

Managements' Discussion and Analysis  
(Expressed in Canadian Dollars)

## **MIRACULINS INC.**

Year ended November 30, 2013

The following management's discussion and analysis ("MD&A") is current to March 25, 2014 and should be read in conjunction with Miraculins Inc.'s (Miraculins or the Company) audited financial statements for the year ended November 30, 2013, which have been prepared under International Financial Reporting Standards ("IFRS"). Except as otherwise noted, the financial information contained in this MD&A and in the audited financial statements has been prepared in accordance with IFRS. All amounts are expressed in Canadian Dollars unless otherwise noted. Additional information regarding the Company is available on SEDAR at [www.sedar.com](http://www.sedar.com) and on the Company's website at [www.miraculins.com](http://www.miraculins.com).

## **OVERVIEW**

Miraculins is a medical device company committed to extending life, reducing suffering and lowering healthcare costs. Through acquisition, development and commercialization of diagnostic tests and risk assessment technologies for unmet clinical needs, the Company seeks to improve the overall diagnosis quality and treatment of patients by enhancing the information available to patients and physicians. The Company is listed on the TSX Venture Exchange under the symbol "MOM".

The Company's business model is to acquire and/or develop diagnostic and risk assessment opportunities in areas where there are unmet clinical needs. Once Miraculins has advanced a technology through the necessary development stages, it partners with large diagnostic companies, reference laboratories and distribution partners to commercialize and market its technology. These types of relationships typically involve collaborative research agreements, upfront payments, milestone payments and ongoing royalties on sales. Successful execution of this model requires the convergence of product development, marketing, regulatory and corporate finance strategies.

The Company's two primary technology programs are in the early commercialization phase in the areas of cardiovascular disease and diabetes. Miraculins cardiovascular disease program is focused on the PreVu® Non-Invasive Skin Cholesterol Test, a non-invasive tool to assist with the risk assessment of coronary artery disease ("CAD"). Miraculins has been working independently and with distribution partners to develop markets for PreVu®. The Company's diabetes program is focused on the Scout DS® Non-Invasive Diabetes Screening Test, the first non-invasive diabetes screening system designed to provide a highly sensitive and convenient method for diabetes screening based on diabetes related biomarkers present in the skin. The technology had previous commercial activity and Miraculins is working to continue to build momentum for the technology in the marketplace.

In addition, the Company has a research and development program in the area of maternal health centred on a suite of markers for preeclampsia including the lead marker Endoglin. Miraculins has historically advanced the markers subject to a Collaborative Research and Option Agreement with Alere, Inc. ("Alere"), one of the world's largest diagnostic companies. The collaborative program concluded in January 2013 with Alere retaining development rights for the Endoglin marker. On January 30, 2014, the Company announced that Alere had elected not to proceed further in the direct commercial development of a professional diagnostic product for the biomarker Endoglin, but instead will support Miraculins in seeking commercialization opportunities for Endoglin.

Miraculins continues to evaluate new licensing and acquisition opportunities that fit strategically with the Company's business model, while remaining focused on the commercial roll-out of the Company's PreVu® and Scout DS® technologies. Potential new programs of greatest interest to the Company are those that have completed discovery stage research and biomarker identification, but require additional expertise and resources to be developed into commercial products or achieve their commercial potential.

Historically, the Company has continually accessed capital during difficult market conditions, having completed private placement and debt financings, and obtained non-dilutive grant funding to advance its programs to fund general operating, ongoing product development, inventory and sales and marketing related costs. Miraculins continues to work to selectively advance the critical aspects of its development programs while obtaining the appropriate financing, collaboration and/or license agreements necessary to apply greater resources to its programs. Based on management's current estimates and expected operating activities, management estimates that sufficient financial resources exist to fund operations into the second quarter of fiscal 2014.

Management has forecast that its expected expenditure levels and contracted commitments will exceed the Company's net cash flows and working capital early in fiscal 2014 unless further financing is obtained. Subsequent to November 30, 2013, the Company arranged an additional non-convertible secured loan of up to \$1,000,000 from a third party lender, which provides the Company with additional funding as tranches are approved, as further described in note 10. Additional sources of funding will be required during fiscal 2014 to carry on operations and repay debt, now due in October of 2014. The Company's future operations including the completion of the launch of its products are dependent upon its ability to secure additional funds, generate product sales, negotiate collaboration or license agreements with upfront payments, and/or obtain research grant funding. While the Company is striving to achieve these plans, there is no assurance that these and other strategies will be achieved or such sources of funds will be available or obtained on favourable terms or obtained at all. Historically, the Company has obtained funding via the issuance of shares and warrants and long-term debt. If the Company cannot secure additional financing on terms that would be acceptable to it, generate product sales, negotiate collaboration or license agreements with upfront payments, and/or obtain research grant funding, the Company will have to consider additional strategic alternatives which may include, among other strategies, cost curtailments, delays of product launch expenditures, exploring the monetization of certain intangible assets, as well as seeking to outlicense and/or divest assets or a merger, sale or liquidation of the Company. Any divestiture of assets would be subject to the satisfaction of obligations under the security interests described in note 4 and note 10 to the Company's financial statements.

### **Lead Technology Summary**

- The Company's PreVu® Non-Invasive Skin Cholesterol Point of Care (POC) Test is designed to address the worldwide market of coronary artery disease risk assessment. This innovative test measures cholesterol in the skin tissues as a new biomarker to assist with CAD risk assessment. Since acquiring the technology, Miraculins has worked independently and with distribution partners on market development for the Canadian medical professional and the Canadian and United States retail pharmacy segments, respectively, and has commenced limited pilot level introduction in some of these segments resulting in nominal revenues earned during fiscal 2013.
- The Company's Scout DS® Non-Invasive Diabetes Screening Test rapidly tests individuals without blood draw or the need to fast and produces results in 90 seconds. The Scout DS® has received clearance from Health Canada for commercial distribution, has been granted a CE Mark in the European Union, and is also cleared for sale in Mexico. Commercial piloting of the technology has commenced in Canada. Multiple preliminary distribution channels have also been established or advanced prior to Miraculins involvement with the technology - which Miraculins is reviewing – including in countries that may recognize Health Canada and CE regulatory clearances such as Saudi Arabia, Qatar, the United Arab Emirates, India, Jordan, Brazil, Turkey and Kuwait. Miraculins has filed pre-submission documentation with the FDA towards securing a pathway for marketing clearance in the U.S. for the Scout DS®.
- The Company's preeclampsia technology is comprised of a suite of placental development protein biomarkers for the detection and diagnosis of preeclampsia, a disease of growing incidence and a leading cause of maternal and prenatal deaths worldwide. The program is based on world leading research from Mount Sinai Hospital and has been developed through a collaborative research and development partnership with Alere, Inc., one of the world's largest diagnostic companies. Alere has declined to proceed further with its Endoglin license from Miraculins and the parties have agreed to work to enhance Miraculins' rights to receive a secure supply of high quality, proprietary Endoglin reagents manufactured by Alere. Miraculins is currently seeking commercialization partners for Endoglin with Alere's support.

### **Recent Developments**

Developments indicated are at the time of the dates specified.

#### **PreVu® Non-Invasive Skin Cholesterol Point-of-Care (POC) Test**

**On December 20, 2012**, the Company announced that London Drugs, one of Canada's leading pharmacy chains, was expanding its offering of the PreVu® Point of Care (POC) Test to pharmacy locations in major markets throughout western Canada in the first quarter of 2013. The introduction of skin cholesterol clinics followed a successful pilot program in eleven London Drugs locations that occurred in October and November of 2012. During the pilot launch, the PreVu® POC Test was made available for a special introductory price of \$19.99 per test and was performed in store by London Drugs pharmacists.

The expanded introduction of PreVu® POC Testing to London Drugs stores throughout western Canada, provided further information to Miraculins, specifically testing single day clinics as opposed to the test being available as a regular offering. Targeted data was collected that is assisting the Company in further developing its broader marketing strategy and operational plans for future pharmacy segment introductions of the technology.

Of note, the London Drugs pilots provided data on patient gender, age, interest in repeat testing, plans regarding healthcare provider follow up and lifestyle change as a result of the test, opportunities for improvement of the test experience, likelihood of recommending the test to friends or family, retail price point comfort, the impact of media in promoting the technology introduction and approaches for education and dialogue with key healthcare leaders. This information will be incorporated into future pilot clinics anticipated with Canadian pharmacy chains, and importantly the Company will be seeking opportunities for regular technology offering, or multi-day clinic offerings as opposed to single day clinics. (See *Lead Technologies: PreVu® Non-Invasive Skin Cholesterol Point-of-Care (POC) Test Retail Pharmacy sector for further information*).

**On January 7, 2013**, the Company announced that PharmaChoice will be the first pharmacy network to introduce the PreVu® POC Test in Ontario and Atlantic Canada, through a Phase One launch of special PreVu® Cardiovascular Risk Assessment Clinics in a select number of stores. The PharmaChoice pilot has provided Miraculins with important information about the significant challenges that come from providing new technology in smaller, independently-owned and operated pharmacies, spread out geographically and largely located in low population communities. Specifically, the absence of central corporate control and its associated capacity and authority to communicate network-wide regarding timelines, training, promotional campaigns and public relations initiatives, presents significant challenges in the pilot roll-out of a novel technology of this type.

While the pilot has resulted in successful clinics being conducted in select locations, the challenges experienced have had the effect of hampering the full realization of the pilot overall. The Company has minimal expectations for a Phase Two expansion with PharmaChoice. (See *Lead Technologies: PreVu® Non-Invasive Skin Cholesterol Point-of-Care (POC) Test Retail Pharmacy sector for further information*).

**On March 15, 2013**, in conjunction with Pear Healthcare Solutions, the Company announced the accreditation of a national program for pharmacists with the course name Cardiovascular Risk Assessment: Focus on Non-Invasive Skin Cholesterol Screening. All Canadian pharmacists are under obligation by their respective provincial authorities to engage in lifelong learning and competency enhancements that supports optimal, patient centered, outcome focused care through medication management and effective pharmacy practice. With the national accreditation of the program Canadian pharmacists can now earn credits to meet this requirement by learning about the benefits of providing cardiovascular risk assessment onsite and skin cholesterol's role within that environment as an emerging biomarker in coronary artery disease risk assessment and screening.

**On July 24, 2013**, the Company announced the execution of an agreement with H E B, the number one food retailer in South and Central Texas and the State's largest private company, that saw the Phase One launch of the PreVu® POC Test into the United States exclusively in 20 H E B Texas store locations and on September 5, 2013, the Company announced that the H E B stores offering the PreVu® POC Test to qualifying customers approved by an on site Licensed Practitioner would be located in San Antonio, Austin, Kerrville, Edinburg, Corpus Christi, Pflugerville, San Marcos, Harlingen, Georgetown, Houston and Friendswood. The PreVu® POC Test was offered as part of H E B's popular Second Saturday Screening program, where certified screeners from the H E B Pharmacy team offer cardiovascular risk assessment tests to customers on the second Saturday of the month from 9 am – 2 pm. The PreVu® POC Test was selectively offered as part of this clinical community outreach, along with other risk assessment testing, including blood serum cholesterol, during the months of October, November and December.

**On September 9, 2013**, the Company announced the publication of a review article entitled "The Relationship Between Skin Cholesterol Testing and Parameters of Cardiovascular Risk: A Systematic Review" authored by A. Yashar Tashakkor, MD, and G. B. John Mancini, MD, FRCPC of the Department of Medicine (Division of Cardiology), University of British Columbia. The article was available in an issue of the Canadian Journal of Cardiology. In addition to his role as Professor of Medicine at the University of British Columbia, the senior author, Dr. G. B. John Mancini, is Director, Cardiovascular Imaging Research Core Laboratory (CIRCL) at the University of British Columbia, Department of Medicine, and is Chair of the PreVu® Medical Advisory Board. Dr. Mancini has previously published other peer-reviewed papers on skin cholesterol.

**On September 23, 2013**, the Company announced that previously unpublished data from a major study of more than 9,000 North American life insurance applicants could open the door for skin cholesterol testing to be utilized as a new risk assessment tool in U.S. life insurance underwriting. The new findings, resulting from supplemental data analysis of the study, showed that smokers with elevated skin cholesterol were at significantly increased probability of having multiple cardiovascular disease risk factors, as compared to smokers with lower skin cholesterol levels. Subjects in the study had their skin cholesterol levels non-invasively measured by the PreVu® Lab Test, and also underwent traditional cardiovascular disease risk assessment including a blood serum lipid profile.

#### **Scout DS® Non-Invasive Diabetes Test**

**On August 1, 2013**, the Company announced that it had closed the acquisition from VeraLight, Inc. ("VeraLight") of all the relevant assets, including intellectual property, licenses and regulatory approvals, inventories, data and marketing materials, relating to VeraLight's Scout DS® technology, a groundbreaking diabetes screening technology that non-invasively measures changes in a person's skin indicative of prediabetes and type 2 diabetes, enabling cost effective, easily accessible screening of those at risk. In connection with the closing of the transaction, Lisa Suennen, Chair of VeraLight's board of directors, was appointed to the board of directors of Miraculins.

**On August 16, 2013**, the Company announced that it had re appointed Pear Healthcare Solutions Inc. ("Pear"), a leading provider of in pharmacy health screening and education services, as the distributor for the Scout DS® to the Canadian retail pharmacy/grocery market. Pear is also the Company's Canadian distributor for the PreVu® Non Invasive Skin Cholesterol Point of Care (POC) Test to the same market segment. Prior to Miraculins' acquisition of the Scout DS®, Pear was appointed as Canadian distributor for the technology by VeraLight, Inc. (its previous owner) and had successfully established pilots for this ground breaking, non invasive diabetes test. These included localized trials with national and regional brand pharmacy/grocery retailers including Zellers, Costco, Rexall, and PharmaSave.

