having the study results available remains intact. The company also just announced that they initiated two clinical studies of the PST test in China. The study design is similar to the U.S. based studies and will allow Interleukin to see the predictive value of the PST test on ethnic Chinese populations - which greatly expands the ultimate target market for the product. Results from these China-based studies could also be available sometime in the first half of 2012.

Progress is also being made with completing a confirmation study for the weight management test, results from which are expected to be submitted for publication. We expect publication of the data to drive further interest in the test, especially from larger corporate customers.

Revenue
Q3 revenue of $766k was about 10% less than our $855k estimate. 95% of total revenue came from genetic testing. Revenue grew 41% y-o-y but was down about 4% sequentially. While we have made some minor adjustments to our model, we continue to think revenue can grow on both an annual as well as a sequential basis. We feel it is worth noting that revenue continues to show impressive y-o-y growth, despite most, if not all, of the mainstream media hoopla surrounding the effectiveness of the weight management test having dissipated several quarters back. Management noted on the call that they are looking into additional marketing campaigns - which could potentially ignite even greater growth.

Gross Margin / Operating Expenses / EPS
Gross margin came in at a very impressive 51.6%, blowing out our 42% estimate. Gross margin continues to benefit from cost cutting and efficiencies in test processing, including lower material costs. We have made some adjustments to gross margins in our model, although relatively marginally, which, based on recent history, could end up being somewhat conservative.

Operating expenses were also better than our numbers, coming in at $1.4 million, over $300k lower than our $1.7 million estimate. This appears to be another testament to management's diligence in trimming costs where there's an opportunity to do so. We have similarly made some revisions to our estimates for operating expenses in future periods.

Q3 EPS was ($0.03) on net loss of $1.1 million, compared to our ($0.04) and $1.5 million (loss) estimates.

Cash
Interleukin exited the quarter with $1.01 million in cash and equivalents, compared to $1.71 million at 6/30/11. Cash used in operations was $906k, down slightly from the previous two quarters of the year ($1.17MM used in Q1, $1.13MM used in Q2). Cash used in operations was $3.21 million through the first nine months of 2011, significantly improved from the $4.54 million used through the first nine months of 2010.

Subsequent to Q3 quarter end (on November 9th), Interleukin drew another $2 million on their convertible credit facility with Pyxis. Pro forma for the draw, Interleukin had $3.01 million in cash and still has $1.3 million of borrowing capacity under the Pyxis credit facility - which is available through June 30, 2012. This should provide ample operating cash up until the June 30, 2012 due date but Interleukin will need to either extend the due date or refinance the debt. Management noted on the call that they are currently exploring different avenues to do so.

Total borrowed on the loan (including the recent $2MM), currently stands at $13 million - the balance is convertible into Interleukin common stock at $5.68/share (i.e. - currently way out of the money).

2011 OUTLOOK / RECOMMENDATION

We have made some minor adjustments to our 2011 (and later) estimates following the Q3 earnings announcement. We now look for revenue of $3.1 million and EPS of ($0.13), compared to $3.3 million and ($0.15) prior to Q3 results.

We are maintaining our Outperform rating and $1.60 price target on shares of Interleukin.

BUSINESS

Interleukin Genetics, Inc. develops genetic tests focused on personal health. Through applied genetics research and scientific collaborations the company has made significant progress in understanding how genetic make-up can affect an individual's predisposition and risk of suffering from certain disease. Interleukin's research has specifically focused on a form of genetic variation called single nucleotide polymorphisms (SNP) and how it can have an impact on a person's health. The company has applied this knowledge in development of genetic tests focused on areas such as weight management, cardiovascular health and periodontal disease. Interleukin sells its Inherent Health line of tests, which launched in 2009, to the consumer market and maintains a CLIA-certified lab at its headquarters in Waltham, Massachusetts where consumers send test samples for processing.

The vast majority of Interleukin's past revenue came through licensing and contract research agreements with Alticor Inc., parent company of Amway Global. Under these agreements Alticor funded a portion of product development and made equity investments and in return was given rights to market the company's genetic tests under their own brand name (Gensona). In 2008 Interleukin began peeling off these licensing deals with Alticor (Interleukin retained all the intellectual property related to the tests) and the remainder concluded in 2009, concurrent with the mid-2009 launch of the company's Inherent Health brand.

The company is now in somewhat of a transition mode and finally poised to reap the rewards of significant R&D expenditures incurred over the last few years associated with development of their recently commercialized genetic tests. While Amway Global acts as a key distribution partner, Interleukin continues to seek additional sales channels and broaden the customer audience for their tests. Following the launch of the Inherent Health line, Interleukin began to dedicate more resources towards sales and marketing via e-commerce, distribution agreements, publication of clinical studies, and presentations at industry and scientific conferences. A March 2010 presentation made at a major medical conference significantly benefitted sales of the weight management test, the company's flagship product.

Interleukin continues with development of other genetic tests, including a very high potential new version of a test for periodontal disease which could launch around mid-2012 and be supported by broad dental insurance reimbursement.

GENETIC TESTS

Interleukin's genetic tests are based on SNP patterns and how it affects physiology due to different influences on gene protein production and synthesis for a given condition. It's been found that diet and lifestyle habits can provide some control over how certain conditions manifest themselves. Interleukin's genetic tests are designed to provide information about a person's unique genetic make-up which can then be used to effectively tailor diet and lifestyle programs for better health. Their tests were developed through collaborative research projects with physicians, scientists, researchers and academics from some of the world's most prestigious medical institutions and universities. Interleukin currently owns rights to 21 U.S. patents, including 16 related to genetic tests associated with interleukin inflammatory disorders. In addition, Interleukin has another 21 patent applications pending.

In November 2010 Interleukin was awarded two grants totaling $473k under the Qualifying Therapeutic Discovery Project (QTDP) tax credit to promote further development of the company's weight management and osteoarthritis genetic tests. The grants cover expenses already incurred. The QTDP credit was enacted as part of the Patient Protection and Affordable Care Act of 2010 and was awarded to companies that are pursuing therapeutic discover projects that show potential to: 1) result in new therapies to treat areas of unmet medical need or prevent, detect or treat chronic or acute diseases and conditions 2) reduce the long-term growth of health care costs in the United States, or 3) significantly advance the goal of curing cancer within 30 years.

Interleukin currently offers five genetic tests. Its **heart health**, **weight management**, **nutritional needs** and **bone health** tests are marketed by Interleukin in the U.S. under the Inherent Health brand name and are also sold through Amway Global. LABEC Pharma sells the heart health test in parts of Europe under the Cardio Health name. Interleukin's **periodontal disease** test is marketed and distributed directly to dentists and periodontists in the U.S. by OralDNA, a subsidiary of Quest Diagnostics. The periodontal test is currently being used in a large

clinical study which is expected to conclude in early 2012 – a new version of the test could launch in 2012, supported by dental reinsurance reimbursement and vast distribution. The weight management and periodontal disease test are currently the company's bread-and-butter products and those that clearly hold the most near-term upside and long term potential.

The **testing process** for the Inherent Health brand tests is relatively simple. The testing kit can be ordered directly through the company's Inherent Health website. The test kit includes an informational DVD, a swab to collect the genetic sample and a prepaid envelope to send the sample to Interleukins' lab. After registering their test kit on Interleukin's website, an individual administers the test by swabbing the inside of their cheek. They then send the swab to Interleukins lab where the sample is analyzed. Within two weeks the test report is available online. After viewing their test results, the individual can speak to one of Interleukin's licensed, certified genetic health professionals who can advise them, based on the test results, on diet and lifestyle changes to achieve better health.

WEIGHT MANAGEMENT TEST

The company's **Health Weight Management Genetic Test** leverages the craze over low-fat versus low-carbohydrate diets and determines, based on an individual's unique genetic make-up, which diet will be most effective for that particular person. The test results also provide information on which exercise programs will afford maximum benefit for each individual. Interleukin launched the test in June 2009 and it has accounted for majority of the company's total revenue since.

Studies have shown that while some people experience significant weight loss with popular low fat and low carbohydrate diets, results are not homogeneous, with some people actually gaining weight (even when strictly following the diets' guidelines). The premise of Interleukin's weight management test is that genetic make-up determines which individuals will benefit most from a particular diet (low fat, low carb or balanced calorie).

…developed through science

Interleukin developed its weight management genetic test through the use of the Human Obesity Gene Map Database (a list of hundreds of genes believed to be associated with obesity). After a review of scientific literature by experts in the fields of obesity, genetics and nutrition, Interleukin selected four genes (FABP2, PPARG, ADRB2 and ADRB3) that fit certain strict criteria for inclusion in its test panel. Interleukin has found that unique variations in these four genes can determine how a particular individual's body weight will be affected by a certain diet. This is the basis for their weight management test.