In addition, Pear has designed a comprehensive CE Module (Continuing Education) on non invasive diabetes testing, which has been recognized by the Canadian Pharmacists Association as accredited programming, and has also developed a special preparatory program to ready pharmacists prior to their taking the Certified Diabetes Educator exam. These programs are offered through Pear's Health eLearning initiative and online learning portal, which allows pharmacists to conveniently participate in accredited CEs on such topics as cardiovascular disease, diabetes and osteoporosis. As a result, Pear's commitment to national diabetes education and preventive testing has been significant and unparalleled among service providers to the industry.

**On August 19, 2013**, the Company announced five new Scout DS® publications in peer reviewed journals since April 2013. These studies include research demonstrating the superiority of the Scout DS® system when compared to random capillary glucose in an at risk population, published in Diabetes Research and Clinical Practice in April 2013.

**On September 16, 2013**, the Company announced that a major Canadian supermarket chain, in collaboration with Pear Healthcare Solutions ("Pear"), a leading provider of in pharmacy health screening and educational services to the Canadian pharmacy community, would conduct a special pilot of the Miraculins' Scout DS® technology as part of a series of pharmacy diabetes clinics to be held at 35 store locations in fall 2013. The fall clinics were conducted to help retail customers learn more about their risk of diabetes, and its effects and complications, along with the best ways to control it through dietary modification, physical activity, ongoing monitoring and other healthcare applications and approaches.

A patient who's Scout DS® screening result suggests a likelihood of pre diabetes or type 2 diabetes was recommended to see their doctor to have a diagnostic blood test done (Oral Glucose Tolerance Test or an HbA1c Test) to make a diagnosis. This programming was a major step forward in the commercialization of the Miraculins' Scout DS® in the Canadian retail pharmacy segment. Pilots like this allow pharmacies to introduce this new technology to their customers and to learn how to maximize the in store potential of this exciting new screening test. After the pilot phase is successfully completed, this lays the groundwork for the potential expansion of the Scout DS® across all stores within the chain. Beyond this specific application, Miraculins and Pear are working to establish additional pilots in multiple retail chains with the objective of having the Scout DS® available to millions of Canadians in thousands of pharmacies.

**On November 19, 2013**, the Company provided the market with an overview of its plans for its Scout DS<sup>®</sup> technology for the 2014 year, which will include U.S. regulatory activity and expected sales expansion within Canadian pharmacy and employee health screening markets. The Company also walked through its plans for the two principal market segments for the Scout DS<sup>®</sup>, namely: Retail Pharmacy, and Health and Wellness/Employee Screening.

**On December 23, 2013**, the Company announced that it had filed pre submission documentation with the USFDA (United States Food and Drug Administration) for its Scout DS<sup>®</sup> System towards securing its ultimate marketing clearance in the United States. The pre submission documentation filing is the first formal step by Miraculins in establishing a clinical and regulatory plan for the regulatory clearance of the Scout DS<sup>®</sup> in the United States. Based on feedback from this cooperative process with the FDA, Miraculins will develop appropriate study protocols in support of FDA marketing clearance.

**On January 31, 2014**, the Company announced that it has executed a term sheet ("Term Sheet") with Cachet Pharmaceutical Co., Ltd. ("Cachet") to appoint Cachet as the exclusive Chinese distributor for the Scout DS<sup>®</sup> Non Invasive Diabetes Screening Test. The Term Sheet has now established the principal terms and conditions of the proposed distribution agreement (the "Agreement") between Miraculins and Cachet for China, including Scout DS<sup>®</sup> device unit pricing, upfront and milestone payments, product ordering and diligence requirements, and ongoing responsibilities of the parties. Specifically, the Term Sheet provides that Miraculins would receive up to \$500,000 USD in upfront and milestone payments, staged between signing the Agreement and the successful conclusion of the China Food and Drug Administration ("CFDA") regulatory clearance process. In addition, Cachet would place a first order for Scout DS<sup>®</sup> devices valued at \$15 million USD on signing of the Agreement, which would be supported by the issuance of a proper banking guarantee and activated upon CFDA regulatory clearance.

The term of the Agreement would extend for five years from the date of CFDA clearance, subject to minimum annual order quantities by Cachet. If minimum orders were met, this would represent an additional order value of \$75 million USD in Scout DS<sup>®</sup> device orders over the length of the term. Miraculins would be responsible for leading the CFDA clearance process and its related costs. Cachet would provide guidance and support for the process as necessary.

Upon clearance of the Scout DS<sup>®</sup> in China, Cachet would be responsible for all sales and marketing costs. Miraculins would provide sales and marketing guidance and support as required, and would provide a limited number of not for sale devices to Cachet for use in market development activities. Miraculins would retain the right to establish programs for ongoing device servicing and maintenance once the Scout DS<sup>®</sup> devices are sold into the field.

The Term Sheet provides Cachet with an exclusive period of ninety days within which to finalize definitive documentation for the Agreement. The completion of the definitive documentation and the execution of the Agreement remain subject to all necessary contractual, regulatory and corporate approvals of both Miraculins and Cachet and the completion of satisfactory due diligence. The Term Sheet provisions are not legally binding except for provisions regarding exclusivity, confidentiality and governing law. It is anticipated that definitive documentation will be completed within 90 days. There is, however, no assurance that the parties will enter into definitive documentation or execute the Agreement contemplated by the Term Sheet.

**On February 3, 2014**, the Company announced the resignation of Lisa Suennen from the Miraculins Board of Directors resulting from her departure from Psilos Group, and the appointment in her place of David A. Eichler. David A. Eichler is a Managing Member of Psilos Group and joined Psilos in 1999 and focuses primarily on investments in the medical technology and healthcare services sectors.

### **Corporate Developments**

**On February 4, 2013**, the Company announced that it was to receive the Life Science Company of the Year Award from the Life Science Association of Manitoba at an awards ceremony that was held on February 13, 2013. The award is presented annually to a private sector company based in Manitoba that has made a positive impact on the life sciences sector in the past year as is active in paving the road toward future wealth and job creation in the province.



**On April 8, 2013**, the Company announced the closing of a private placement offering (the "Offering") with aggregate gross proceeds to the Company of \$1,050,950 from the sale of 11,677,223 units ("Units") at a price of \$0.09 per Unit. Each Unit was comprised of one common share (a "Share") of the Company and one half of one Share purchase warrant (a "Warrant"). Each Warrant entitles the holder to purchase one Share at a price of \$0.11 per Share for a period of twelve months from the date the Warrant is issued. The net proceeds of the Offering is being used for general corporate purposes including sales and marketing costs related to the Company's PreVu<sup>®</sup> test.

**On June 4, 2013**, the Company announced that it has granted an aggregate of 2,475,000 stock options at an exercise price of \$0.10 per Common Share, to certain directors, officers, employees, consultants and management company employees of the Company. The options are set to expire five years from the date of grant.

**On August 8, 2013**, the Company announced that it had engaged Network IR ("Network"), to develop and execute a comprehensive investor communications program to raise awareness of the Company within the North American and International investment communities. Network is a Vancouver-based full service investor relations company with experience in creating exposure for companies to industry stakeholders and investors. Network strives to represent companies that fall under the "best of breed" category for their specific focus area. Network's service included consulting to Miraculins with respect to corporate development and finance, producing and distributing effective investor communications tools, and increasing investor awareness. Under the terms of the services agreement Network was hired for an initial term of three months, renewable on a monthly basis thereafter on mutual agreement. Network was paid a monthly fee of \$7,500.

**On September 12, 2013**, the Company announced a non brokered private placement offering (the "Offering") of up to 1,666,667 units (pre-consolidation - 16,666,666 units) ("Units") at a price of \$0.06 per Unit (pre-consolidation - \$0.06 per Unit) for gross proceeds of up to \$1,000,000. Each Unit will be comprised of one common share of the Company (a "Share") and one half of one Share purchase warrant. Each whole warrant (a "Warrant") will entitle the holder to purchase one Share at a price of \$1.00 per Share (pre-consolidation - \$0.10 per Share) for a period of 12 months from the date the Warrant is issued. On September 20, 2013, the Company announced the first close of this private placement offering (the "Offering") with aggregate gross proceeds to the Company of \$430,000 from the sale of 716,667 Units (pre-consolidation - 7,166,667 Unit) at a price of \$0.60 per Unit (pre-consolidation - \$0.06 per Unit). On November 1, 2013, the Company announced the second and final close with gross proceeds to the Company from this second close of \$602,000 from the sale of 1,003,333 Units (pre-consolidation - 10,033,333 Units) at a price of \$0.60 per Unit (pre-consolidation - \$0.06 per Unit). This close brings the total funds raised under the private placement offering to \$1,032,000. The net proceeds of the Offering shall be used for general corporate purposes including sales and marketing costs related to the Company's PreVu<sup>®</sup> and Scout DS<sup>®</sup> technologies.

**On December 23, 2013**, the Company entered into an amending agreement to extend the \$1,000,000 non-convertible secured loan with a lender (the "2011 Lender") that was originally announced on October 13, 2011. The loan has been extended for an additional six months and will now mature on October 14, 2014. The Loan will continue to bear interest at a rate of 12% per annum, payable quarterly, and any overdue payment will bear additional interest at a rate of 6% per annum, for a combined interest rate of 18% per annum on any overdue payment. As consideration for the extension of this loan, the Company issued 100,000 common shares (pre-consolidation - 1,000,000 common shares) of the Company to the 2011 Lender. Additionally, the Company entered into a shares for debt agreement with the lender and issued 126,806 shares (pre-consolidation - 1,268,055 shares) to satisfy \$63,403 of interest owing on the loan.

**On December 23, 2013**, the Company announced it had arranged a non-convertible secured loan of up to \$1,000,000 from a third party lender (the "2013 Lender"). Any amounts advanced under this loan will be evidenced by promissory notes purchased by the 2013 Lender at a 10% discount to the principal amount of the promissory note. Assuming full draw down under this loan, the aggregate purchase price of the promissory notes will be \$900,000. All amounts owing under this loan will be due and payable on December 31, 2014 and will bear interest at 12% per annum, payable quarterly. In addition, any overdue payment will bear additional interest at a rate of 6% per annum for a combined interest rate of 18% per annum on any overdue payment. In certain circumstances, the Company has the option to satisfy its obligations with respect to any interest payable on the loan by issuing common shares at a discounted price. As consideration for providing the loan, in connection with each purchase of a promissory note by the 2013 Lender, the Company will issue common shares equal to 10% of the principal amount of the promissory note based on the closing price of the Company's common shares on the trading day immediately preceding the purchase of the promissory note.

**On January 10, 2014**, the Company closed the initial tranche under this loan and received an initial advance of \$250,000 when the 2013 Lender purchased a promissory note for \$278,000. As consideration for providing the initial tranche of the loan, the Company issued 55,600 common shares (pre-consolidation - 556,000 common shares) to the 2013 Lender.

**On February 10, 2014**, the Company closed the second tranche under this loan and received an additional advance of \$150,000 when the 2013 Lender purchased a promissory note for \$166,667. As consideration for providing the second tranche of the loan, the Company issued 33,333 common shares to the 2013 Lender. Additionally, on March 20, 2014, the Company issued an additional 17,172 common shares to the 2013 Lender in connection with the second tranche of the loan.

**On March 20, 2014**, the Company closed the third tranche under this loan and received an additional advance of \$150,000 when the 2013 Lender purchased a promissory note for \$166,667. As consideration for providing the second tranche of the loan, the Company issued 75,758 common shares to the 2013 Lender.

The Company has the option to request the 2013 Lender to advance additional tranches under this loan, which the 2013 Lender may approve or reject at its sole discretion. The loan is secured by a general security interest in favour of the Lender over all tangible and intangible assets of the Company, excluding the assets relating to the Scout DS®, which were acquired on July 31, 2013.

**On January 24, 2014**, the Company announced that effective at the opening of the market on January 27, 2014, the Company's issued and outstanding common shares were consolidated on the basis of one post-consolidation common share for every ten pre-consolidation common shares. The Company's name and trading symbol did not change as a result of the consolidation. The Company's common shares were reduced from 123,652,043 to 12,365,204 issued and outstanding as a result of the consolidation.

#### **Preeclampsia/Endoglin**

**On March 11, 2013**, the Company announced plans to add to its suite of maternal health biomarkers under license from Mount Sinai Hospital's Samuel Lunenfeld Research Institute by signing a term sheet to license certain intellectual property, methods and reagents for detecting hydroxylated Hypoxia Inducible Factor 1 alpha ("HIF 1 $\alpha$ OH"), a promising biomarker with potential in differentiating high and low risk pregnancies, including risk of preeclampsia.



The technology is part of the pioneering research on preeclampsia and placental development being conducted by Dr. Isabella Caniggia, Senior Investigator at the Samuel Lunenfeld Research Institute, in collaboration with Dr. Martin Post, a senior scientist at the Hospital for Sick Children. In addition to its promise in maternal health and preeclampsia, HIF 1 $\alpha$ OH also presents an opportunity as a cancer biomarker and of further note, the license will include unique monoclonal antibodies highly sensitive to HIF 1 $\alpha$ OH and the exclusive rights to manufacture reagents that measure the biomarker using materials developed by Dr. Caniggia. The Company is currently advancing a development plan for a kit to detect and measure HIF 1 $\alpha$ OH in bodily fluid, which if successful could lead to near term commercial research use product and allow for more widespread research into utility of this novel biomarker. The ultimate goal for the biomarker development program would be worldwide sales of the biomarker technology, either alone or in combination with other markers, in a diagnostic kit for the early detection of preeclampsia or as a pregnancy risk assessment tool.

**On January 30, 2014**, the Company announced that Alere Inc. ("Alere") had elected not to proceed further in the direct commercial development of a professional diagnostic product for the biomarker Endoglin, but instead will support Miraculins in seeking commercialization opportunities for Endoglin by supplying key antibodies that were developed by Alere. As part of this decision, Alere has declined to proceed further with its Endoglin license from Miraculins and the parties have agreed to work to enhance Miraculins' rights to receive a secure supply of high quality, proprietary Endoglin reagents manufactured by Alere.

## **CORPORATE HISTORY**

Miraculins began active operations in 2002 as a research and development company focused on the screening and identification of target proteins and peptides related to diseases. The Company's original vision was to contribute to the saving of lives through the early detection and diagnosis of cancer by developing products to increase the information available to physicians and consequently enhance the quality of treatment for cancer patients.

In the spring of 2008, Miraculins shifted its business model, moving the Company's focus away from basic discovery research and further down the diagnostic assay development and commercialization pathway. The Company's business plan is now focused on in-licensing/acquiring and developing diagnostic and risk assessment technologies that address unmet clinical needs and have completed the early stage research phase.

In the fall of 2008, Miraculins announced its first technology acquisition under its new business model. The Company acquired a panel of biomarkers from Mount Sinai Hospital that have demonstrated the potential to detect or diagnose preeclampsia, a devastating condition of growing incidence affecting pregnant women that is the leading cause of maternal and prenatal deaths worldwide. The Company partnered the program with Alere, Inc. in January 2010 for development and potential commercialization and Alere had exercised its exclusive option and licensed the novel biomarker Endoglin in January 2013 concluding the three-year Collaborative Research and Option Agreement program previously in place.

On January 30, 2014, the Company announced that Alere had elected not to proceed further in the direct commercial development of a professional diagnostic product for the biomarker Endoglin, but instead will support Miraculins in seeking commercialization opportunities for Endoglin.

In late summer 2010, Miraculins completed the acquisition of all assets relating to the PreVu<sup>®</sup> Non-Invasive Skin Cholesterol Test. PreVu<sup>®</sup> is a new CAD risk assessment technology that measures cholesterol levels in a patient's skin non-invasively, painlessly and without the need for fasting. Since closing the acquisition of the PreVu<sup>®</sup> technology, Miraculins has been focused on the pilot introduction of the product through select retail pharmacies.

In August 2013, the Company completed the acquisition of all the relevant assets, including intellectual property, licenses and regulatory approvals, inventories, data and marketing materials, relating to VeraLight's Scout DS<sup>®</sup> technology, a groundbreaking diabetes screening technology that non-invasively measures changes in a person's skin indicative of prediabetes and type 2 diabetes, enabling cost effective, easily accessible screening of those at risk. Since closing the acquisition of the Scout DS<sup>®</sup> technology, Miraculins has been focused on maintaining and growing commercial activities in the Canadian pharmacy space while evaluating opportunities to grow activities internationally, in China and elsewhere.

**Scout DS® PRODUCT Acquisition Highlights**

Miraculins acquired all of the relevant assets, including intellectual property, licenses and regulatory approvals, inventories, data and marketing materials, relating to VeraLight's Scout DS® technology, in exchange for a combination of cash and Miraculins' common shares.

The purchase price payable by Miraculins to VeraLight pursuant to the purchase agreement consists of the following:

- a) the payment of \$50,000 on closing and \$100,000 within 90 days of closing;
- b) the issuance to VeraLight of an aggregate of 1,308,032 common shares (pre-consolidation - 13,080,315 common shares) of Miraculins (the "Payment Shares") on the earlier of the third anniversary of the closing date and upon the achievement of the \$7 Million Dollar Milestone (as defined below), provided that VeraLight may require the Payment Shares to be issued to it at any time after the first anniversary of closing;
- c) the issuance to VeraLight of the following additional common shares in the capital of Miraculins (together with the Payment Shares, the "Securities"), upon the achievement of the following milestones:
  - i. 100,000 common shares (pre-consolidation - 1,000,000 common shares) upon achievement of cumulative gross revenues in connection with the acquired business of \$1,000,000;
  - ii. 300,000 common shares (pre-consolidation - 3,000,000 common shares) upon achievement of cumulative gross revenues in connection with the acquired business of \$3,000,000;
  - iii. 300,000 common shares (pre-consolidation - 3,000,000 common shares) upon achievement of cumulative gross revenues in connection with the acquired business of \$5,000,000;
  - iv. 300,000 common shares (pre-consolidation - 3,000,000 common shares) upon achievement of cumulative gross revenues in connection with the acquired business of \$7,000,000 (the "\$7 Million Dollar Milestone");
  - v. 300,000 common shares (pre-consolidation - 3,000,000 common shares) upon achievement of cumulative gross revenues in connection with the acquired business of \$10,000,000 (the "\$10 Million Dollar Milestone");
  - vi. within 30 days of achievement of the \$10 Million Dollar Milestone, such number of common shares equal to 19.9% (after giving effect to the issuance) of the aggregate number of common shares of Miraculins that are issued subsequent to the closing pursuant to the exercise of stock options, warrants and other convertible securities that are issued and outstanding on closing; and
  - vii. on each annual anniversary of the achievement of the \$10 Million Dollar Milestone and ending on the anniversary following the exercise or expiry of the last stock options, warrants and other convertible securities that are issued and outstanding on closing, such number of common shares equal to 19.9% (after giving effect to the issuance) of the aggregate number of common shares of Miraculins that are issued during the prior year pursuant to the exercise of stock options, warrants and other convertible securities that are issued and outstanding on closing; and
- d). the assumption of approximately \$20,000 in trade payables owing by VeraLight.

The purchase agreement contains representations, warranties and covenants typical of a transaction of this nature. In addition:

- a) VeraLight agreed that it and its affiliates, collectively, are prohibited from holding in excess of 19.9% of the issued and outstanding shares of Miraculins for a period of 10 years following the closing of the transaction;
- b) Miraculins agreed that for a period of 3 years following closing, and 2 years thereafter provided that VeraLight holds 10% or more of the issued and outstanding shares of Miraculins, it shall include one nominee of VeraLight as part of management's proposed slate of directors to be elected by shareholders of Miraculins at its annual meetings;
- c) Miraculins agreed to grant VeraLight certain rights allowing VeraLight to maintain its proportion of equity ownership in Miraculins by participating in future equity financings for a period of 3 years from closing; and
- d) Miraculins agreed to grant a first ranking security over the assets being purchased to VeraLight to secure the full and timely performance of all of its obligations to VeraLight under the purchase agreement, including the obligation to maintain active manufacturing operations and to invest a specified amount each fiscal year in the acquired business, until the Payment Shares are issued or the \$7 Million Dollar Milestone is achieved.

**LEAD TECHNOLOGIES**

The Company is focused on developing non-invasive diagnostic tests and risk assessment technologies that address unmet clinical needs in various disease areas. As a result of market conditions and the limited availability of investment funding Miraculins has focused its attention primarily on maintaining its preeclampsia program and capitalizing on the acquisition of its PreVu® and Scout DS® programs. The Company has been continually reviewing cancer biomarker programs that have been on hold since 2008 with an eye towards out-license, advancing or canceling these programs.

The introduction of new medical device technology into the marketplace is a complex and multi-faceted process that often involves long buying cycles and requires multiple pilot testing programs. These 'pilot programs', which allow for market feedback to be secured under controlled distribution scenarios, provide important information for consideration and preparation for widespread commercial launches in the future. Different market segments require different strategies and different levels of investment to successfully penetrate. During the pilot program phase, the Company does not expect to generate significant or regular revenue.

**PreVu® Non-Invasive Skin Cholesterol Point-of-Care (POC) Test**

Coronary Artery Disease ("CAD") is a leading cause of death worldwide. CAD occurs when fat and cholesterol gradually accumulate in the coronary arteries, forming a plaque that narrows the artery and reduces blood flow to the heart. Undetected or untreated, this build-up of plaque can block the artery and cause a heart attack. A heart attack, also known as a myocardial infarction (MI), causes a part of the heart muscle to die, which weakens or prevents the heart's ability to pump blood. Worldwide, about 7.2 million people die from heart attacks every year.

A major risk factor for CAD is high blood cholesterol. It is estimated that more than 250 million cholesterol tests are performed per year in the United States. While blood cholesterol remains one of several important risk factors for heart disease, it is widely accepted that multiple risk factors for CAD must be considered to provide a more accurate picture of the absolute risk of disease, which is an individual's risk of experiencing an event over a specific time horizon, generally ten years.

Absolute cardiovascular disease risk is determined by a combination of all cardiovascular risk factors present. Other traditional and emerging risk factors include: gender, increasing age and heredity, tobacco smoking, high blood pressure, physical inactivity, diet and obesity, diabetes mellitus, C-reactive protein ("CRP"), homocysteine, carotid intima-media thickness (CIMT), and coronary calcium, among others. Many of these factors are costly to measure or assess, are resource intensive, are inappropriate for a primary care setting, are not easily accessible by the broader population or require invasive procedures. In addition, many individuals are still getting through this assessment net, as evidenced by growing incidences of heart attacks worldwide. Therefore, a clear unmet medical need exists for new CAD risk factors to identify hidden risk individuals early and help avoid that critical first coronary event.

In September 2010, Miraculins announced the acquisition of the PreVu® Non-Invasive Skin Cholesterol Test technology, a new and non-invasive clinical tool to assist with risk assessment of CAD. As a new risk marker for heart disease, skin cholesterol measurement provides first-stage screening and valuable information to complement traditional CAD risk assessment. Skin contains roughly 11% of the body's cholesterol by weight and ages in parallel with vascular connective tissue. As blood vessel walls accumulate cholesterol, peer reviewed clinical data has shown that so too may skin tissues. An elevated skin cholesterol level is a reliable predictor of the risk of higher cholesterol accumulation in the arteries and, accordingly, the increased risk of heart disease. Elevated levels of skin cholesterol have been shown to be strongly associated with an increased risk of CAD as measured by treadmill stress testing and coronary angiography, as well as by testing for coronary calcium, carotid artery thickening and carotid artery plaque.

The PreVu® POC Test is conducted by placing a drop of detector reagent on the palm of the hand, held in place in a small well in a foam pad that adheres to the palm with medical grade adhesive, which binds selectively to the cholesterol in the skin. After a one minute incubation period, the area is blotted dry to remove any unbound detector solution and an indicator reagent is then added. When combined, a blue colour change occurs in direct proportion to the amount of skin cholesterol present. After two minutes, a hand held spectrophotometer (colour reader) is placed over the drop to precisely measure its hue, generating a measure of a patient's skin cholesterol value, which places the patient on a scale showing their risk of CAD based on clinical data for the biomarker. The results are immediately available.

In addition to the POC format of the test, the PreVu® technology is also partnered with Gamma-Dynacare Medical Laboratories in a lab-processed format called the PreVu® Non-Invasive Skin Cholesterol Lab Processed ("LP") Test or the PreVu® LP Test. This format of the test has been designed as a simple collection device that allows a patient or administrator to painlessly capture skin cells and cholesterol from the palm of the hand with a medical grade adhesive in about ten seconds. The sample is then sent into a central processing lab for measurement and results reporting.

The PreVu® POC Test has received Health Canada clearance and has been CE-Marked for sale within the European Union. In Canada and the European Union, the PreVu® LP Test has been previously cleared for use as part of risk assessment for CAD. In the United States, the PreVu® POC Test has previously been cleared by the FDA for use as part of risk assessment for CAD in persons with a history of heart attack and/or in persons suspected of having significant multi-vessel coronary artery disease (>50% stenosis, or blockage, in more than one vessel, as diagnosed by angiography). In the United States, skin cholesterol test results, when considered in conjunction with clinical evaluation, blood cholesterol and other risk factors identified for coronary artery disease, will aid a physician or healthcare practitioner in focusing diagnostic and patient management options.

Miraculins has focused on the introduction of the PreVu® technology with the following key historical highlights:

*Prepared for Commercialization and Met Regulatory Requirements*

- Received formal ISO Certificate of Registration by The BSI Group Inc. designating Miraculins as a medical device manufacturer with a certified quality management system
- PreVu® Non-Invasive Skin Cholesterol Point of Care (POC) Test CE Marked and officially registered within the European Union
- PreVu® Non-Invasive Skin Cholesterol POC Test cleared for sale by Health Canada
- Outlined and reiterated details of the FDA's clearance for its PreVu® Non-Invasive Skin Cholesterol POC Test, which was issued prior to Miraculins' acquisition of the PreVu technology and remains in effect in the U.S. marketplace
- Developed and launched an English language Canadian web site for its PreVu® Non-Invasive Skin Cholesterol POC Test at [www.prevu.com](http://www.prevu.com)
- Developed and launched a French language Canadian web site for its PreVu® Non-Invasive Skin Cholesterol Test at [www.prevu.com](http://www.prevu.com)
- Received Notice of Allowance from the United States Patent and Trademark Office for a patent that covers the use of spectrophotometric measurements for the non-invasive analysis of skin cholesterol (POC technology) and issued a patent by the State Intellectual Property Office of the People's Republic of China that covers use of a tape stripping device for skin sampling (LP technology)
- Announced \$130,000 in grant funding from the Manitoba Commercialization Support for Business (CSB) Program to support commercialization of its PreVu® Non-Invasive Skin Cholesterol Test
- Announced the start of a pilot study to measure skin cholesterol levels in patients beginning statin therapy
- Announced the accreditation of a national program for pharmacists with the course name Cardiovascular Risk Assessment: Focus on Non-Invasive Skin Cholesterol Screening
- Announced that previously unpublished data from a major study of more than 9,000 North American life insurance applicants, that could open the door for skin cholesterol testing to be utilized as a new risk assessment tool in U.S. life insurance underwriting.
- Announced the publication of a review article entitled "The Relationship Between Skin Cholesterol Testing and Parameters of Cardiovascular Risk: A Systematic Review" authored by A. Yashar Tashakkor, MD, and G. B. John Mancini, MD, FRCPC

*Established Distribution Partnerships and Developed Sales Channels*

- Entered into an agreement with Pear Healthcare Solutions Inc., a leading provider of in-pharmacy health screening and education services, that will see the PreVu® Non-Invasive Skin Cholesterol POC Test distributed to the Canadian retail pharmacy market segment
- Successfully completed the retail pharmacy launch of the PreVu® Non-Invasive Skin Cholesterol POC Test in 11 London Drugs locations in Western Canada, which generated a dynamic response from the public and media. The launch included the provision of store level promotion and advertising and the validation of a number of logistical processes, resulting in a number of patients tested with PreVu® at an introductory price of \$19.99
- Conducted an expansive education and awareness campaign to over 3,600 medical doctors in Vancouver/Lower Mainland as well as Winnipeg (pilot regions) in advance of the London Drugs launch
- Conducted a follow up chain-wide expansion of PreVu® clinics in London Drugs stores beginning in March 2013 providing important information for shaping future pilot programs.
- Announced that PharmaChoice would be the first pharmacy network to introduce the PreVu® POC Test in Ontario and Atlantic Canada, through a Phase One launch in 2013.
- Announced the appointment of two key members, Mr. Charles G. Nell and Mr. Paul Mordente, to its international market development team, to help guide the Company's efforts in developing international markets for PreVu®
- Announced the execution of an agreement with H-E-B, the number one food retailer in South and Central Texas and the State's largest private company, that saw the Phase One launch of the PreVu® POC Test into the United States exclusively in 20 H-E-B Texas store locations during the fourth quarter of calendar 2013.