…supported by science

In a clinical study individuals following diets determined to be ideal based on their genotype, as specified by Interleukin's weight management test, lost on average over 2.5 times more weight than those people following diets not based on their genetic make-up.

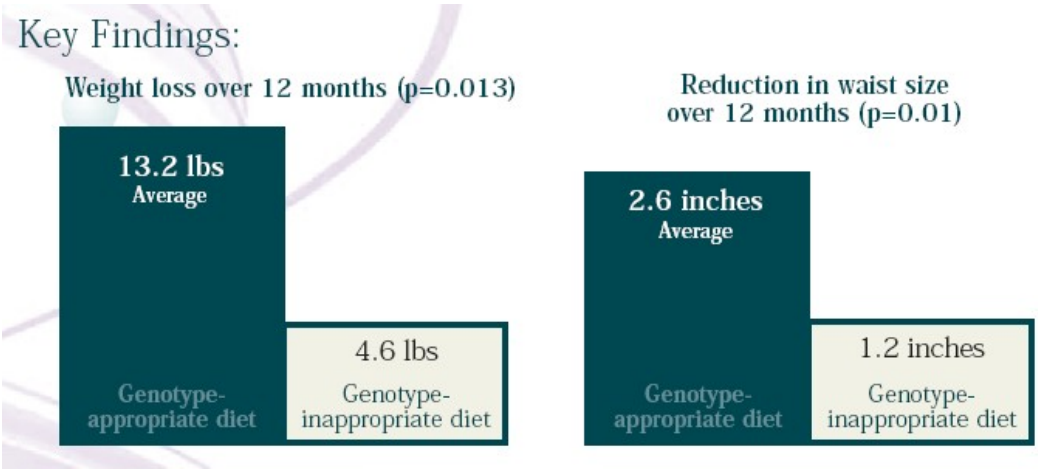
The retrospective study, titled *Weight Loss Success: The Right Diet Does Matter*, was done through a collaboration with researchers from Stanford University and included gene samples (taken through a cheek swab) from 101 overweight Caucasian women who had consented to provide DNA to Interleukin and also had participated in an earlier unrelated (and unaffiliated with Interleukin) study called *Atkins-Traditional-Ornish-Zone* (or *A TO Z*). In the *A To Z* study (1 year, n = 311) the women were randomized to one of four diets; Atkins (low carb), Zone (low carb), Ornish (low fat) or LEARN (low fat). Stanford obtained *A TO Z* clinical data on the 101 women participating in their study.

Interleukin's Health Weight Management Genetic Test was used to categorize these 101 samples into three genotype classifications – this determined which diet the participant would have benefited the most from; low fat, low carb, or nutrient balanced. Results were highly statistically significant and showed;

- Individuals which followed a genotype-appropriate diet lost 5.3% of their body weight, compared to only 2.3% with those on diets not matched to their genotype ($p = 0.005$)
- Differences in weight loss were even greater (6.8% versus 1.4%, $p = 0.03$) with individuals following the lowest carb (Atkins) and lowest fat (Ornish) diets

- On average, those individuals on a genotype-appropriate diet reduced their waist size by 2.6 inches versus only 1.2 inches for those on a genotype inappropriate diet

The study findings were presented by the researchers from the Stanford University School of Medicine in March 2010 at the American Heart Associations Joint 50th Cardiovascular Disease Epidemiology and Prevention and Nutrition, Physical Activity and Metabolism conference in San Francisco.



www.inherenthealth.com

…science goes mainstream
Shortly after the presentation, the mainstream media picked up on the potential significance of the trial results. Interleukin and its Health Weight Management Genetic Test were featured in stories by *The Today Show*, *The Wall Street Journal*, C*BS Morning News* and *Allure* magazine. Sales of the test immediately spiked and were the major reason for the 85% revenue growth Interleukin experienced from 2009 to 2010.

...more science?
Although the results were highly significant the sample size of this study was very small and included only white women. This by no means negates any of the findings nor necessarily means that Interleukin's weight management test would not be as effective within any race or sex. This study was submitted for publication in a medical journal and while it cleared editorial review, upon peer review (required for publication) the reviewer committee noted that they wanted to see confirmatory study data (i.e. – another study confirming results of the Stanford study) prior to publication.

Interleukin has since conducted a second independent study which management has noted did confirm a gene-diet effect. The company also continues to conduct additional studies for further confirmation which they hope to have completed later this year or early next year. Once the studies are wrapped up, Interleukin will look to have the data published. Interleukin has recently generated interest from several weight loss clinics regarding use of the test. While some smaller, regional clinics have already started using the test, other large (management noted some multi-national, well know may be interested) weight loss organizations are investigating how they may be able to integrate the test with their systems and also want to see more trial data before they sign on. Interleukin management believes that publication of the study results in a medical journal will be instrumental in increasing the rate of acceptance of the test, especially among the large weight loss clinics.

Weight Management Test market: Americans are diet-crazed and often take a do-it-yourself approach to losing weight – as a result, we view Interleukin's weight management test as one with some of the most potential. Clearly the sweet spot for Interleukin's weight management test are people pursuing or about to pursue a diet. It is estimated about 60 million Americans are on a diet at any given time. With as much as $40 billion (~ $175 for every adult) spent in the U.S. every year on diet plans, Americans are all too willing to open up their wallets to try and reduce their waist line. Unfortunately most of these weight loss programs fail to show any discernable results – especially as time passes. A 2006 study published in the New England Journal of Medicine found that about one-third of the weight lost while pursuing a weight management program was regained in one year and almost all was put back on in three to five years. If Interleukin's test can help people lose more weight and/or keep weight off longer, it seems interest in the test could grow substantially. And as indicated by Americans' willingness to spend money on weight loss, Interleukins' $169/test price tag is not prohibitive.

PERIODONTAL DISEASE TEST

Periodontal disease is often also referred to as gum disease or gingivitis (gingivitis is a precursor form of periodontal disease). It is estimated that 75% of American adults have some form of the disease, with 25% having moderate to severe cases. Periodontal disease involves inflammation and infection that destroys the tissues that support the teeth, including the gums, the periodontal ligaments and the tooth sockets (alveolar bone). Build up of plaque can promote tooth decay and as plaque gets trapped at the base of the tooth, it causes the gums to swell. In severe cases, periodontal disease can lead to alveolar bone (bones that bear teeth) loss and tooth loss.

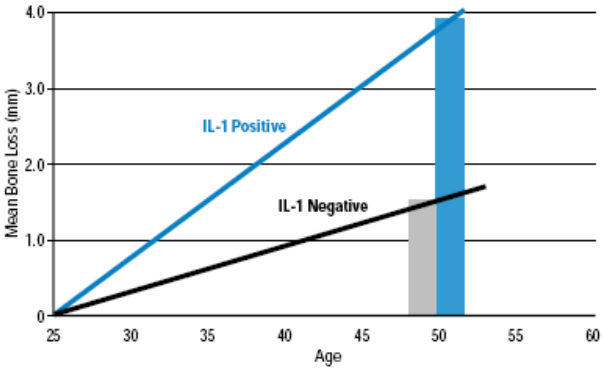
Investigation into the cause and reasons behind progression of the disease began during the 18th century but not until 1997 was research published that showed an association with variations in certain IL-1 genes. Since then a significant amount of research has been done investigating the link between genotype and periodontal disease.

Interleukin developed its patented **PST Genetic Test** based on research that showed a statistically significant link between variations in two IL-1 genes and an increased likelihood of adult-onset of periodontal disease. This link is independent of common risk factors of periodontal disease including smoking and diabetes. Interleukin's PST test is the only genetic test for prediction of periodontal disease and tooth loss.