To support the introduction of PreVu® overall, Miraculins has appointed key consultants in the areas of scientific, manufacturing, technical development and clinical and regulatory affairs. In addition to bringing their skills to Miraculins, certain consultant resources having experience with the PreVu technology prior to Miraculins' acquisition also provides a continuity of technical knowledge as the product advances to commercialization.

The PreVu® business model is to sell products in key market segments through established distribution companies that will purchase PreVu® products from the Company and then resell them through their networks of retailers, or market them directly to the end consumer.

The Company's PreVu® revenues are expected to be generated from the sale of test kit consumables and the custom designed hand-held readers that are utilized to read the PreVu® POC Test result and guide the test operator through the test process. PreVu® POC Test reagent kits contain all of the components required to deliver 40 complete tests. The testing format requires basic operator training and therefore the test is not currently sold as an over-the-counter product.

Additional revenues may be derived from territorial licensing or marketing partnerships with corporate or brand partners who have an interest in promoting skin cholesterol as a new biomarker for risk of coronary artery disease ("CAD"), as a way of differentiating their health and wellness, pharmaceutical, or consumer/grocery products.

The Company has previously identified four principal market segments for PreVu®, and has been actively working to explore and/or develop these markets, namely:

- Retail Pharmacy
- Primary Care Physicians
- Life Insurance
- Health and Wellness Service Providers

Retail Pharmacy Sector

The retail pharmacy market is believed to represent a significant opportunity for PreVu® based on access to millions of patients/consumers globally. Additionally, there is a growing role for neighbourhood pharmacists in delivering health and wellness products and health awareness programs to the public, providing a clear opportunity for the PreVu® POC Test.

# MIRACULINS INC.

## Management's Discussion and Analysis

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The Company plans to continue to focus on the introduction of the PreVu® POC Test through Canadian retail pharmacy locations in conjunction with its distribution partner Pear Healthcare Solutions Inc. While there are similar retail pharmacy models worldwide, the Canadian marketplace is a very important market for the Company, given the Company is headquartered in Canada and considering the presence of over 6,000 retail chain pharmacy locations, a significant number of well-organized and professionally operated independent pharmacies, as well as additional pharmacies operating within large national and regional brand grocery chains. Canada also presents a cost-effective opportunity to refine the PreVu® pharmacy model before exporting the concept to other international markets.

Successful market development in the retail pharmacy segment requires the participation of pharmacy partners, coordinated management of distribution logistics, sophisticated point of sale material and store level advertising, test operator training, physician education and public relations management. These major areas are being advanced as the introduction of PreVu® continues in this market segment.

Initial pilot feedback has shown positive consumer response to the PreVu® test and support for the technology by pharmacy teams. Challenges though include retail pharmacy culture which has traditionally offered risk assessment and prevention programs such as PreVu® on an occasional and rotating basis, including those programs dealing with weight loss, smoking cessation, osteoporosis, diabetes screening, among others, which often follow the calendar (i.e. February in Canada is traditionally seen as "Heart Health Month"). Such a retail culture may limit PreVu® testing to a rotating and cyclical schedule in retail stores and as a result, the Company has been additionally focused on developing an offering for pharmacies that would see turn-key PreVu® testing kiosks set up within the pharmacy and operated by dietitians or other such health professionals, under the control and direction of the Company. Such offerings may make it easier for pharmacies to offer PreVu® testing to customers on a more regular and sustained basis, and also increase the profile of the test within the store with the presence of a highly visible and branded kiosk station.

Efforts continue towards United States market introduction through pharmacies, including the execution of an agreement with H-E-B, the number one food retailer in South and Central Texas and the State's largest private company, that saw the PreVu® POC Test piloted in upwards of 20 H-E-B Texas store locations during the fourth quarter of calendar 2013. U.S. consumer and pharmacy team response to PreVu® testing was also very positive and the Company acquired a great deal of useful operational and market-based data that it will be incorporating into additional pilot introductions and expansion of PreVu® into the U.S. in the future.

Efforts continue on identifying a pharmacy partner in the European Union, with a focus on English or French speaking markets due to the Company's current marketing materials and labeling being available in those languages.

### Primary Care Physicians

Miraculins is continuing to analyze the potential of the PreVu® POC Test in the Primary Care Physician ("PCP") market segment. It is generally viewed by medical device distributors in the Canadian market that the wide spread sale of a point-of-care test into the physician market will need to be preceded by reimbursement by the Canadian healthcare system. In the U.S. market, there is a greater precedence for a user pay model for a point-of-care test within the PCP market segment. However, significant adoption of the PreVu® POC Test may require recognition and/or reimbursement from private health insurers or other organizations.

A strategic review of the reimbursement landscape was commissioned by the Company for Canada and the U.S. and was provided by industry experts including OptumInsight, a leading health services business specializing in improving the performance of the health system by providing analytics, technology and consulting services that enable better decisions and results. The initial phase of this review process has been completed and the Company is considering opportunities to implement the results into its ongoing strategy.

### Life Insurance

The second format of the PreVu® test technology, the PreVu® Lab Processed (LP) Test, has been in further development through the Company's partnership with Gamma-Dynacare Medical Laboratories, one of Canada's largest and most respected providers of laboratory services and solutions (discussed further under "Other Activities" below).



The PreVu® LP Test was originally designed to service the life insurance market in the U.S. for certain insurance policies where the provider does not typically require the applicant to submit to a physical or to provide a blood sample for traditional CAD risk factors such as serum cholesterol, due to the time and expense associated with such tests. The strategy was that with the provision of at least one risk marker for CAD, namely skin cholesterol using the convenient PreVu® LP Test, the insurance company could better understand the risk profile for each applicant on a much more timely and cost effective basis and proceed accordingly.

Miraculins has been steadily working on reactivating the life insurance market for PreVu® and recently announced previously unpublished study data further supporting skin cholesterol's use in the life insurance market segment. The Company has engaged in discussions with leading U.S. based life insurance companies and potential distribution partners who are active in the life insurance market and has found that there is continuing interest in the PreVu® technology from key companies.

At present, the PreVu® LP Test has not been cleared in the United States for use in the life insurance industry (or for any other use). An earlier version of the PreVu® LP Test has previously been cleared for use in Canada and CE Marked in the European Union.

#### Health and Wellness Services Providers:

The health and wellness service provider market segment is comprised of highly trained, generally registered or accredited, providers of health and wellness services including naturopaths, dieticians and chiropractors. Additionally, this market segment could also include mobile or public setting health risk screening service providers. It is thought that the non-invasive aspect of the PreVu® POC Test could allow this segment to become more involved in CAD screening, or supplement current CAD screening activities.

The Company has been exploring the potential of engaging Registered Dieticians across the country to conduct PreVu® testing, including through dedicated PreVu® testing kiosks the Company has been evaluating.

#### Other Activities

##### *Laboratory Processed Test (LP) Format*

Product development activity has been directed towards the PreVu® LP Test, Miraculins second testing format for skin cholesterol. Gamma-Dynacare Medical Laboratories, is the Company's exclusive Canadian partner for the PreVu® LP Test. The PreVu® LP Test non-invasively measures the amount of cholesterol that has been deposited in skin tissues by painlessly and rapidly collecting skin cells from the palm of the hand using a proprietary medical adhesive collection device, which is then sent to a central reference laboratory for processing. Results are then reported to test providers and/or patients a short while later.

This format could ultimately be distributed, to varying degrees, in all of the identified market segments.

##### *Scientific Awareness and Development*

The Company is continually evaluating opportunities to highlight existing, or develop additional scientific support that will build upon the awareness of skin cholesterol as an emerging biomarker for the assessment of CAD risk.

##### *PR Activities/Healthcare Community Education*

The Company has engaged in public relations and educational campaign to enhance the awareness of the science of skin cholesterol as an emerging new biomarker for risk of CAD, and the PreVu® technology designed to measure it. This campaign has been two-pronged, with one focus being the general public, and the other being medical/healthcare community members, including specialists working in areas of cardiovascular and heart health. Public relations and promotional activities are ongoing, however, they tend to be intensified around specific market development landmarks.

#### **Scout DS® Non-Invasive Diabetes Test**

On August 1, 2013, the Company announced that it has closed the acquisition from VeraLight, Inc. ("VeraLight") of all the relevant assets, including intellectual property, licenses and regulatory approvals, inventories, data and marketing materials, relating to the Scout DS® technology, a groundbreaking diabetes screening technology that non-invasively measures changes in a person's skin indicative of prediabetes and type 2 diabetes, enabling cost effective, easily accessible screening of those at risk.

The Scout DS<sup>®</sup>, which in 90 seconds rapidly tests individuals without blood draw or the need to fast, provides immediate results and is indicated for use for the non-invasive screening of individuals 18 years or older that are at risk for pre-diabetes and/or type 2 diabetes.

The Scout DS<sup>®</sup> has received clearance from Health Canada for commercial distribution, has been granted a CE Mark in the European Union, and is also cleared for sale in Mexico. Commercial piloting of the technology has already taken place in Canada, and multiple preliminary distribution channels have also been established or advanced prior to Miraculins involvement with the technology - which Miraculins is reviewing – including in countries that may recognize Health Canada and CE regulatory clearances such as Saudi Arabia, Qatar, the United Arab Emirates, India, Jordan, Brazil, Turkey and Kuwait.

On December 23, 2013, the Company announced that it has filed pre-submission documentation with the USFDA (United States Food and Drug Administration) for its Scout DS<sup>®</sup> System towards securing its ultimate marketing clearance in the United States. The pre-submission documentation filing is the first formal step by Miraculins in establishing a clinical and regulatory plan for the regulatory clearance of the Scout DS<sup>®</sup> in the United States. Based on feedback from this cooperative process with the FDA, Miraculins has developed appropriate study protocols in support of FDA marketing clearance. A Pre-Submission is defined as a formal written request from an applicant for feedback from the FDA to be provided in the manner of a formal response. A Pre-Submission is appropriate when the FDA's feedback on specific questions is necessary to guide product development and/or the application preparation. The Pre-Submission program is intended to allow applicants the opportunity to obtain targeted FDA feedback in response to specific questions related to product development. For more information on the Pre-Submission Program, visit the FDA website at <http://www.fda.gov>.

#### Scout DS<sup>®</sup> Technology and Key Market Highlights

- Diabetes is one of the fastest growing diseases in history, although up to 90% of type 2 diabetes is preventable with early detection and intervention.
- By utilizing visible light to non-invasively measure changes in a person's skin indicative of pre-diabetes and type 2 diabetes (by having a patient place their forearm on a portable, table-top instrument that measures Advanced Glycation End Products in the skin), the Scout DS<sup>®</sup> could find more pre-diabetics faster, easier and more cost-effectively than all alternative world-standard tests including Fasting Plasma Glucose, Oral Glucose Tolerance, Hemoglobin A1C, and Finger Stick Blood Glucose.
- By 2020 it is estimated that 52% of the U.S. population will have pre-diabetes or type 2 diabetes.
- Over 628 million people worldwide have pre-diabetes or type 2 diabetes, which is projected to grow to 912 million by 2030 (a 45% increase); currently 500 million people in the world have undiagnosed pre-diabetes and undiagnosed type 2 diabetes.
- Complications from diabetes can lead to blindness, kidney disease, cardiovascular disease and amputation.
- Loss of activity further exacerbates the cost of diabetes which impacts healthcare systems worldwide by over \$500 billion (US) annually; Atlanta Centers for Disease Control estimate U.S. diabetes costs exceed \$218 billion (US) annually.

Miraculins has re-appointed Pear Healthcare Solutions Inc. ("Pear"), a leading provider of in-pharmacy health screening and education services, as the distributor for the Scout DS<sup>®</sup> to the Canadian retail pharmacy/grocery market. Pear is also the Company's Canadian distributor for the PreVu<sup>®</sup> Non-Invasive Skin Cholesterol Point-of-Care (POC) Test to the same market segment. Prior to Miraculins' acquisition of the Scout DS<sup>®</sup>, Pear was appointed as Canadian distributor for the technology and had successfully established pilots for this ground-breaking, non-invasive diabetes test. These included localized trials with national and regional brand pharmacy/grocery retailers including Zellers, Costco, Rexall, and PharmaSave. In addition, Pear has designed a comprehensive CE Module (Continuing Education) on non-invasive diabetes testing, which has been recognized by the Canadian Pharmacists Association as accredited programming, and has also developed a special preparatory program to ready pharmacists prior to their taking the Certified Diabetes Educator exam. These programs are offered through Pear's Health eLearning initiative and online learning portal, which allows pharmacists to conveniently participate in accredited CEs on such topics as cardiovascular disease, diabetes and osteoporosis. As a result, Pear's commitment to national diabetes education and preventive testing has been significant and unparalleled among service providers to the industry.

A major Canadian supermarket chain, in collaboration with Pear conducted a special pilot of the Scout DS<sup>®</sup> technology as part of a series of pharmacy diabetes clinics to be held at 35 store locations in fall 2013. The fall clinics were conducted to help retail customers learn more about their risk of diabetes, and its effects and complications, along with the best ways to control it through dietary modification, physical activity, ongoing monitoring and other healthcare applications and approaches.

A patient who's Scout DS<sup>®</sup> screening result suggests a likelihood of pre-diabetes or type 2 diabetes should be recommended to see their doctor to have a diagnostic blood test done to make a diagnosis. This programming is a major step forward in the commercialization of the Scout DS<sup>®</sup> in the Canadian retail pharmacy segment. Pilots like this allow pharmacies to introduce this new technology to their customers and to learn how to maximize the in-store potential of this exciting new screening test. After the pilot phase is successfully completed, this lays the groundwork for the potential expansion of the Scout DS<sup>®</sup> across all stores within the chain. Beyond this specific application, Miraculins and Pear are working to establish additional pilots in multiple retail chains with the objective of having the Scout DS<sup>®</sup> available to millions of Canadians in thousands of pharmacies.

Five new Scout DS<sup>®</sup> publications have appeared in peer-reviewed journals since April 2013. These studies include research demonstrating the superiority of the Scout DS<sup>®</sup> system when compared to random capillary glucose in an at-risk population, published in *Diabetes Research and Clinical Practice* in April 2013. Recent Scout DS<sup>®</sup> publications are as follows:

1. Tentolouis N. et al. Screening for HbA1c-defined prediabetes and diabetes in an at-risk Greek population: Performance comparison of random capillary glucose, the ADA diabetes risk test and skin fluorescence spectroscopy. *Diabetes Research and Clinical Practice* 2013: 100(1): 39-45.
2. Cleary PA. et al. Clinical and Technical Factors Associated with Skin Intrinsic Fluorescence in Subjects with Type 1 Diabetes from the DCCT/EDIC Study. *Diabetes Technology and Therapeutics* 2013:15(6): 466-474.
3. Orchard TJ. et al. The Association of Skin-Intrinsic Fluorescence With Type 1 Diabetes Complications in the DCCT/EDIC Study. [Published online ahead of print June 28, 2013 *Diabetes Care*. Doi: 10.2337/dc12-2661.
4. Olson BP. et al. Noninvasive Skin Fluorescence Spectroscopy Is Comparable to Hemoglobin A1c and Fasting Plasma Glucose for Detection of Abnormal Glucose Tolerance. *Journal of Diabetes Science and Technology* 2013: 7(4): 990-1000.
5. Shah S. et al. Advanced glycation endproducts in children with diabetes. [Published online ahead of print August 5, 2013] *Journal of Pediatrics*. Doi: 10.1016/j.peds.2013.06.044.

In addition to these current publications, the clinical and scientific evidence underlying the Scout DS<sup>®</sup> has been developed in a number of clinical studies, across more than 30 clinical sites and over 4,300 patients, involving over 15,000 measurements.

Key clinical evidence for Scout includes:

1. ENGINE trial, a prospective, multi-centre study which was conducted in 2010 on more than 500 patients at 12 clinical sites in the United States. The purpose of the ENGINE trial was a real-world comparison of Scout DS<sup>®</sup> to fasting plasma glucose (FPG) and HbA1c (glycated hemoglobin) for diabetes screening, and using a 2-hour oral glucose tolerance test (OGTT) as the reference standard. FPG and HbA1c are common laboratory based diabetes tests. The study concluded that Scout DS<sup>®</sup> detection of abnormal glucose tolerance was equivalent to FPG and HbA1c at false positive rates that are appropriate for screening, and furthermore the sensitivity of Scout DS<sup>®</sup> was higher than that of FPG and HbA1c at their common diabetes screening thresholds.
2. POSSE trial, a 2012 comparison of Scout DS<sup>®</sup> against random capillary glucose (RCG) in a workplace screening model of more than 650 individuals in a four day period. The trial was conducted in collaboration with Blue Cross/Blue Shield of Louisiana using HbA1c as the reference standard. The study concluded that Scout DS<sup>®</sup> was more accurate than RCG in this setting.
3. NSEEDS trial, a 2010/2011, multi-centre comparison of Scout DS<sup>®</sup> against FPG and Hba1c with 2-hour OGTT as the reference standard. In addition to demonstrating equivalence or superiority to existing methods, the study demonstrated reproducibility of the Scout DS<sup>®</sup> and showed that the coefficient of variation (CV) of the Scout DS<sup>®</sup> was equivalent to FPG.

4. GREECE trial, a 2011/2012, comparison of Scout DS<sup>®</sup> against random capillary glucose (RCG) and the American Diabetes Association diabetes risk test (ADADRT) with a 2-hour OGTT as the reference standard. The study demonstrated that the Scout DS<sup>®</sup> was superior to RCG and ADADRT for detection of diabetes and pre-diabetes.

5. TCOYD trial, a 2010/2011, assessment of Scout DS<sup>®</sup> as an accurate tool for identifying individuals with previously diagnosed type 2 diabetes. The study demonstrated the Scout DS<sup>®</sup> ability to correctly identify 93.7% of previously identified diabetic individuals.

Additionally, the Company announced a term sheet with Cachet Pharmaceutical Co. Ltd. ("Cachet"), a 4 Billion RMB market cap (\$654 Million USD) wholesale/retail drug distribution and medical device distributor, with over 2.5 Billion RMB (\$408 Million USD) in annual sales. Cachet is majority state-owned and listed on the Shenzhen Stock Exchange (stock name: Cachet; stock code: 002462).

The Term Sheet establishes the principal terms and conditions of the proposed appointment of Cachet as the exclusive Chinese distributor for the Scout DS<sup>®</sup>, including device unit pricing, upfront and milestone payments, product ordering and diligence requirements, and ongoing responsibilities of the parties. Specifically, the Term Sheet provides that Miraculins would receive up to \$500,000 USD in upfront and milestone payments, staged between signing the distribution agreement (the "Agreement") and the successful conclusion of the China Food and Drug Administration ("CFDA") regulatory clearance process. In addition, Cachet would place a first order for Scout DS<sup>®</sup> devices valued at \$15 million USD on signing of the Agreement, which would be supported by the issuance of a proper banking guarantee and activated upon CFDA regulatory clearance.

The term of the Agreement would extend for five years from the date of CFDA clearance, subject to minimum annual order quantities by Cachet. If minimum orders were met, this would represent an additional order value of \$75 million USD in Scout DS<sup>®</sup> device orders over the length of the term. Miraculins would be responsible for leading the CFDA clearance process and its related costs. Cachet would provide guidance and support for the process as necessary (*see Corporate History: Scout DS<sup>®</sup> Acquisition Highlights for further information*).

Upon clearance of the Scout DS<sup>®</sup> in China, Cachet would be responsible for all sales and marketing costs. Miraculins would provide sales and marketing guidance and support as required, and would provide a limited number of not-for-sale devices to Cachet for use in market development activities. Miraculins would retain the right to establish programs for ongoing device servicing and maintenance once the Scout DS<sup>®</sup> devices are sold into the field.

The Term Sheet provides Cachet with an exclusive period of ninety days within which to finalize definitive documentation for the Agreement. The completion of the definitive documentation and the execution of the Agreement remain subject to all necessary contractual, regulatory and corporate approvals of both Miraculins and Cachet and the completion of satisfactory due diligence. The Term Sheet provisions are not legally binding except for provisions regarding exclusivity, confidentiality and governing law. It is anticipated that definitive documentation will be completed within 90 days. There is, however, no assurance that the parties will enter into definitive documentation or execute the Agreement contemplated by the Term Sheet.

On November 19, 2013, the Company announced its plans for the Scout DS<sup>®</sup> non-invasive diabetes screening technology for the upcoming fiscal year, which will include U.S. regulatory activity and expected sales expansion within Canadian pharmacy and employee health screening markets.

In the short period since the acquisition of the Scout DS<sup>®</sup> technology closed, the Company has significantly advanced various initiatives to maintain and build Scout DS<sup>®</sup> market momentum, including:

- Maintaining ISO:13485 and ISO:9001 certification of the Scout DS<sup>®</sup> manufacturing facility in New Mexico, by successfully passing an ISO audit;
- Enabling new scientific research studies, with third party collaboration, exploring the potential for new market segments and test utility expansion;
- Re-appointing Pear Healthcare Solutions as the distributor of the Scout DS<sup>®</sup> to the Canadian Pharmacy segment;
- Facilitating placement of the Scout DS<sup>®</sup> into a major Canadian retail/food pharmacy chain pilot program;
- Entering into a Term Sheet for the licensing rights for the Scout DSV in China;
- Evaluating previous international Scout DS<sup>®</sup> distributors to identify opportunities for reappointment; and

- Filing pre-submission documentation with the USFDA towards determining a pathway for the clearance of Scout DS® to be sold in the U.S.

The Company's primary business model is to sell Scout DS® devices to established distributors in key market segments, which will then subsequently be rented or leased to their network of customers on a weekly, monthly or annual basis. These customers will utilize the devices to offer diabetes testing to the general public (the end user). The Company's revenues will be generated from the initial sale of the devices to the distributors, and from charging them a percentage of the rental or leasing revenue garnered from their customers, and possibly device servicing as well. Use of the Scout DS® device requires the additional purchase of proprietary consumable cleaning materials that will generate moderate additional revenue per test. Further revenues may be generated through territorial licensing, or through marketing partnerships with corporate brand partners who have an interest in further linking their brands and products with health and wellness and the convenient screening of prediabetics or type 2 diabetics, and may involve the payment of upfront, milestone and maintenance fees.

#### Primary Sales & Distribution Channels

The Company has identified two leading market segments for the Scout DS®, and is actively working to develop these markets in Canada, namely:

- Retail Pharmacy Settings - offering ongoing diabetes clinics to the public.
- Health and Wellness/Employee Screening – partnering with established service providers conducting employee screening and workplace wellness initiatives.

#### Retail Pharmacy Settings

Individuals are increasingly interacting with healthcare professionals in settings outside of the physician's office. This includes accessing personal health, disease risk and screening information in settings such as retail pharmacies or large grocery stores with in-store pharmacy operations. As diabetes is not only a leading contributor to morbidity and mortality, but also largely preventable through early detection and intervention, the Company expects to see growing demand for the non-invasive, rapid testing offered by the Scout DS® device within retail pharmacy screening settings.

The process of selling and marketing new health screening technology to this segment generally begins with pilot screenings, where the pharmacy can offer the technology through a limited number of its stores to gauge both customer and staff feedback and to refine operational issues, promotional techniques and community awareness programming. Once a pilot is complete, the potential of chain-wide or national expansion presents. However, buying cycles for the pilots and for the subsequent decision to expand the program throughout a given chain can be subject to extended review and consideration.

Initial pilot feedback – although limited at this stage - has shown positive consumer response to the PreVu® test and support for the technology by pharmacy teams. The Company anticipates that challenges for Scout DS® in retail pharmacy settings will be comparable to those being experienced with the PreVu® offering.

Retail pharmacy culture has traditionally offered risk assessment and prevention programs such as PreVu® and Scout DS® testing on an occasional and rotating basis, including those programs dealing with weight loss, smoking cessation and osteoporosis, among others, which often follow the calendar (i.e. February in Canada is traditionally seen as "Heart Health Month" and November is traditionally seen as "Diabetes Awareness Month"). Such a retail culture may limit Scout DS® testing as well to a rotating and cyclical schedule in retail stores and as a result, the Company has been additionally focused on developing an offering for pharmacies that would also see turn-key Scout DS® diabetes testing kiosks set up within the pharmacy and operated by dietitians or other such health professionals, under the control and direction of the Company. Such offerings may make it easier for pharmacies to offer Scout DS® diabetes testing to customers on a more regular and sustained basis, and also increase the profile of the test within the store with the presence of a highly visible and branded kiosk station.

#### Health and Wellness/Employee Screening

Generally defined as employer sponsored or endorsed activities aimed at improving health related behaviours, employee screening can include policies, education, coaching, on-site fitness facilities, and importantly as it pertains to Scout DS<sup>®</sup>, medical screenings. Although, a focus on workplace wellness can lead to increased productivity through more satisfied and motivated employees, these programs are also increasingly being recognized for their economic impact through the reduction of absenteeism, disability and healthcare claims associated with diseases such as diabetes. Wellness initiatives are estimated to save an employer an average of \$394 per employee per year, while costing an average of \$159 per employee per year, resulting in a significant return.

Of note, people with diabetes incur medical costs that are two to three times higher than those without diabetes and a person with diabetes can face direct costs for medication and supplies ranging from \$1,000 to \$15,000 a year. There is an expectation on the part of the Company that the painless, rapid and non-invasive features of the Scout DS<sup>®</sup> device will be seen as significantly advantageous within an employee screening setting. Both employers and corporate insurance companies have an interest in reducing the economic impact of declining health status on health insurance premiums and payouts, and are therefore key target customers within this segment.

There are a significant number of well-established distributors that provide a variety of employee screening services to large employers (generally considered to have more than 500 employees). The Company will look to identify and establish relationships with these distributors.

Prior to its acquisition by the Company, the Scout DS<sup>®</sup> was demonstrated to a number of large Canadian employers. In addition to identifying possible distribution partners, the Company plans on following up with these employers and establishing them as early adopters within this segment.

#### Additional Key Initiatives and Activities

In addition to pursuing opportunities within retail pharmacy and employee health screening segments in Canada, the Company will be simultaneously advancing an additional series of initiatives, including:

##### *FDA Clearance*

Miraculins filed a pre-submission with the FDA on December 23, 2013 to determine a regulatory pathway so the Scout DS<sup>®</sup> can be marketed within the United States. It is believed that there are more than 25 million diabetics in the U.S., with roughly 7 million diabetics undiagnosed. In addition, there are an estimated 79 million pre-diabetics in the U.S., many of which are unaware of their status. Based on the dramatic impact of diabetes on the American public and the country's healthcare system, the U.S. would be expected to be a robust geographical market for Scout DS<sup>®</sup>, with well established sales and distribution channels existing in the market segments the Company has already identified for the device in Canada.

##### *Territorial Licensing*

As diabetes is a global epidemic, the Scout DS<sup>®</sup> technology holds tremendous promise in territories around the world. In certain markets, based on a number of factors, technology licensing is favoured as compared to establishing a distribution partnership structure. Miraculins is evaluating the potential of these markets, and recently announced a Term Sheet to negotiate a licensing agreement for the rights to the Scout DS<sup>®</sup> technology in China.