Results of Studies Have Shown

- In clinical studies Interleukin's PST test was shown to have sensitivity of 89% and specificity of 90%
  * 89% of the time it correctly identified which individuals had periodontitis or would develop the disease
  * 90% of individuals testing negative with the PST test did not have or would not develop periodontitis
- Data from multiple independent studies reinforces greater tooth, bone or attachment loss in individuals who are IL-1 genotype positive
- Commonly used techniques (bleeding on probing, microbial assessment, biochemical markers) are of limited value as predictors of future progression of periodontitis
- Specific bacteria are essential for the onset of periodontal disease. Many studies throughout the world have substantiated that three chemicals in the tissues are consistently associated with more disease severity or actively progressing disease. These are IL-1, PGE2, and MMPs
- A direct relationship between IL-1 level and alveolar bone loss. The higher the IL-1 level, the greater the bone loss
- In one study, IL-1 genotype positive patients exhibited 3 times as much bone loss compared to IL-1 genotype negative patients
- With patients undergoing treatment for periodontal disease, IL-1 genotype positive non-smoking patients are less likely to show improvement than their genotype negative counterparts
- Smoking and positive IL-1 genotype predict tooth loss after periodontal therapy both independently (approximately 3x for each) and combined reporting a 7.7 times greater likelihood
- Non-smoking, IL-1 genotype positive patients and smoking, genotype negative patients can be maintained comparably to non-smoking genotype negative patients with stringent compliance and aggressive supportive care
- Smoking and a positive IL-1 genotype have been shown to be synergistic risk factors further accelerating disease progression. As such, smokers may be prime candidates for PST testing
- IL-1 genotype positive patients have been shown to have a less favorable response to regenerative therapy between one and four years postoperatively
- IL-1 genotype positive periodontal patients who were also current smokers exhibited 5- 6 times the risk of tooth and bone loss as compared to genotype negative, non-smoking patients
- IL-1 genotype positive non-smoking subjects over age 50 and genotype positive smoking subjects showed greater mean pocket (gap between gum and tooth) depths or a greater percentage of deeper (>3.5 mm) pockets than the genotype negative counterparts

Studies Show Variations in IL-1 Genes Can Predict Tooth and Bone Loss



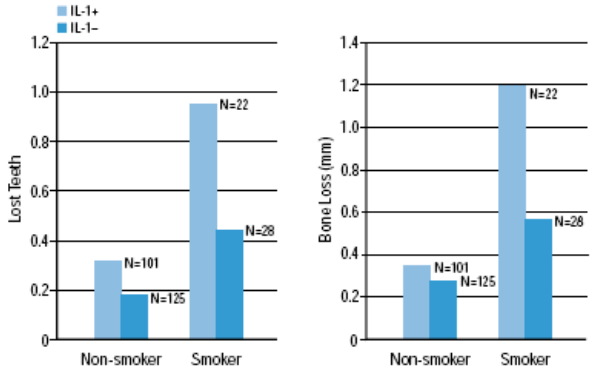


Figure 11. Lost teeth and alveolar bone loss by IL-1 genotype status and smoking.

Interleukin Genetics

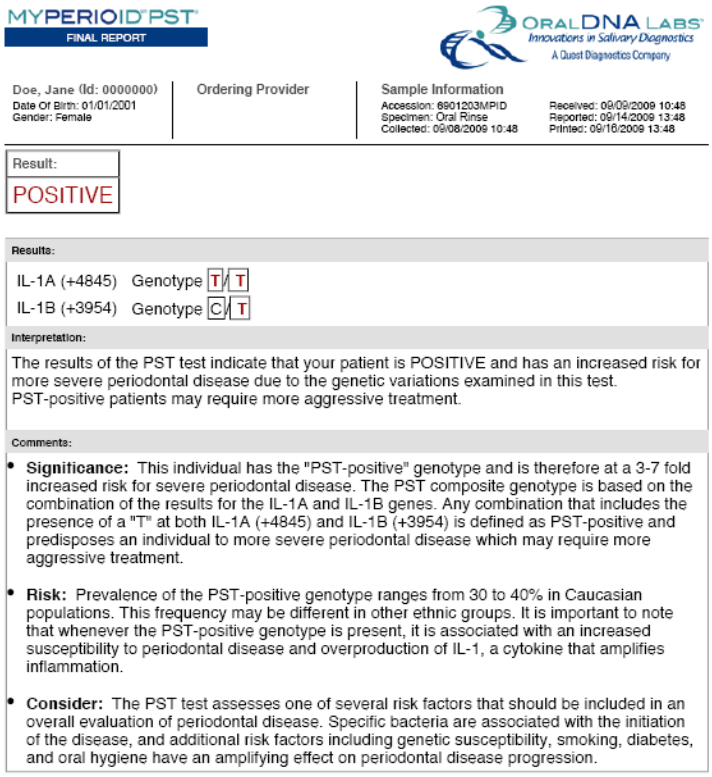
In August 2010 Interleukin announced an agreement with the University of Michigan for a large study to test whether certain risk factors, including genetic variations, can help guide better medical intervention of periodontal disease and improve patient outcomes. Funding for the study is being provided by Renaissance Health Service, parent company of a large and diverse set of insurance companies focused on dental health. A new version of Interleukin's PST test is being used in the study for identification of predictive risk factors of periodontal disease which is expected to confirm results of earlier studies. The prospective study will examine 15 years worth of patient data taken from a large dental claims database and compare that to information from ~4,000 patients obtained from using the PST test. The hypothesis for the study is to determine whether more than one dental cleaning per year is value-added for gene-negative (i.e. – low risk) patients and how many cleanings are optimal for gene-positive (i.e. – high risk) patients. Primary endpoint of the study is tooth loss at 10 and 15 years. The study is the largest ever done to evaluate the application of genetic information for the prevention of periodontal disease. It commenced in late 2010 and enrollment is expected to be completed in early 2012 with data analysis expected to be available during the first quarter or second quarter of 2012. If the study results show what Interleukin believes it will (i.e. – that PST can predict periodontal disease based on genotyping), it could be a useful tool in determining optimal dental care for each individual patient – which includes the "correct" number of cleanings each year. This will hopefully support reimbursement for the PST test from dental insurance providers. Currently cost of the PST test (~ $150) is borne by the consumer as no insurers provide reimbursement for it.

Periodontal disease is preventable and treatable – and if diagnosed earlier, the better likelihood of improved outcomes. The test has already been used over 10,000 times in clinical practice. Interleukin notes in their literature that its PST test is "one of the top ten genetic tests in terms of volume and one of the first of a new generation of predictive genetic tests for common diseases in medicine."

PST Test market: The PST test, along with Interleukin's weight management test, are the two with the most upside, in our opinion. Approximately 200 million Americans go to their dentist every year, representing about 400 million total visits with 75% related to regular exams and cleanings. Based on the large market size, the prevalence and potential seriousness of periodontal disease, support from clinical studies that the PST test works, vast distribution (via OralDNA and later, Renaissance) and support from significant use in clinical practice we think that the test may offer a multi-million dollar opportunity for Interleukin. Using rough estimates the periodontal disease market could be worth as much as $8 billion to Interleukin (assumes 200MM tests at $40 net (our estimate) to Interleukin per test). Capturing just 10% of this market (which might be very conservative) equates to $800 million in revenue to Interleukin.

Interleukin expects to tap this market through dental insurance reimbursement of the PST test. Renaissance Health, through its family of companies including Delta Dental, touches as many as 54 million covered lives. The current game plan is that, following data analysis of the U of M study results (~ Q1/Q2 2012), Renaissance will introduce dental plans that cover cost of the PST test. Coverage of a second annual cleaning will be predicated on an individual testing negative on the PST test (everyone will have the first cleaning covered). Per the PST test, not everyone (~ 70%) benefits from a second cleaning – so these new dental policies may offer lower premiums and can allocate insurance dollars towards more effective care.

SAMPLE "PST TEST" REPORT



MYPERIOID PST
FINAL REPORT

ORALDNA LABS
Innovations in Salivary Diagnostics
A Quest Diagnostics Company

Doe, Jane (Id: 0000000)
Date Of Birth: 01/01/2001
Gender: Female

Ordering Provider

Sample Information
Accession: 6901203MPID
Specimen: Oral Rinse
Collected: 09/08/2009 10:48
Received: 09/09/2009 10:48
Reported: 09/14/2009 13:48
Printed: 09/16/2009 13:48

Result:
POSITIVE

Results:

IL-1A (+4845) Genotype T/T
IL-1B (+3954) Genotype C/T

Interpretation:

The results of the PST test indicate that your patient is POSITIVE and has an increased risk for more severe periodontal disease due to the genetic variations examined in this test. PST-positive patients may require more aggressive treatment.

Comments:

- **Significance:** This individual has the "PST-positive" genotype and is therefore at a 3-7 fold increased risk for severe periodontal disease. The PST composite genotype is based on the combination of the results for the IL-1A and IL-1B genes. Any combination that includes the presence of a "T" at both IL-1A (+4845) and IL-1B (+3954) is defined as PST-positive and predisposes an individual to more severe periodontal disease which may require more aggressive treatment.
- **Risk:** Prevalence of the PST-positive genotype ranges from 30 to 40% in Caucasian populations. This frequency may be different in other ethnic groups. It is important to note that whenever the PST-positive genotype is present, it is associated with an increased susceptibility to periodontal disease and overproduction of IL-1, a cytokine that amplifies inflammation.
- **Consider:** The PST test assesses one of several risk factors that should be included in an overall evaluation of periodontal disease. Specific bacteria are associated with the initiation of the disease, and additional risk factors including genetic susceptibility, smoking, diabetes, and oral hygiene have an amplifying effect on periodontal disease progression.

www.oraldna.com

In November 2011 Interleukin announced that they initiated two clinical studies of the PST test in China. The study design is similar to the U.S. based studies and will allow Interleukin to see the predictive value of the PST test on ethnic Chinese populations - which greatly expands the ultimate target market for the product. Results from these China-based studies could also be available sometime in the first half of 2012.