##### *Evaluating Previous Distributors*

The Scout DS<sup>®</sup> is currently cleared for use in Canada, Mexico and the European Union and has registrations in India, Saudi Arabia, Kuwait, Bahrain, Qatar, and Turkey. Prior to Miraculins acquisition of the technology, a number of distributors had been engaged to various degrees in these markets. The Company is actively evaluating a number of these markets and distributor relationships to determine if there is a collective strategic fit for renewed representation.



#### *Establishment of a Scout DS<sup>®</sup> Medical Advisory Board*

The Company is planning to establish a formal Medical Advisory Board for Scout, incorporating scientific and medical leaders in diabetes and related areas. The purpose of a Medical Advisory Board is to advise the Company on approaches to promoting an understanding of Scout DS<sup>®</sup> and non-invasive diabetes screening, provide recommendations for the scientific and research goals of the technology and help with the overall awareness of the new technology within the medical community itself.

#### *Scientific Awareness and New Research Opportunities*

The Company is continually evaluating opportunities to build additional scientific awareness and support of Scout DS<sup>®</sup> as a non-invasive diabetes screening technology, by highlighting existing study data and by commissioning new research opportunities.

#### *Outsourcing Manufacturing*

The Company is in the process of transitioning manufacturing of the Scout DS<sup>®</sup> device from a Company manufacturing facility in New Mexico, to a contract manufacturing partner. Production with the selected manufacturing partner is expected to begin in the second quarter.

#### *PR Activities and Healthcare Community Education*

Miraculins is reviewing prior public relations efforts, as well as healthcare education and awareness materials and initiatives related to the Scout DS<sup>®</sup> while considering new opportunities to enhance awareness of Scout DS<sup>®</sup> and non-invasive diabetes screening within the general public and healthcare community. Such new opportunities will be ongoing, but will tend to be intensified around specific market development initiatives and milestones.

#### **Preeclampsia/Endoglin**

Preeclampsia is a devastating condition affecting pregnant women that manifests abruptly and results in 15% of all premature births. In the most severe cases, it can result in seizure, stroke, coma, or death. The incidence rate is 7 – 10% of all pregnant women and has an estimated \$7 billion impact on the US healthcare system annually. Currently, the sole diagnosis for preeclampsia is by its symptoms; high blood pressure and significant amounts of protein in the urine, which are non-specific to the disease. Currently, preeclampsia affects three million mothers worldwide every year and is associated with premature births and infant illness including cerebral palsy, blindness, epilepsy, deafness and lung conditions. There is no effective detection method for the risk of preeclampsia and the cause is unknown. The potential target market for a preeclampsia test is every expectant mother, estimated to be 6 million women annually in the US alone, and greater than 12 million worldwide.

Miraculins' preeclampsia technology is based on a suite of novel protein biomarkers, in-licensed from Mount Sinai Hospital, involved in the development of the placenta and the biology implicated in the development of preeclampsia. The technology was discovered through pioneering research conducted by Dr. Isabella Caniggia and her collaborators at the Samuel Lunenfeld Research Institute of Mount Sinai Hospital, and the Hospital for Sick Children.

One of the promising biomarkers in the portfolio acquired by Miraculins is a cell surface glycoprotein known as Endoglin, which has been widely studied in the independent literature, including a major study published in the New England Journal of Medicine entitled "Soluble Endoglin and Other Circulating Anti Angiogenic Factors in Preeclampsia". Under the direction of independent experts from institutions across the United States, the paper reports that Endoglin levels change during gestation and that it can play a role in identifying the patients at highest risk of preeclampsia. Subsequent studies have continued to report on the strong utility of Endoglin and its role in detecting preeclampsia.

# MIRACULINS INC.

## Management's Discussion and Analysis

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Miraculins has historically advanced the markers subject to a Collaborative Research and Option Agreement with Alere, Inc. ("Alere"), one of the world's largest diagnostic companies. The collaborative program concluded in January 2013 with Alere retaining development rights for the Endoglin marker. On January 30, 2014, the Company announced that Alere had elected not to proceed further in the direct commercial development of a professional diagnostic product for the biomarker Endoglin, but instead will support Miraculins in seeking commercialization opportunities for Endoglin.

There is a growing body of scientific research, including multiple research and clinical studies conducted by Alere, confirming that Endoglin contributes to the pathogenesis of preeclampsia. As the Lab Developed Test ("LDT") route now presents the greatest potential near-term commercialization pathway for Endoglin, Miraculins is evaluating plans to focus on advancing discussions with potential partners who have expertise and capabilities in this space, with full support from Alere. LDTs are *in vitro* diagnostic tests that are developed, validated and used for in-house pathology and diagnostic purposes. Tests can either be marketed as a kit through the FDA's risk-based review process, or they can be sold to the market as a testing service under LDT definition, with the lab falling under Clinical Laboratory Improvement Amendments (CLIA) regulation. The LDT pathway can be a much quicker way to introduce a test to the market.

### **Cancer Programs**

Prior to 2008, Miraculins' primary focus was research and development with the goal of discovering novel biomarkers for cancer. During this period a series of early stage biomarker discovery programs were established. In order to effectively manage its financial and other resources, the Company is currently focused on its cardiovascular, diabetes and preeclampsia programs and research and development for these cancer programs has been on hold since 2008. The Company cancelled its research programs surrounding pancreatic and gastric cancer during 2012. The Company had previously developed an immunoassay for PSP94 in urine and had intellectual property on PSP94's use in combination with other markers for detecting prostate cancer. The immunoassay for PSP94 is no longer being supported by Miraculins. The Company has been continually reviewing anticipated costs required to advance the remaining early stage programs. In considering alternatives, the Company evaluates the potential for these programs, the intellectual property, the stage of the research, the likelihood of success and the potential for an acceptable return on investment. Alternatives for the remaining cancer programs, which include colorectal and prostate cancer biomarkers, include seeking an out-licensing partner, advancing the research independently, or canceling the program.

### **New Program Opportunities**

Miraculins is continually evaluating in license/acquisition opportunities in areas where there are unmet clinical diagnostic and risk assessment needs. Diagnostic technologies of greatest interest to the Company have completed discovery stage research and biomarker identification but require additional expertise and resources to be developed into validated commercially viable assays or achieve their commercial potential.

### **OUTLOOK**

The strategic direction of the Company is centred on the acquisition, development and commercialization of diagnostic and risk assessment technologies for unmet clinical needs. In order to advance these research and development programs, Miraculins expects to continue incurring operating losses. Based on current projections and strategic plans, management expects expenses will increase in fiscal 2014, as compared to fiscal 2013. Any increase in expenditures would result from the continued development and commercialization of current technology programs and the potential addition of complementary technologies. The Company began a pilot introduction of the PreVu<sup>®</sup> through Canadian pharmacies in 2013 which has generated nominal revenues commencing in the first quarter of 2013. The PreVu<sup>®</sup> technology has been piloted in H.E.B. pharmacies in the United States. The Company's Scout DS<sup>®</sup> technology was piloted in a Canadian pharmacy chain in the fourth quarter of fiscal 2013.

# MIRACULINS INC.

## Management's Discussion and Analysis

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The Company's financial statements have been prepared on a going concern basis in accordance with IFRS. The going concern basis of presentation assumes that the Company will continue in operation for the foreseeable future and will be able to realize its assets and discharge its liabilities and commitments in the normal course of business. There is substantial doubt about the Company's ability to continue as a going concern as the Company has experienced operating losses and cash outflows from operations since incorporation and has accumulated a deficit of \$17,325,815 as at November 30, 2013 and a working capital deficiency of \$1,848,452.

Management has forecast that its expected expenditure levels and contracted commitments will exceed the Company's net cash flows and working capital early in fiscal 2014 unless further financing is obtained. Subsequent to November 30, 2013, the Company arranged an additional non-convertible secured loan of up to \$1,000,000 from a third party lender, which provides the Company with additional funding as tranches are approved, as further described in note 10. Additional sources of funding will be required during fiscal 2014 to carry on operations and repay debt, now due in October of 2014. The Company's future operations including the completion of the launch of its products are dependent upon its ability to secure additional funds, generate product sales, negotiate collaboration or license agreements with upfront payments, and/or obtain research grant funding. While the Company is striving to achieve these plans, there is no assurance that these and other strategies will be achieved or such sources of funds will be available or obtained on favourable terms or obtained at all. Historically, the Company has obtained funding via the issuance of shares and warrants and long-term debt. If the Company cannot secure additional financing on terms that would be acceptable to it, generate product sales, negotiate collaboration or license agreements with upfront payments, and/or obtain research grant funding, the Company will have to consider additional strategic alternatives which may include, among other strategies, cost curtailments, delays of product launch expenditures, exploring the monetization of certain intangible assets, as well as seeking to outlicense and/or divest assets or a merger, sale or liquidation of the Company. Any divestiture of assets would be subject to the satisfaction of obligations under the security interests described in note 4 and note 10 of the Company's financial statements.

The ability of the Company to continue as a going concern and to realize the carrying value of its assets and discharge its liabilities and commitments when due is dependent on many factors, including, but not limited to the successful completion of the actions taken or planned, some of which are described above, which are intended to mitigate the adverse conditions and events which raise doubt about the validity of the going concern assumption used in preparing these financial statements. There can be no assurance that the Company will be able to obtain sufficient financing to meet future operational needs or that the above described and other strategies will be sufficient to permit the Company to continue as a going concern.

The Company's financial statements do not reflect adjustments that would be necessary if the going concern assumption were not appropriate. If the going concern basis was not appropriate for these financial statements, then adjustments would be necessary to the carrying value of assets and liabilities, the reported revenues and expenses, and the statement of financial position classifications used.

Based on management's current estimates and expected operating activities, management estimates that sufficient financial resources exist to fund operations into the second quarter of fiscal 2014.

The Company may decide to accelerate, terminate or reduce its focus in certain research areas, or commence research in new areas as a result of the Company's research progress and the availability of financial resources. The Company may also look to purchase new technologies in order to expand its suite of products. These decisions are made with the goals of managing the Company's cash resources and optimizing the Company's opportunities. The availability of funding may change management's strategy over the coming year.

### **RISKS AND UNCERTAINTY**

The Company operates in a highly competitive environment that involves significant risks and uncertainties, some of which are outside of the Company's control, which could have a material adverse effect upon the Company, its business and future prospects. Investors should carefully consider the risks and uncertainties described below, as well as other information contained in this MD&A. The risks and uncertainties described below are not exhaustive. There may be risks and uncertainties not presently known to the Company or that the Company believes to be immaterial which could adversely affect the Company and its business in the future.

**Risks Related to the Company's Financial Condition**

- The Company has mainly relied on equity and debt financing and grant funding to support operations and will continue to need significant amounts of additional capital. The Company intends to raise additional financing, as required, through research, partnering and licensing arrangements, the exercise of warrants and options, and through equity and/or debt financing. However, there can be no assurance that these financing efforts will be successful or that the Company will continue to be able to meet ongoing cash requirements. It is possible that financing will not be available or, if available, may not be on favourable terms. The Company may fail to obtain additional financing and be unable to fund operations and commercialize its product candidates. The availability of financing will be affected by the results of scientific and clinical research, the Company's ability to attain regulatory approvals, the market acceptance of the Company's products, the state of the capital markets generally (with particular reference to pharmaceutical, biotechnology and medical companies), the status of strategic alliance agreements, and other relevant commercial considerations. Any future equity financing could result in significant dilution to existing shareholders.
- The Company has begun to earn revenue in 2013 through its commercial roll-out of the PreVu® and Scout DS® technologies but, in light of the length of time and expense associated with bringing new products through commercialization, obtaining regulatory approval and bringing products to market, operating losses are expected to continue unless and until the Company is able to generate sufficient revenues from the commercial sale or lease of its diagnostic products.
- The Company must meet its debt repayment obligations and failure to do so could cause the lender to demand on its security on the Company's long-term debt. There can be no assurance that the Company will continue to meet its debt repayment obligations.

**Risks Related to the Company's Business and Operations**

- The Company is in various stages of development of diagnostic and risk assessment products and, as a result, is unable to predict whether it will be able to profitably commercialize its products. There can be no assurance that the Company will be able to commercialize its products.
- Failure to protect intellectual property, or infringement on the intellectual property rights of others, may impede the Company's ability to operate freely. There can be no assurance that the Company's intellectual property rights will not be challenged by third parties, that the Company will receive patents it seeks, or that the Company will receive any necessary licenses. The Company could incur substantial costs in enforcing its intellectual property rights or defending its intellectual property rights against claims brought by others. Miraculins views patents and other means of intellectual property protection as essential to the Company's core business by protecting the Company's proprietary technology from infringement by competitors. To that end, patents will be reviewed and continued to be sought in relation to those components or concepts of each of its pre-clinical and clinical diagnostic products by management of the Company to ensure the highest level of protection possible given the Company's financial position is obtained. The Company requires all employees, consultants, and parties to collaborative research agreements to execute confidentiality agreements upon the commencement of employment, consulting relationships or a collaboration with the Company. These agreements require that all confidential information developed or made known during the course of the engagement with Miraculins is to be kept confidential. The Company also maintains agreements with scientific staff and all parties contracted in a scientific capacity, providing that all inventions resulting from work performed for Miraculins, using Miraculins' property, or relating to Miraculins' business and conceived or completed during the period covered by the agreement are the exclusive property of the Company. Despite these practices, there can be no assurance that the Company will be able to successfully protect its intellectual property rights.
- The Company's business is subject to significant government regulation and failure to achieve and maintain regulatory approval of diagnostic products would negatively affect its business. The process for obtaining such approval, including clinical trials, varies by country and type of product, and the process can be time consuming and costly.