HEART HEALTH TEST

Interleukin launched its heart health test during the first quarter of 2006. Their **Heart Health** test analyzes variations in two interleukin-1 (IL1) genes to identify a person's risk of heart disease (heart attack and stroke). Interleukin-1 is a protein produced by various cells which plays a role in immune response. This includes raising the body's temperature, stimulating the growth of white (i.e. – disease fighting) blood cells and causing inflammation. The body's increased production of inflammatory chemicals leads to excess plaque which, in turn, leads to a higher risk of cardiovascular disease and heart attack. This is especially true for individuals with an over-reactive inflammation response.

While smoking, high cholesterol and diabetes have long been recognized as factors associated with higher risk of heart disease, only recently has scientific data shown that certain genetic IL1 patterns are also risk markers for cardiovascular disease. Data from several recent studies provides evidence that individuals who exhibit certain IL1 risk patterns are more predisposed to having higher inflammatory responses and are more susceptible to suffering a heart attack.

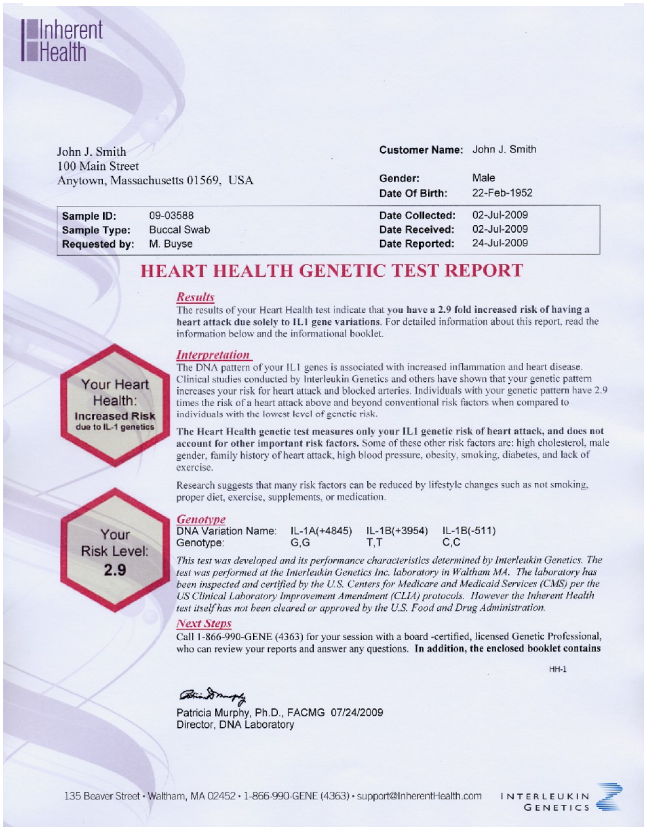
Interleukin Genetics developed the first and only genetic test that analyzes the variation between two interleukin genes (IL1A and IL1B) for risk patterns ("1a", "1b" and "1c") which identifies individuals predisposed to overactive inflammatory response and are at higher risk of experiencing heart disease at an earlier age or with greater severity. Development of the test was guided by clinical data obtained by research collaborations with experts in cardiovascular disease at Duke University, the Mayo Clinic and the University of Sheffield in England. In two independent studies the test was able to identify those individuals with significantly elevated risk of heart attack. Interleukin's patented test provides risk information independent of traditional risk measures (smoking, high cholesterol, etc) but the test's risk markers have been shown to be as important as these traditional measures in assessing risk and severity of heart disease.

Results of the test are generated into a pdf file format and provide the individual with a risk score which indicates their risk of suffering from a heart attack due specifically to their unique IL1 gene variation.

Individuals that test positive with Interleukin's Heart Health test can take proactive measures to reduce the degree of inflammation brought on by IL1 (and thereby reduce their risk of heart disease) which may include changes to their diet or lifestyle.

Heart Health Test market: Cardiovascular disease is the #1 killer in the U.S. and worldwide. Whether or not diagnosed or at significant risk of the disease, every person could potentially benefit from being tested with Interleukin's Heart Health test. The potential U.S. market, with ~230 million adults and ~85 million estimated to be suffering from cardiovascular disease, is huge (and growing). Spain and Portugal (serviced by distribution partners) represent another ~45 million people in aggregate. Despite the attractive market sizes, it may be very difficult to tap even very low single-digit share as the test essentially competes directly with physicians. Although Interleukin provides counseling free of charge with every test it sells, we believe most people are probably more likely to continue seek advice directly from their physician when it comes to cardiovascular health.

SAMPLE "HEART HEALTH" TEST REPORT



Inherent Health

John J. Smith
100 Main Street
Anytown, Massachusetts 01569, USA

Customer Name: John J. Smith
Gender: Male
Date Of Birth: 22-Feb-1952

Sample ID:	09-03588	**Date Collected:**	02-Jul-2009
Sample Type:	Buccal Swab	**Date Received:**	02-Jul-2009
Requested by:	M. Buyse	**Date Reported:**	24-Jul-2009

HEART HEALTH GENETIC TEST REPORT

Your Heart Health: **Increased Risk** due to IL-1 genetics

Your Risk Level: **2.9**

Results
The results of your Heart Health test indicate that **you have a 2.9 fold increased risk of having a heart attack due solely to IL1 gene variations.** For detailed information about this report, read the information below and the informational booklet.

Interpretation
The DNA pattern of your IL1 genes is associated with increased inflammation and heart disease. Clinical studies conducted by Interleukin Genetics and others have shown that your genetic pattern increases your risk for heart attack and blocked arteries. Individuals with your genetic pattern have 2.9 times the risk of a heart attack above and beyond conventional risk factors when compared to individuals with the lowest level of genetic risk.

The Heart Health genetic test measures only your IL1 genetic risk of heart attack, and does not account for other important risk factors. Some of these other risk factors are: high cholesterol, male gender, family history of heart attack, high blood pressure, obesity, smoking, diabetes, and lack of exercise.

Research suggests that many risk factors can be reduced by lifestyle changes such as not smoking, proper diet, exercise, supplements, or medication.

Genotype

DNA Variation Name:	IL-1A(+4845)	IL-1B(+3954)	IL-1B(-511)
Genotype:	G,G	T,T	C,C

This test was developed and its performance characteristics determined by Interleukin Genetics. The test was performed at the Interleukin Genetics Inc. laboratory in Waltham MA. The laboratory has been inspected and certified by the U.S. Centers for Medicare and Medicaid Services (CMS) per the US Clinical Laboratory Improvement Amendment (CLIA) protocols. However the Inherent Health test itself has not been cleared or approved by the U.S. Food and Drug Administration.

Next Steps
Call 1-866-990-GENE (4363) for your session with a board -certified, licensed Genetic Professional, who can review your reports and answer any questions. **In addition, the enclosed booklet contains**

HH-1

Patricia Murphy, Ph.D., FACMG 07/24/2009
Director, DNA Laboratory

135 Beaver Street • Waltham, MA 02452 • 1-866-990-GENE (4363) • support@InherentHealth.com INTERLEUKIN GENETICS

www.inherenthealth.com

NUTRITIONAL NEEDS TEST

Interleukin's **Nutritional Needs Genetic Test** is focused on the optimization of health through analyzing variations in several genes that help determine how an individual utilizes certain vitamins and nutrients. Specifically, the test identifies variations in genes that metabolize vitamin B and genes associated with managing oxidative stress. While the test is not designed to diagnose specific diseases, results from the test might be used to tailor an individual's diet to improve their health which could potentially reduce the risk for certain diseases.

B Vitamin Test
The genes analyzed in the B vitamin test are called the 5-10-methylenetetrahydrofolate reductase gene (MTHFR) and the transcobalamin 2 gene (TCN2). Individuals with certain variations in these two genes do not properly

metabolize vitamin B which, if not addressed through nutritional intervention, can increase the risk of heart disease and birth defects.

Oxidative Stress Test
Elevated levels of chemicals known as free radicals have been shown to increase the risk of certain diseases including heart disease and cancer. It is believed that variations in certain genes responsible for producing antioxidants (which control the level of free radicals in the body) can increase an individual's susceptibility to these diseases. The four genes analyzed in Interleukin's oxidative stress testare manganese superoxide dismutase 2 (SOD2), glutathione s-transferase M1 (GSTM1), paroxanase 1 (PON1), and x-ray repair cross complementing gene (XRCC1). A positive result in one or more of these gene variants may indicate that the body may have less ability to reduce oxidative stress (i.e. – the level of free radicals) and the individual may benefit from a change in diet including foods with more antioxidants.

Nutritional Needs Test market: While the market for this test is essentially every person where the test is marketed, the realistic market, in our opinion, is probably only a very small fraction of that. While nutrition, similar to weight loss, is often a consumer-directed behavior (as opposed to driven by physician advice), the control of oxidative stress may not prompt a similar amount of consumer interest (oxidative stress doesn't make your pants fit tighter). As a result, similar to the heart health and bone health tests, we view Interleukin's Nutritional Needs test as representing more of an "add-on" product – that is, not one that is likely to prompt a consumer to make purchase but potentially one that a customer may add to a Wellness Kit (get discounted per test pricing from buying more than one test type).

BONE HEALTH TEST

Bone health typically refers to osteoporosis, the most common form of bone disease. Osteoporosis is common among the elderly (especially women) and roughly 10 million Americans currently suffer from the disease. It is estimated another 34 million people are at increased risk of osteoporosis. Osteoporosis, translated from Greek as "porous bones", is a serious and debilitating disease. In osteoporosis the bone mineral density is reduced, increasing the risk of fracture.

Interleukin's **Bone Health** test was developed to determine an individual's risk of developing vertebral or spinal fractures and low bone mineral density, allowing for earlier intervention. Early intervention could allow risk mitigation strategies such as modifications in diet to help stave off the disease and lifestyle changes to prevent fractures. The test launched in late 2009.

The test was developed following a 2,500-person study, the results of which were presented at the American Society of Human Genetics 59th Annual Meeting in October 2009. Data from the study showed variations in the interleukin 1 beta (IL1-B), Vitamin D receptor (VDR) and Estrogen receptor 1 (ESR1) genes were strongly associated with risk of spine fracture or low bone mineral density.

Bone Health Test market: As noted, approximately 34 million Americans currently suffer from osteoporosis or are at increased risk of the disease. The realistic market for Interleukin's bone health test is currently probably nowhere near this size, however. Advice on bone health, similar to heart health, is often left to physicians which we think limits upside to this test unless physicians eventually adopt use of it.

PIPELINE (OSTEOARTHRITIS TEST)

Interleukin is also working on development of a genetic test for **osteoarthritis**. Osteoarthritis (OA) is a degenerative disease which involves breakdown of cartilage in the joints, causing pain, stiffness and in severe cases, loss of movement. It is the most common form of arthritis, afflicting an estimated 27 million people in the U.S. and 8 million in the U.K. OA is the leading cause of chronic disability in the United States and usually affects the hands, feet, spine, hips and knees. Similar to osteoporosis, OA is most common in the elderly and women. There is no cure for the disease and severe cases of OA can result in joint replacement surgery. Almost 800k Americans undergo hip or knee replacement surgery every year – with OA cited as one of the primary reasons. But while OA is progressive, development of the disease can be highly variable from person to person and not all cases result in a severe state.

While cause of the disease is still not fully understood, research has indicated that interleukins may play a role. Interleukin Genetics is currently investigating whether certain interleukin gene variations may be associated with the development and progression of OA. The company, in collaboration with New York University Hospital for Joint Diseases, conducted studies which identified certain genetic markers as being highly predictive of progression of OA. Results of one of these studies, done also in collaboration with Duke University, which demonstrated an association between three interleukin genes and severe knee OA, was published in the online version of the Annals of Rheumatic Disease in late 2009.

Interleukin hopes to introduce a genetic test that would identify those OA patients that were likely to develop severe cases of the disease. Interleukin expects its target market to be pharmaceutical companies developing disease-modifying OA drugs. Drug companies could use the test to screen patients for inclusion in clinical trials to ensure only patients expected to suffer from severe cases of the disease were enrolled. There is currently no method for selecting these high risk patients which has resulted in drug companies having extreme difficulty in fulfilling enrollment protocol for OA drug development (only 8% - 20% of OA trial participants actually progress in three-year trials, requiring very large initial patient enrollments).

Identification of patients susceptible to eventually suffering from severe OA could also allow physicians to provide earlier intervention, thereby improving patient care and outcomes. Researchers at the University of North Carolina at Chapel Hill conducted a 1,154-patient study which showed patients with radiographic signs of early knee osteoarthritis were genetically different from those without signs of the disease and those who had inherited a specific pattern of genetic variations in the IL-1 receptor antagonist gene were almost twice as likely to progress to a severe state of the disease. Interleukin and the UNC researchers made presentations on results of the study in 2010 at the World Congress on Osteoarthritis in Belgium and at the American College of Rheumatology Annual Scientific Meeting in Atlanta.

Interleukin believes this data supports development of a test panel that could be used in combination with a drug or by itself for the medical management of patients. The company expects to pursue development (and ultimately distribution to the physician office segment) of such a test through a partnership arrangement. In the meantime, they will look to publish additional study data and increase visibility of their research on an OA test. Interleukin has not provided a timeline for potential introduction of the test.

NOTE ON FDA REGULATION

Interleukin's tests have been developed through and are validated by a CLIA (federal standards for labs testing human specimens) certified lab and are thus considered laboratory developed tests (LDTs). LDTs have historically not been subject to FDA's pre-market review process (i.e. – they could be marketed without FDA approval). However, in the summer of 2010 FDA made several high profile announcements that they were considering tighter regulation of direct-to-consumer genetic tests and potentially all LDTs. In its notice to interested stakeholders prior to a two-day workshop that the agency held in July 2010, FDA included some background on why it was considering regulation of LDTs. This included concerns that while LDTs had been relatively simple diagnostics tests which were easily understood and used by physicians pathologists in patient care, that over the last twenty years there have been some significant changes which may put patients at risk.

These changes include, according to FDA, that these tests are *"often use components that are not regulated individually by FDA, and they are often used to assess high-risk but relatively common diseases and conditions and to inform critical treatment decisions and are often performed in geographically distant commercial laboratories instead of within the patient's health care setting under the supervision of a patient's pathologist and treating physician, or may be marketed directly to consumers. In addition, even when FDA-approved tests are available for a disease or condition, laboratories often continue to use LDTs that have not been reviewed by the agency. Finally, an increasing number of LDT manufacturers are corporations rather than hospitals or public health laboratories, which represent a significant shift in the types of tests developed and the business model for developing them. At the same time as LDTs are becoming more complex, diagnostic tests are playing an increasingly important role in clinical decisionmaking and disease management, particularly in the context of personalized medicine. However, LDTs that have not been properly validated for their intended use put patients at risk. Risks include missed diagnosis, wrong diagnosis, and failure to receive appropriate treatment*."

In July 2010 Interleukin received a letter from FDA stating that the company's Inherent Health line of tests appear to meet the definition of a medical device (and therefore would be required to have the agency's stamp of approval – either in the form of 510(k) or the more costly, time consuming and stringent PMA approval). In November 2010

Interleukin met with FDA regarding their letter – Interleukin noted on the Q1 2011 conference call that they do not expect any disruptions in their business from any FDA action.

The FDA followed up its July 2010 workshop with a public advisory committee (specifically, the FDA "Molecular and Clinical Genetics Panel" or "MGCP") meeting in early March 2011. The March meeting was again geared towards discussing the potential benefits and risks of genetic tests made available directly to the consumer market without the involvement of a physician. A wide variety of different types of genetic tests were up for discussion. The meeting allowed interested parties to submit comments and make presentations to the committee on their reasons for or against stricter FDA regulation of certain DTC genetic tests. Interleukin submitted an eight-page letter to the advisory committee outlining the background of the company, including their CLIA-certified lab, clinical research-supported genetic tests and recommendations on appropriate regulatory oversight of their tests. Interleukin noted that while they believe it makes sense prohibit DTC distribution of higher risk genetic tests (such as pharmacogenetic tests that report on how an individual may react to a particular medication) that lower risk tests such its weight management test should remain available directly to the consumer. The company also supports requiring all genetic tests be conducted in a CLIA-certified lab.