- The Company is dependent on strategic partners, including clinical investigators and contract research organizations, as part of its diagnostic product development strategy, and it would be negatively affected if it is not able to initiate or maintain these relationships. Furthermore, a failure of any of these strategic partners to perform their obligations or to continue in the partnership could delay or halt the development strategy. There can be no assurance that these strategic partners will not pursue other technologies or develop alternative products competing with those of the Company.
- The Company may be dependent on others for the manufacture, development and sale of its products. If the Company is unable to establish or manage collaborations in the future, or if the Company encounters difficulties with these collaborations, there could be a delay in the manufacture, development and sale of products.
- Even if product candidates receive all of the required regulatory approvals, there is no guarantee of market acceptance or commercialization of the resulting product candidates, which will be determined by the Company's sales, marketing and distribution capabilities and the positioning and competitiveness of its diagnostic products compared with any alternatives.
- The Company's ability to successfully market certain diagnostic products may depend in part on the extent to which reimbursement for the cost of such products will be available from government health administration authorities, private health insurers and other organizations. Significant uncertainty exists as to whether newly approved healthcare products will qualify for reimbursement, or the timing by which such reimbursement can be secured. Furthermore, challenges to the price of medical products and services are becoming more frequent. There can be no assurance that adequate third-party coverage will be available to establish price levels, which would allow the Company to realize an acceptable return on its investment in product development. Although non-reimbursed, user-pay models may be available to the Company, uncertainty exists to the degree to which lack of available reimbursement by government health administration authorities, private health insurers and other organizations could limit market adoption of the Company's products. Reimbursement issues and decisions vary country by country as to procedure and time for review and/or reimbursement approval.
- The Company's industry is characterized by intense competition and rapid change and a failure by the Company to react to such competition and change could have a material adverse effect on its business. Competitors may develop products that are more effective and less costly than those developed by the Company. There can be no assurance that developments by others will not cause the Company's products to become non-competitive.
- The Company may conduct development internationally and may be subject to laws and regulations of several countries which may affect the Company's ability to access regulatory agencies and may affect the enforceability and value of the Company's licenses and intellectual property.
- The testing and commercial use of diagnostic products involves exposure to product liability claims. Although the Company maintains liability insurance for certain claims, there is no assurance that such coverage will provide protection against all risks, or that such insurance will continue to be available on terms which would be acceptable to the Company. If a product liability claim was brought against the Company, it could have a material adverse effect on the Company and its financial condition.
- The Company is dependent on certain members of its management and scientific staff. If the Company fails to retain this staff, or to hire qualified key personnel, the implementation of the Company's business plan could slow and the Company may be unable to successfully develop and commercialize products.

**Risks Relating to the Company's Common Shares**

- The Company has not paid any cash dividends on its common shares and, for the foreseeable future, the Company does not intend to pay any cash dividends on its common shares and therefore its shareholders may not be able to receive a return on their shares unless they sell them. The policy of the Board of Directors of the Company is to retain all available funds in operations. The Board of Directors may reassess this policy from time to time. Any decision to pay dividends on the common shares of Miraculins will be made by the Board of Directors based on the assessment of, among other factors, earnings, capital requirements and the operating and financial condition of the Company.

# MIRACULINS INC.

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- The market price and trading volume of the Company's common shares have been volatile, and may continue to be volatile in the future. Variations in earnings estimates by securities analysts and the market prices of the securities of competitors may also lead to fluctuations in the trading price of the common shares. In addition, the financial markets may experience significant price and volume fluctuations that affect the market price of the Company's common shares that are not related to the Company's operating performance. Broad market fluctuation and economic conditions generally, and in the medical device sector specifically, may adversely affect the market price of the Company's common shares.
- The significant costs that the Company will incur as a result of being a public company in Canada could adversely affect its business.

### SELECTED QUARTERLY FINANCIAL INFORMATION

The selected financial information, presented under IFRS, provided in the table below is derived from the unaudited quarterly financial statements for each of the last eight quarters (in \$'s):

	Q4 - 2013	Q3 - 2013	Q2 - 2013	Q1 - 2013	Q4 - 2012	Q3 - 2012	Q2 - 2012	Q1 - 2012
Product sales	19,667	-	-	31,520	-	-	-	-
License fee income	-	-	-	24,990	-	-	-	-
Collaborative research and option fee income	-	-	-	11,655	25,253	31,372	38,640	31,575
Cost of goods sold	-	-	-	13,806	-	-	-	-
Selling, general and administration expenses	855,481	881,377	648,003	555,162	487,320	409,276	555,910	374,158
Research and development expenses	22,549	21,490	21,046	75,015	242,326	191,929	128,138	133,013
Loss for the period	(1,107,311)	(985,059)	(747,380)	(660,532)	(797,329)	(639,141)	(713,000)	(548,258)
Loss per share	(0.10)	(0.09)	(0.07)	(0.07)	(0.09)	(0.07)	(0.09)	(0.08)

It is important to note that historical patterns of expenditures cannot be taken as an indication of future expenditures. The amount and timing of expenditures, and therefore liquidity and capital resources, may vary substantially from period to period depending on the business and research activities being undertaken at any one time and the availability of funding from investors and prospective commercial partners.

The Company's cumulative quarterly losses over the past two years relate to the expansion of the Company's technology programs culminating in the commercialization of the PreVu® Non-Invasive Skin Cholesterol Test ("PreVu"). The increasing losses relate to costs associated with the move towards commercialization of PreVu®. Additionally, the loss in the third quarter of fiscal 2013 relates to costs associated with the acquisition of the Scout DS® technology, which occurred during the third quarter of 2013 and the loss in the fourth quarter of fiscal 2013 relate to costs associated with the commercialization of the Scout DS®.



## RESULTS OF OPERATIONS

### Revenues

The change in revenues for the years ended November 30, 2013 and 2012 is reflected in the following table:

<b>Years ended</b>	<b>November, 30 2013</b>	<b>November 30, 2012</b>	<b>Increase (Decrease)</b>
Product sales	\$ 51,187	\$ -	\$ 51,187
License fees	\$ 24,990	\$ -	\$ 24,990
Collaborative research and option fee income	\$ 11,655	\$ 126,840	\$ (115,185)

The increase in product sales for the year ended November 30, 2013 is the result of PreVu<sup>®</sup> being sold commercially through the Company's launch with London Drugs in western Canada and PharmaChoice in Ontario and the Atlantic provinces in the first quarter of 2013 and revenues associated with the pilot launch of the Scout DS<sup>®</sup> during the fourth quarter of 2013.

The Company is currently involved in piloting the PreVu<sup>®</sup> POC Test and the Scout DS<sup>®</sup> in various market segments through third party distribution partners. Miraculins' business model is to establish distribution partners that will be responsible for selling and servicing these market segments. Buying cycles for end users can often be long and protracted. As a result, during this market introduction period, the Company anticipates that there may be periods of limited revenue which have been accounted for with the Company's planned financing activities.

The increase in license fees for the year ended November 30, 2013 is the result of Alere having exercised its exclusive option and licensed the novel biomarker Endoglin from the Company, concluding a three-year Collaborative Research and Option Agreement program. On January 30, 2014, the Company announced that Alere Inc. ("Alere") had elected not to proceed further in the direct commercial development of a professional diagnostic product for the biomarker Endoglin, but instead will support Miraculins in seeking commercialization opportunities for Endoglin by supplying key antibodies that were developed by Alere. As part of this decision, Alere has declined to proceed further with its Endoglin license from Miraculins and the parties have agreed to work to enhance Miraculins' rights to receive a secure supply of high quality, proprietary Endoglin reagents manufactured by Alere.

The decrease in collaborative research and option fee income for the year ended November 30, 2013 as compared to the similar period in 2012 is the result of Alere licensing Endoglin from the Company. As a result, there are no longer any collaborative research and option fees being collected by the Company

The Company expects limited amounts of product sales for the 2014 fiscal year. No license fees are expected to be received during the 2014 fiscal year.

### Cost of Goods Sold

Cost of goods sold represents direct product costs associated with PreVu<sup>®</sup>.

The change in cost of goods sold for the years ended November 30, 2013 and 2012 are reflected in the following table:

<b>Years ended</b>	<b>November 30, 2013</b>	<b>November 30, 2012</b>	<b>Increase (Decrease)</b>
Cost of goods sold	\$ 13,806	\$ -	\$ 13,806

The increase in cost of goods sold is a result of the cost of the PreVu® product that was sold in the first quarter of 2013.

The Company expects limited amounts of cost of goods sold for the 2014 fiscal year corresponding with product sales.

**Selling, General and Administration**

Selling, general and administration expenses include those costs not directly related to research and development activities. This includes expenses associated with management services, and professional fees such as legal, audit and investor and public relations activities. Beginning in the first quarter of 2013 and commencing with the commercial launch and rollout of the PreVu® technology, costs associated with PreVu® are included within selling, general and administration expenses. Beginning in the third quarter of 2013 and commencing with the acquisition of the Scout DS® technology, costs associated with the Scout DS® are included within selling, general and administration expenses.

The changes in selling, general and administration expenditures, including stock-based compensation, for the years ended November 30, 2013 and 2012 are reflected in the following table:

<b>Years ended</b>	<b>November 30, 2013</b>	<b>November 30, 2012</b>	<b>Increase (Decrease)</b>
PreVu® Non-Invasive Cholesterol test costs	\$ 577,935	\$ -	\$ 577,935
Amortization of PreVu intangible assets	176,059	-	176,059
less: Government assistance	(51,734)	-	(51,734)
	702,260	-	702,260
Scout DS® technology costs	232,981	-	232,981
Compensation related costs			
Wages, consulting fees, and benefits	918,479	804,960	113,519
Stock compensation related costs	159,258	323,646	(164,388)
Other administration costs	927,045	698,058	228,987
<b>Total selling, general and administration</b>	<b>\$ 2,940,023</b>	<b>\$ 1,826,664</b>	<b>\$ 1,113,359</b>

The increase in costs for the year ended November 30, 2013 as compared to the year ended November 30, 2012 can be attributed to the following factors:

- The increase in PreVu® test costs is a result of these costs being included in research and development in the prior period as the technology was not commercialized. With the commercialization and rollout of PreVu® occurring during fiscal 2013, these costs, together with the requirement to begin to amortize the acquired intellectual property related to the PreVu® technology, are included in selling, general and administration.
- Government assistance relating to the PreVu® program is a result of the Company receiving a grant from the Province of Manitoba through the Manitoba Commercialization Support for Business (CSB) Program to a maximum of \$130,000 to support the PreVu® Non-Invasive Cholesterol Test. During the year ended November 30, 2013, \$62,433 was recognized under the CSB program. \$51,734 was recorded as a reduction of the related expenditures within selling, general and administration expenses and the remaining \$10,699 was recorded as a reduction to intangible assets.

# MIRACULINS INC.

## Management's Discussion and Analysis



- The increase in Scout DS® technology costs is a result of the technology being acquired on July 31, 2013 and costs primarily include consulting, regulatory expenses and rental costs.
- The increase in wages, consulting fees, and benefits is primarily related to salary increases and the Company hiring additional employees.
- The increase in other administration costs is primarily related to increased professional fees primarily in due diligence costs associated with the Scout acquisition, investor relations and communications and legal fees.

Partially offset by:

- The decrease in stock compensation related costs is due to lower values associated with the stock options granted to certain of the Company's management, directors, employees and consultants during the year ended November 30, 2013 as compared to the year ended November 30, 2012. This resulted in the compensation related to stock option grants being significantly higher in the prior period.

The Company expects higher levels of selling, general and administration expenditures for the 2014 fiscal year.

### Research and development

Research and development expenditures include costs associated with the Company's research and development programs. During the year ended November 30, 2012, the significant portion of these costs are development activities related to the commercialization of the PreVu® technology. During the year ended November 30, 2013, PreVu® was commercialized and costs associated with PreVu® are included in selling, general and administration expenses for this period.

The change in costs for the year ended November 30, 2013 as compared to the year ended November 30, 2012 can be attributed to the following factors:

<b>Years ended</b>	<b>November 30, 2013</b>	<b>November 30, 2012</b>	<b>Increase (decrease)</b>
PreVu® Non-Invasive Cholesterol test	\$ -	\$ 627,196	\$ (627,196)
less: Government assistance	-	(87,509)	(87,509)
		539,687	(539,687)
<b>Other Research and Development Activities</b>			
Compensation related costs	50,000	50,000	-
Laboratory rent and occupancy costs	-	20,829	(20,829)
Contract research and scientific consulting	-	500	(500)
Consumables	344	1,418	(1,074)
Other research costs	74,131	31,174	42,957
Amortization	15,625	30,327	(14,702)
Write-offs of intangible assets	-	21,471	(21,471)
less: Government assistance	-	-	-
	140,100	155,719	(15,619)
<b>Total research and development</b>	<b>\$ 140,100</b>	<b>\$ 695,406</b>	<b>\$ (555,306)</b>

The overall decrease in costs for the year ended November 30, 2013 as compared to the year ended November 30, 2012 can be attributed to the following factors:

- The decrease in PreVu® costs is a result of these costs being included in research and development in the prior period as the technology was not commercialized. With the commercialization and rollout of PreVu® occurring during fiscal 2013, these costs were included in selling, general and administration.

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- Government assistance relating to the PreVu<sup>®</sup> program during the year ended November 30, 2012 is a result of the Company receiving a grant from the Province of Manitoba through the Manitoba Technology Commercialization Program (TCP) to a maximum of \$100,000 to support the PreVu<sup>®</sup> Non-Invasive Cholesterol Test. During the year ended November 30, 2012, \$19,942 was recognized under the TCP program. The program provided funding to cover up to 50% of eligible costs including legal fees, patenting, marketing studies, literature development, product certification, prototyping, process validation and technical consulting costs to a maximum of \$100,000. Additional government assistance relating to the PreVu<sup>®</sup> program was a result of the Company receiving a grant from the Province of Manitoba through the Manitoba Commercialization Support for Business (CSB) Program to a maximum of \$130,000 to support the PreVu<sup>®</sup> Non-Invasive Cholesterol Test. During the year ended November 30, 2012, \$67,567 was recognized under the CSB program.
- Expenses associated with the Company's other research and development activities, including the maternal health and cancer programs and other research and development costs have increased during the year ended November 30, 2013, when compared to the year ended November 30, 2012 as costs were incurred as a result of Alere licensing the Endoglin biomarker, including \$32,500 of non-cash expenses relating to the issuance of shares to Mount Sinai Hospital as a result of the licensing.
- The Company terminated its laboratory lease in January of 2012 and incurred a one-time payment of \$17,500 as a result of this lease termination during the year ended November 30, 2012. There were no occupancy costs relating to research and development during the year ended November 30, 2013.