Conclusion of the March meeting was to include recommendations by the advisory committee regarding oversight of DTC genetic tests. Dan Vorhaus, an attorney specializing in life sciences, attended (and presented at) the advisory meetings and in his Genomics Law Report noted that, 'recommendations' is simply the wrong word to describe what the MCGP actually provided to the FDA." Mr. Vorhaus noted that while MGCP did offer its input on many of the FDA's questions, they did not vote or form a consensus on any recommendations to any of those questions nor will they issue written recommendations. Mr. Vorhaus believes the ultimate outcome will be that the FDA will institute some regulation of DTC genetic tests – the only questions are what form of regulation and how the regulation will be implemented. He also does not believe there is much risk of currently marketed DTC tests being removed from the market in the near-term and notes that regulation will likely be shaped through FDA continuing to work with involved parties – including DTC genetic test companies.

As it is now, we do not see significant risk to Interleukin as a result of FDA action.

DISTRIBUTION / SALES

Interleukin supported the June 2009 launch of its Inherent Health tests with a two-week nationwide advertising campaign consisting of TV, print and internet media. The advertising program was not especially successful but did afford Interleukin insight that TV advertising is not an effective advertising tool for their products.

Although TV advertising proved unsuccessful, mainstream media coverage has been of significant benefit to Interleukin. Following the March 2010 presentation of the weight management genetic test study results at the American Heart Association conference, Interleukin received significant coverage from a number of media outlets including *The Today Show*, *The Wall Street Journal*, *CBS Morning News* and *Allure* magazine. Sales of the test immediately spiked and were the major reason for the 85% growth in revenue in 2010. Publication of additional studies may spark further interest and media coverage of the weight management (and PST) test.

Interleukin does not employ its own sales force and instead utilizes third-part distributors and maintains an e-commerce website. Interleukin (and their distribution partners) sell the Inherent Health line of tests individually for $169 or at discounted prices in a "Wellness Select Kit" if one or more tests are purchased together. The Wellness kit launched in June 2010 and management noted sales of the multiple test packs have been encouraging (and currently account for approximately 20% of sales). And due to lower processing costs, Interleukin also generates high gross margins on these multi-test kits.

As health and dental insurance does not currently provide reimbursement for any of the Inherent Health or PST periodontal tests, 100% of the purchase price is borne by the consumer. However, if and when third-party reimbursement does become commonplace for the PST test (or any of their other tests), it would undoubtedly be a tremendous boon for Interleukin.

Amway

In October 2009 Interleukin entered into a distribution agreement with Alticor subsidiary, Amway Global, for marketing of its Inherent Health genetic tests. Sales through Amway began in December 2009. Amway is a huge consortium of independent business owners and has been ranked the top online health and beauty retailer in the

U.S. for six years in a row. The agreement has a term of 12 months, at which time it is renewable. Either party can cancel the agreement with 120 days notice. Under the agreement (*Merchant Network and Channel Partner Agreement*), Amway's independent business owners (IBOs) can purchase the Inherent Health line of tests through Amway's website via a hyperlink to the Inherent Health website.

Amway has recently taken steps to more prominently feature Interleukin's tests. In late 2010 Amway launched a new website for their weight management products. Interleukin's weight management test is displayed on the front page of the site. This, along with more active promotion of the weight management test including new literature, appears to be paying off, evidenced by the strong revenue growth since Q4 2010. Amway will continue to roll out of this campaign over the next several months. Management also noted on recent conference calls that Amway is looking to commence promotion in international markets - which could come sometime in 2012.

Purchases made through Amway are sold at the same prices as those made directly through the Inherent Health website. Interleukin pays Amway a commission (net of shipping, handling, taxes, rebates and returns) on sales made through Amway which totaled $370k in fiscal 2010 (32% of total sales) and $1.52 million through the first nine months of 2011 (67% of total sales).

E-Commerce
Interleukin launched its e-commerce website (www.inherenthealth.com) in 2009 in concert with the announced launch of its Inherent Health line of genetic tests. Consumers can purchase any of the Inherent Health genetic tests on the site and for the PST test, it directs consumers to the OralDNA website.

Interleukin has recently made enhancements to its website relative to the weight management test which went live in Q2 2011 and management has since noted that they are seeing good traffic to the site. These enhancements include an improved and more robust food and exercise tracking system. The system allows customers to follow how many calories they consumed and burned per their individual diet and exercise programs. The new website features include additional calorie and exercise information from over 35,000 foods and 8,000 activities. It also allowa users to build their own personal menus and recipes and will have an area for users to interact with others on topics such as diet, nutrition and exercise.

LABEC Pharma
Madrid, Spain based LABEC Pharma began selling the Heart Health genetic test in Spain and Portugal during January 2010 under the Cardio Health brand name. LABEC, a distributor of diagnostic tests in Europe and Latin America, has partnership agreements with large hospitals and labs and sells Interleukin's test directly to physicians. Interleukin receives royalties on each test sold by LABEC.

Quest Diagnostics
OralDNA Labs, Inc. a division Quest Diagnostics markets the company's PST genetic test directly to dentists in the United States. OralDNA began selling the test in late 2008. Interleukin's receives royalties on each test sold by OralDNA.

Physicians and professional weight loss clinics
Management has noted that as a result of recent media coverage, interest in their weight management test has significantly increased from not only the consumer market but also from physicians and professional weight loss clinics. Interleukin leveraged this interest by signing non-exclusive agreements with "a number of these physician groups and a select few regional companies focused on weight loss." This includes *Results Weight Loss*, a Florida-based company with twenty weight management centers that is now using Interleukin's test in some of its programs. Management mentioned on recent investor calls that they continue to pursue corporate contracts in the physician and clinic space including multi-national, well known organizations focused on weight loss. The hope is that they can reach an exclusive deal with a major weight loss organization - this may be a somewhat longer process, however as Interleukin has been asked to provide more clinical data supporting use of the test – which it is now in the process of doing. These clinics also need to make sure that they can integrate the test within their systems. In the meantime, management will continue to target sales to smaller regional clinics and weight loss programs on a non-exclusive basis. Going forward, Interleukin expects revenue from sales of its weight management test to these professional channels to be a significant driver of long-term growth.

Renaissance Health
Interleukin is actively involved in exploring new distribution deals. The biggest of which could come through insurance reimbursement of its PST test – through Renaissance Health/Delta Dental. Interleukin hopes to gain traction on reimbursement following data analysis of the University of Michigan study which is expected in early 2012.

FINANCIAL CONDITION

Cash
As of their most recent reporting period (9/30/2011) Interleukin had $1.0 million in cash and equivalents. Liquidity is also provided through a line of credit and through periodic stock issuance.

Credit Facility
Interleukin has a credit facility with Pyxis Innovations, Inc, an affiliate of Alticor. As of November 9, 2011 $13.0 million was outstanding on the loan and Interleukin had $1.3 million still available for borrowing through June 30, 2012. This should provide ample operating cash up until the June 30, 2012 due date but Interleukin will need to either extend the due date or refinance the debt. Management noted on the Q3 call that they are currently exploring different avenues to do so. The loan is convertible into Interleukin common stock at $5.68/share (i.e. - currently way out of the money).

Cash flow
Cash used in operations was $5.74 million through the twelve months ending 12/31/201, averaging roughly $478k per month. Through the first nine months of 2011 cash used in operations was $3.21 million (monthly cash burn ~$357k).

OUTLOOK

SIGNIFICANT NEAR-TERM MILESTONES

- **PST Study Results:** Enrollment for the ~4,000-patient University of Michigan / Renaissance Health study is expected to be completed in early 2012 with study results available in the first half of the same year (unchanged from previous expectations. If all goes as planned, the test will launch later in 2012 and be supported by nationwide dental insurance reimbursement.

- **Publish Weight Management Test Trial Data:** Stanford University researchers are expected to resubmit the weight management test study results for publication, supported with data from a confirmation study. Interleukin believes this confirmation data will provide requisite support to pass a peer review panel and result in publication in a medical journal.

    - **Larger Weight Loss Clinics:** Some of the larger weight loss clinics also want to see confirmation data before considering integrating Interleukin's weight management test into their programs. If and when the data is published, the hope is that these clinics will become significant customers/distributors of the weight management test.

    - **Retail Consumer Interest:** The March 2010 presentation of the initial study results sparked a small media frenzy, in-turn generating significant interest in the weight management test. Publication in a medical journal may ignite a second round of attention and additional retail consumer interest in the test.

- **OA Test Development:** Interleukin will look to publish additional data from studies on the association between interleukin gene variation and osteoarthritis. The next step will be to bring in a partner for development of an OA genetic test.

FINANCIAL OUTLOOK
Our financial outlook for Interleukin is based on some recent trends in revenue, expenses and cash flow and incorporates assumptions relative to the outcome of certain events, including the milestones listed above. There is a significant level of uncertainty as to the eventual outcome of these potentially highly influential events which creates substantial risk that our outlook could differ from reality.

Revenue Outlook

Our model assumes that sequential revenue growth remains flat to modestly higher over the course of 2011, slightly benefitting from some more of the smaller weight loss clinics incorporating the weight loss test into their programs. While we have no insight into if or when publication of the weight management test studies will happen or what, if any, benefit it may have to revenue, we have to make certain assumptions – and publication of these studies is one that could have a potentially very significant impact on sales - both in the near and longer terms. Our assumption is that the studies are published by 1H 2012 which in-turn sparks greater interest from some of the larger weight loss clinics as well as retail customers – which results in a greater rate of revenue growth. We model **2011 revenue of $3.12 million**, implying growth of 56% from 2010, which includes 64% growth in Q4 2011.

Interleukin expects to have data analysis completed from the University of Michigan PST test study during 1H 2012 and hopes to roll out the test with insurance reimbursement later that same year. Again, with no particular insight, it is very difficult to gauge the likelihood of hitting this timeline or the viability of Renaissance Health providing insurance coverage for the PST test. As it is now, we assume a soft launch of the PST happens sometime during the second half of 2012. For **2012 we model revenue of $6.90 million** which assumes Interleukin continues to gain traction with sales of its weight management test with only an incremental contribution from the PST test. 2012 could be a real transition year for Interleukin depending on the success of the PST test launch (which is highly dependent on insurance reimbursement). Based on the enormous size of the potential market for the PST test, our revenue estimate for 2012 (and beyond) could prove extremely conservative.

Beginning in 2013 we assume most of Interleukin's revenue growth is driven by sales of the PST test. Again, depending on the level of insurance reimbursement, these figures could be low.

EPS Outlook

Gross margin showed sequential improvement throughout 2010 and has significantly widened through the first nine months of 2011 as a result of higher test processing volumes and lower material costs. We expect gross margins to remain above 40% from here on out. Operating expenses should also be fairly scalable as the bulk R&D for Interleukin's current product line-up has already been completed and sales and distribution will continue to be outsourced.

For **2011 we look for EPS of ($0.13)**, reflecting 56% revenue growth, gross margin of 49% (versus 19% in fiscal 2010) and a 4% reduction in operating expenses.

We model EPS to grow to **$0.18 in 2014** on revenue of $45.6 million and benefitting from continued improvement in gross margin as well as operating expenses as a percent of revenue.

VALUATION / RECOMMENDATION

As we do not expect Interleukin to generate positive earnings in the near-term, we value the company using a multiple of our long-term EPS estimate and discount it back to the present. As there are virtually no publicly traded direct competitors to Interleukin, we value the company using the average P/E multiple of the medical research services industry which currently stands at approximately 17x.

Interleukin remains very much at the front end of what we model to be significant revenue and earnings growth for the foreseeable future. However, since this growth is predicated on the favorable outcome of a number of current "unknowns", there remains significant risk that our estimates could differ materially from reality. To account for this risk we use an annual discount rate of 20%.

Applying a 17x multiple to our 2014 EPS estimate of $0.18 for Interleukin and using an annual discount rate of 20% values Interleukin at approximately $1.60 per share.

KEY MANAGEMENT PROFILES

Lewis H. Bender, ***Chief Executive Officer***

Lewis H. Bender is currently the Chief Executive Officer of Interleukin Genetics, Inc. Mr. Bender was appointed CEO of Interleukin in January of 2008. Prior to joining Interleukin Genetics, Mr. Bender was the Chief Technology Officer and CEO of Emisphere Technologies Inc. During his career, Mr. Bender has been the lead negotiator for several complex business agreements that were executed including out-licensing partnerships, in-licensing agreements, international joint venture agreements, asset acquisitions and stock purchase agreements with major pharmaceutical and biotechnology companies. Mr. Bender has earned both a Bachelor of Science Degree and a Master of Science degree in chemical engineering from MIT. In addition, Mr. Bender also has earned an MBA from the University of Pennsylvania's Wharton School and a Masters of Fine Arts in International Relations also from UPENN. He is fluent in French and German.

Eliot M. Lurier, ***Chief Financial Officer***

Eliot M. Lurier joined Interleukin Genetics, Inc. as CFO in April 2008. Mr. Lurier has more than 25 years of financial and operational management experience, primarily in the life sciences industry. Prior to joining Interleukin Genetics, he was Vice President, Finance and Administration and Chief Financial Officer of NUCRYST Pharmaceuticals, where he successfully completed a $45 million IPO within 6 months of joining the company and was responsible for SEC reporting and the implementation of Sarbanes-Oxley requirements. Previously, he served as Chief Financial Officer and Chief Operating Officer for Bridge Pharmaceuticals, Inc., where he established all policies for managing business operations. Prior to joining Bridge Pharmaceuticals, Inc., Mr. Lurier held a number of senior-level financial positions including Chief Financial Officer of Admetric Biochem, Inc., and Chief Financial Officer, Treasurer and Vice President of Finance of Ascent Pediatrics, Inc., a publicly traded pharmaceutical company. Earlier in his career, Mr. Lurier was a Senior Accountant at Coopers and Lybrand. He earned a B.S. in Accounting from Syracuse University and is a Certified Public Accountant in Massachusetts.

Kenneth S. Korman, DDS, PhD, ***President and Chief Scientific Officer***

Kenneth S. Kornman, DDS, Ph.D, founder of the company and currently holds the positions of President and Chief Scientific Officer. Prior to founding the company in 1986, Dr. Kornman was a Department Chair and Professor at the University of Texas Health Science Center at San Antonio. He has also been a consultant and scientific researcher for many of the major oral care and pharmaceutical companies. Dr. Kornman currently holds academic appointments at Harvard University. He holds seven patents in the pharmaceutical area, has published two books and more than 100 articles, and has lectured and consulted worldwide on the transfer of technology to clinical practice. Dr. Kornman holds a B.A. in Economics from Duke University. He obtained a D.D.S. from Emory University. Dr. Kornman also holds an M.S. (Periodontics) and a Ph.D. (Microbiology) from the University of Michigan.

Todd Anthony Walker, ***Vice President, Marketing***

Todd Anthony Walker joined Interleukin Genetics, Inc. as Vice President, Marketing in December 2008. Mr. Walker brings to the firm extensive marketing experience, as well as 20 years of industry-related experience. Prior to joining Interleukin Genetics, Mr. Walker was the Worldwide Marketing Director for the Biopatch and OMNEX and synthetic sealants for Johnson & Johnson (JNJ) having worked in the Ethicon Inc., Jansen, Ortho-McNeil and PSGA divisions. Mr. Walker was responsible for developing global marketing strategies, establishing and influencing regional launches for products and building the framework for multigenerational product plans. Prior to joining Johnson & Johnson, Mr. Walker worked as a manager in various capacities with the Procter & Gamble Company. Mr. Walker holds a Masters of Business Administration from Duke University's FUQUA School of Business, and a Bachelor's of Science Electrical Engineering Degree from Union College in Schenectady, New York.

FINANCIAL MODEL

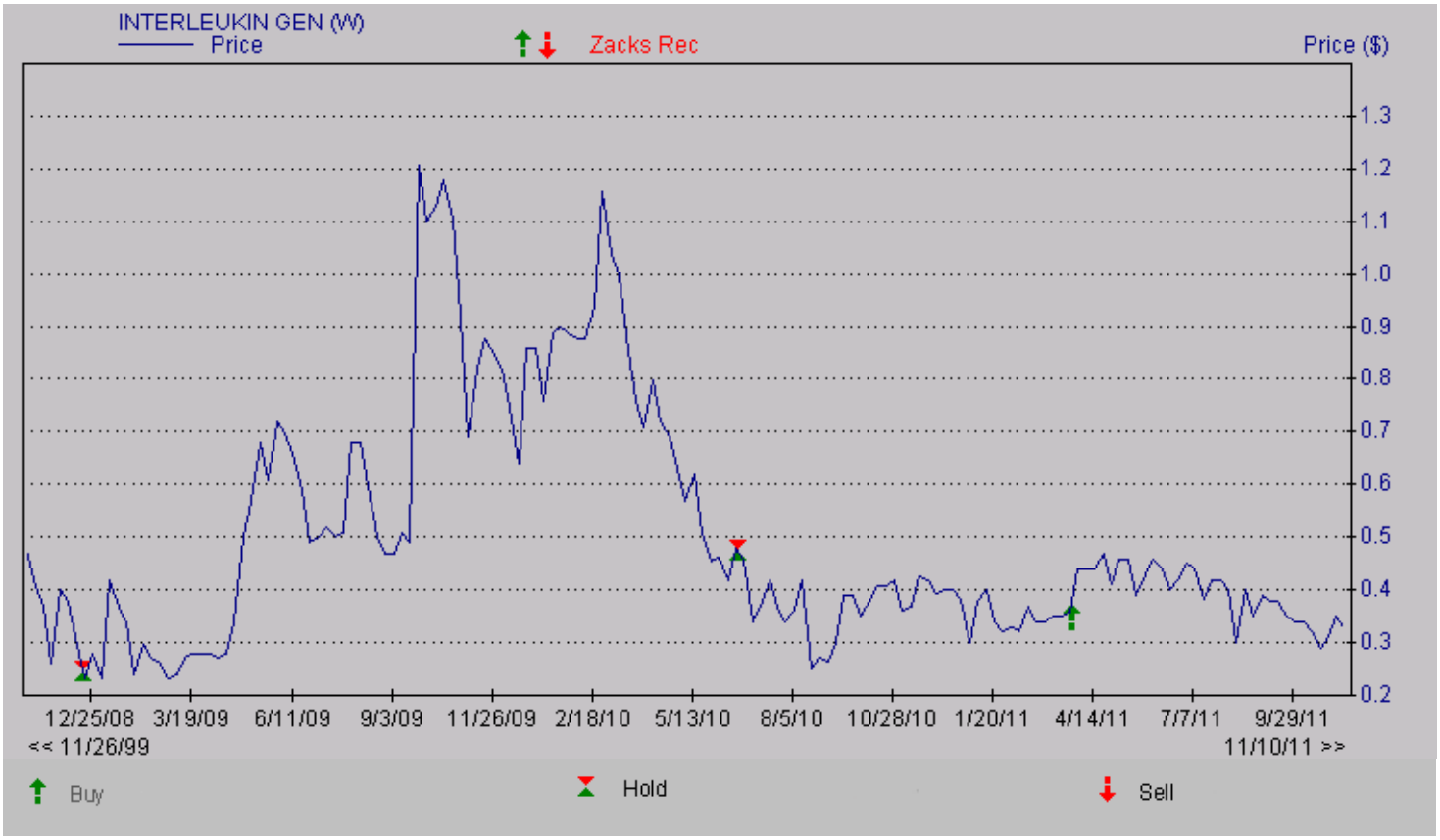
Interleukin Genetics, Inc.

	2010 A	Q1A	Q2A	Q3A	Q4E	2011 E	2012 E	2013 E	2014 E
Genetic testing	$1,940.2	$719.4	$779.1	$731.2	$815.0	$3,044.8	$6,698.0	$24,051.0	$44,290.0
YOY Growth	*283.5%*	*96.6%*	*38.3%*	*37.7%*	*69.9%*	*56.9%*	*120.0%*	*259.1%*	*84.2%*
Other	$57.0	$0.0	$17.7	$34.2	$24.5	$76.5	$200.9	$721.5	$1,328.7
Total Revenues	$1,997.2	$719.5	$796.9	$765.4	$839.5	$3,121.2	$6,898.9	$24,772.5	$45,618.7
YOY Growth	*85.2%*	*95.1%*	*39.1%*	*40.5%*	*64.4%*	*56.3%*	*121.0%*	*259.1%*	*84.2%*
Cost of Revenues	$1,618.8	$357.6	$438.5	$370.7	$436.5	$1,603.3	$3,474.5	$11,643.1	$19,616.0
Gross Income	$378.3	$361.9	$358.4	$394.7	$402.9	$1,517.9	$3,424.4	$13,129.4	$26,002.7
Gross Margin	*18.9%*	*50.3%*	*45.0%*	*51.6%*	*48.0%*	*48.6%*	*49.6%*	*53.0%*	*57.0%*
R&D	$1,926.0	$304.8	$359.8	$324.7	$365.0	$1,354.3	$1,920.0	$2,544.0	$2,450.0
% R&D	*96.4%*	*42.4%*	*45.2%*	*42.4%*	*43.5%*	*43.4%*	*27.8%*	*10.3%*	*5.4%*
R&D QTDP Grant	($473.4)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
SG&A	$5,013.9	$1,202.5	$1,253.1	$1,086.6	$1,277.0	$4,819.2	$5,733.0	$7,431.8	$9,579.9
% SG&A	*251.1%*	*167.1%*	*157.3%*	*142.0%*	*152.1%*	*154.4%*	*83.1%*	*30.0%*	*21.0%*
Amortization	$115.5	$28.9	$28.9	$28.9	$28.9	$115.5	$115.6	$140.0	$155.0
Operating Income	($6,203.6)	($1,174.2)	($1,283.4)	($1,045.5)	($1,268.0)	($4,771.1)	($4,344.2)	$3,013.7	$13,817.7
Operating Margin	*-310.6%*	*-163.2%*	*-161.1%*	*-136.6%*	*-151.0%*	*-152.9%*	*-63.0%*	*12.2%*	*30.3%*
Total Other income	($265.2)	($81.5)	($87.2)	($89.1)	($96.0)	($353.8)	($384.0)	($110.0)	$0.0
Pre-Tax Income	($6,468.8)	($1,255.7)	($1,370.6)	($1,134.5)	($1,364.0)	($5,124.9)	($4,728.2)	$2,903.7	$13,817.7
Taxes	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Tax Rate	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Net Income	($6,468.8)	($1,255.7)	(1,370.6)	(1,134.5)	(1,364.0)	($5,124.9)	($4,728.2)	$2,903.7	$13,817.7
YOY Growth	*-29.5%*	*-36.7%*	*-26.9%*	*-21.3%*	*16.8%*	*-20.8%*	*-7.7%*	*-161.4%*	*375.9%*
Net Margin	*-323.9%*	*-174.5%*	*-172.0%*	*-148.2%*	*-162.5%*	*-164.2%*	*-68.5%*	*11.7%*	*30.3%*
EPS (continuing ops)	($0.18)	($0.03)	($0.04)	($0.03)	($0.03)	($0.13)	($0.10)	$0.04	$0.18
YOY Growth	*36.8%*	*42.7%*	*27.2%*	*-21.6%*	*-2.1%*	*26.3%*	*-22.9%*	*-136.6%*	*375.9%*
Diluted Shares O/S	35,706	36,618	36,650	36,675	43,660	38,401	45,931	77,000	77,000

Brian Marckx, CFA

© Copyright 2011, Zacks Investment Research. All Rights Reserved.

HISTORICAL ZACKS RECOMMENDATIONS



DISCLOSURES

The following disclosures relate to relationships between Zacks Investment Research ("ZIR") and Zacks Small-Cap Research ("Zacks SCR") and the issuers covered by the Zacks SCR analysts in the Small-Cap Universe.

ZIR or Zacks SCR Analysts do not hold or trade securities in the issuers which they cover. Each analyst has full discretion on the rating and price target based on their own due diligence. Analysts are paid in part based on the overall profitability of Zacks SCR. Such profitability is derived from a variety of sources and includes payments received from issuers of securities covered by Zacks SCR for non-investment banking services. No part of analyst compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in any report or blog.

ZIR and Zacks SCR do not make a market in any security nor do they act as dealers in securities. Zacks SCR has never received compensation for investment banking services on the small-cap universe. Zacks SCR does not expect received compensation for investment banking services on the small-cap universe. Zacks SCR has received compensation for non-investment banking services on the small-cap universe, and expects to receive additional compensation for non-investment banking services on the small-cap universe, paid by issuers of securities covered by Zacks SCR. Non-investment banking services include investor relations services and software, financial database analysis, advertising services, brokerage services, advisory services, investment research, and investment management.

Additional information is available upon request. Zacks SCR reports are based on data obtained from sources we believe to be reliable, but is not guaranteed as to accuracy and does not purport to be complete. Because of individual objectives, the report should not be construed as advice designed to meet the particular investment needs of any investor. Any opinions expressed by Zacks SCR Analysts are subject to change. Reports are not to be construed as an offer or the solicitation of an offer to buy or sell the securities herein mentioned. Zacks SCR uses the following rating system for the securities it covers. Buy/Outperform: The analyst expects that the subject company will outperform the broader U.S. equity market over the next one to two quarters. Hold/Neutral: The analyst expects that the company will perform in line with the broader U.S. equity market over the next one to two quarters. Sell/Underperform: The analyst expects the company will underperform the broader U.S. Equity market over the next one to two quarters.

The current distribution of Zacks Ratings is as follows on the 1027 companies covered: Buy/Outperform- 17.5%, Hold/Neutral- 74.9%, Sell/Underperform – 6.7%. Data is as of midnight on the business day immediately prior to this publication.

© Copyright 2011, Zacks Investment Research. All Rights Reserved.