The Company expects lower levels of research and development expenditures for the 2014 fiscal year as the PreVu<sup>®</sup> and Scout DS<sup>®</sup> technologies are commercially available for sale and as such costs are recorded within selling, general and administration expenses.

### Finance Income

The change in finance income for the years ended November 30, 2013 and 2012 is reflected in the following table:

<b>Years ended</b>	<b>November 30, 2013</b>	<b>November 30, 2012</b>	<b>Increase (Decrease)</b>
Finance income	\$ 5,326	\$ 14,998	\$ (9,672)

Finance income has decreased between the years ended November 30, 2013 and 2012 due to differences in the levels of cash on hand as a result of financings in the respective periods. The Company anticipates similar levels of investment income for the 2014 fiscal year.

### Finance Expense

The change in finance expense for the years ended November 30, 2013 and 2012 is reflected in the following table:

<b>Years ended</b>	<b>November 30, 2013</b>	<b>November 30, 2012</b>	<b>Increase (Decrease)</b>
Finance expense	\$ 494,942	\$ 315,320	\$ 179,622

Finance expense for the year ended November 30, 2013 is primarily the result of the accretion on the royalty obligation associated with the acquisition of PreVu® of \$309,410 and interest on long-term debt of \$173,602, as well as a royalty paid to Mount Sinai Hospital in connection with Alere licensing the Endoglin biomarker from the Company of \$6,236. During the year ended November 30, 2012, the finance expense primarily related to the accretion on the royalty obligation associated with the acquisition of PreVu® of \$149,000 and interest on long-term debt of \$162,954. The Company anticipates higher levels of finance expense as a result of its new non-convertible secured loan obtained in December 2013 of up to \$1,000,000 from a third party lender, which bears interest at 12% per annum, for the fiscal 2014 year.

**Loss and comprehensive loss for the period**

The loss and comprehensive loss for the years ended November 30, 2013 and 2012 is reflected in the following table:

<b>Years ended</b>	<b>November 30, 2013</b>	<b>November 30, 2012</b>	<b>Increase (Decrease)</b>
Loss and comprehensive loss for the period	\$ 3,500,282	\$ 2,697,728	\$ 802,554
Loss per share	\$ 0.34	\$ 0.32	\$ 0.02

As discussed above, the increase in loss for the year ended November 30, 2013 as compared to the year ended November 30, 2012 primarily resulted from increases in selling, general and administration expenses, primarily wages, consulting fees and professional fees associated with the advancement of the PreVu® and Scout DS® technologies.

**LIQUIDITY AND CAPITAL RESOURCES**

Since inception, the Company has financed its operations from public and private sales of equity, issuance of debt, the exercise of warrants and stock options, interest income on funds available for investment and, government grants. As at November 30, 2013, the Company had unrestricted cash totaling \$159,757 as compared with \$911,808 at November 30, 2012.

**Cash used in operating activities**

Cash used in operating activities totaled \$2,362,552 for the year ended November 30, 2013 as a result of increased selling, general and administration activities as well as ongoing research and development activities, compared to cash used by operating activities of \$1,928,926 for the year ended November 30, 2012. The increase in cash used in operating activities of \$433,626 is mainly due to a higher net loss during the year ended November 30, 2013 after adjusting for non cash items.

**Cash from financing activities**

For the year ended November 30, 2013, cash from financing activities totaled \$1,837,839. Of this amount, \$1,913,214 resulted from the issuance of common shares and warrants as a result of the financings that were closed during the year ended November 30, 2013, partially offset by interest paid on long-term debt and a royalties paid to Mount Sinai Hospital and PreMD in connection with Alere licensing the Endoglin biomarker and PreVu® sales respectively. For the year ended November 30, 2012 cash from financing activities was \$2,259,082. Of this amount, \$2,369,159 resulted from the issuance of common shares and warrants as a result of the financing that was closed during the year ended November 30, 2012. An additional \$30,000 was obtained upon the exercise of stock options and a payment of \$16,711 related to the repayment in its entirety of the obligation under finance lease. As well, \$123,366 of interest was paid on long-term debt. No royalties were paid during the year ended November 30, 2012.

**Cash used in investing activities**

Cash used in investing activities totaled \$227,338 for the year ended November 30, 2013. Of this amount, \$116,258 was for patent and trademark costs. \$100,000 was paid to VeraLight as a part of the purchase price for the acquisition of the Scout DS® technology and \$11,080 was for the acquisition of property and equipment. During the year ended November 30, 2012, cash from investing activities totaled \$101,517. Of this amount, \$113,236 was paid for patent and trademark costs and \$14,056 was paid for the acquisition of property and equipment. Additionally, the Company received proceeds of \$25,775 on the sale of scientific equipment, which was being held for resale.

**Shares, options and warrants**

On January 8, 2010, the Company announced that it had entered into a Collaborative Research and Option Agreement (the "Alere Agreement") with Alere, Inc. ("Alere") (formerly "Inverness Medical Innovations") to advance and commercialize Miraculins' preeclampsia technology. In connection with the Alere Agreement, the Company amended certain terms of its MSH Agreement. In consideration for the amendments, Miraculins will issue 25,000 common shares (pre-consolidation - 250,000 common shares) from treasury to MSH if Alere exercises its option to license under the Alere Agreement. Alere exercised its option on January 10, 2013 to license under the Alere Agreement, and the Company issued 25,000 common shares (pre-consolidation - 250,000 common shares) to MSH with fair value of \$32,500.

On April 5, 2013, the Company closed a private placement offering (the "Q2 2013 Offering") of 1,167,722 units (pre-consolidation - 11,677,223 units) ("Units") at a price of \$0.90 per Unit (pre-consolidation - \$0.09 per Unit) with aggregate gross proceeds to the Company of \$1,050,950. Each Unit is comprised of one common share (a "Share") and one half of one Share purchase warrant (a "Warrant"). Each whole Warrant entitles the holder to purchase one Share at a price of \$1.10 (pre-consolidation - \$0.11) at any time within twelve months from the date of issuance of the Warrant. There were 583,861 warrants (pre-consolidation - 5,838,612 warrants) issued within the Q2 2013 Offering. The fair value equal to \$75,429, net of warrant issue costs, was assigned to the warrants upon issuance. Included in warrant issue costs of \$6,656 is \$929 of non-cash compensation recognized for warrants issued related to the Q2 2013 offering.

Certain persons assisted the Company by introducing potential subscribers for the Offering and were paid a finder's fee of 8% of the total subscription proceeds received from subscribers introduced to the Company by each particular person. Additionally, these persons were issued compensation warrants ("Compensation Warrants") equal to 8% of the total number of Units subscribed for by subscribers introduced to the Company by each particular person. Each Compensation Warrant entitles the holder thereof to purchase one Share at a price of \$0.90 per Share (pre-consolidation - \$0.09 per Share) for a period of twelve months from the date of the Q2 2013 Offering. There were 66,929 Compensation Warrants (pre-consolidation - 669,289 Compensation Warrants) issued.

On September 20, 2013, the Company closed the first closing of a private placement offering (the "Q4 2013 Offering") of 716,667 units (pre-consolidation - 7,166,667 units) ("Units") at a price of \$0.60 per Unit (pre-consolidation - \$0.06 per Unit) with aggregate gross proceeds to the Company of \$430,000. Each Unit is comprised of one common share of the Company (a "Share") and one half of one Share purchase warrant (a "Warrant"). Each whole Warrant entitles the holder to purchase one Share at a price of \$1.00 (pre-consolidation - \$0.10) at any time within twelve months from the date of issuance of the Warrant. There were 358,333 warrants (pre-consolidation - 3,583,333 warrants) issued within the first close of the Q4 2013 Offering. The fair value equal to \$25,036, net of warrant issue costs, was assigned to the warrants upon issuance. Included in warrant issue costs of \$3,556 is \$379 of non-cash compensation recognized for warrants issued related to the first close of the Q4 2013 offering.

Certain persons assisted the Company by introducing potential subscribers for the Offering and were paid a finder's fee of up to 10% of the total subscription proceeds received from subscribers introduced to the Company by each particular person. Additionally, these persons were issued compensation warrants ("Compensation Warrants") equal to 8% of the total number of Units subscribed for by subscribers introduced to the Company by each particular person. Each Compensation Warrant entitles the holder thereof to purchase one Share at a price of \$0.70 per Share (pre-consolidation - \$0.07 per Share) for a period of twelve months from the date of the first close of the Q4 2013 Offering. There were 42,933 Compensation Warrants (pre-consolidation - 429,333 Compensation Warrants) issued.



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## Management's Discussion and Analysis



On October 31, 2013, the Company closed the second and final closing of a private placement offering (the "Q4 2013 Offering") of 1,003,333 units (pre-consolidation - 10,033,333 units) ("Units") at a price of \$0.60 per Unit (pre-consolidation - \$0.06 per Unit) with aggregate gross proceeds to the Company of \$602,000. Each Unit is comprised of one common share of the Company (a "Share") and one half of one Share purchase warrant (a "Warrant"). Each whole Warrant entitles the holder to purchase one Share at a price of \$1.00 (pre-consolidation - \$0.10) at any time within twelve months from the date of issuance of the Warrant. There were 501,667 warrants (pre-consolidation - 5,016,667 warrants) issued within the second close of the Q4 2013 Offering. The fair value equal to \$30,772, net of warrant issue costs, was assigned to the warrants upon issuance. Included in warrant issue costs of \$2,383 is \$308 of non-cash compensation recognized for warrants issued related to the second close of the Q4 2013 offering.

Certain persons assisted the Company by introducing potential subscribers for the Offering and were paid a finder's fee of 8% of the total subscription proceeds received from subscribers introduced to the Company by each particular person. Additionally, these persons were issued compensation warrants ("Compensation Warrants") equal to 8% of the total number of Units subscribed for by subscribers introduced to the Company by each particular person. Each Compensation Warrant entitles the holder thereof to purchase one Share at a price of \$0.70 per Share (pre-consolidation - \$0.07 per Share) for a period of twelve months from the date of the second close of the Q4 2013 Offering. There were 49,600 Compensation Warrants (pre-consolidation - 496,000 Compensation Warrants) issued.

On December 23, 2013, the Company announced that it had arranged a non-convertible secured loan of up to \$1,000,000 with a third party lender as described in note 10 to the financial statements. As consideration for providing the loan, in connection with each purchase of a promissory note by the lender under the loan agreement, the lender will receive shares of the Company equal to 10% of the principal amount of the promissory note based on the closing price of the Company's shares on the trading day before the purchase of the promissory note. On January 10, 2014, the Company issue 55,600 shares (pre-consolidation - 556,000 shares) in connection with the closing of the first tranche under the loan agreement. On February 10, 2014, the Company issue 33,333 shares in connection with the closing of the second tranche under the loan agreement. Additionally, on March 20, 2014, the Company issued an additional 17,172 common shares to the 2013 Lender in connection with the second tranche of the loan. On March 20, 2014, the Company issue 75,758 shares in connection with the closing of the third tranche under the loan agreement. Further information regarding these transactions is contained in note 10.

On December 23, 2013, the Company announced that it has entered into an amending agreement to extend the \$1,000,000 non-convertible secured loan with a lender that was originally announced on October 13, 2011 as described in note 10. As consideration for the extension of the loan, the Company issued 100,000 shares (pre-consolidation - 1,000,000 shares) to the lender. Additionally, the Company entered into a shares for debt agreement with the lender and issued 126,806 shares (pre-consolidation - 1,268,055 shares) to satisfy \$63,403 of interest owing on the loan. Further information regarding these transactions is contained in note 10.

The Company is obligated to issue shares in certain circumstances as a part of the acquisition of the Scout DS<sup>®</sup> technology as described in Note 4 to the financial statements.

In June, 2013, the Company issued 290,000 stock options (pre-consolidation - 2,900,000 stock options) at an exercise price of \$0.10 per common share, to certain directors, officers, employees, consultants and management company employees of the Company

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	March 25, 2014	November 30, 2013	November 30, 2012
Common shares issued and outstanding	12,491,467	12,209,604	9,296,882
Options outstanding	981,000	988,500	808,500
Warrants outstanding	2,718,001	2,718,001	1,164,983

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Based on management's current estimates and expected operating activities, management estimates that sufficient financial resources exist to fund operations into the second quarter of fiscal 2014. The Company's management is reviewing all financing alternatives including raising additional funds for operations from current stockholders and other potential investors. This disclosure is not an offer to sell, nor a solicitation of an offer to buy the Company's securities. Where the Company opts to pursue such financing, there is no assurance that funding will be available or obtained on favourable terms.

**CONTRACTUAL OBLIGATIONS**

The Company periodically enters into long-term contractual agreements for the leases of office facilities and equipment, management services, and certain purchased services. The following table presents commitments arising from agreements currently in force over the next five years.

	Payments due by Period			
	Within 1 year	2 - 3 years	4 - 5 years	Total
Management services agreement	\$ 8,333	\$ -	\$ -	\$ 8,333
Contractual commitments	86,000	100,500	40,000	226,500
Accounts payable and accrued liabilities	657,976	-	-	657,976
Long-term debt including interest	1,122,412	-	-	1,122,412
	\$ 1,874,721	\$ 100,500	\$ 40,000	\$ 2,015,221

Effective January 1, 2013 the Company amended the terms of the business and administration services agreement with Genesys Venture Inc. ("GVI"), including the provision of Chief Financial Officer services. The Company is committed to pay \$8,333 per month or \$100,000 per annum for a period of one year. Subsequent to November 30, 2013 and effective January 1, 2014 the Company amended the terms of the business and administration services agreement with Genesys Venture Inc. ("GVI"), including the provision of Chief Financial Officer services. The Company is committed to pay \$9,167 per month or \$110,000 per annum for a period of one year. The agreement can be terminated with 90 days notice.

The Company is obligated to pay an annual licence maintenance fee beginning on October 15, 2011, which is the third anniversary date of a license agreement with the Mount Sinai Hospital in Toronto, Canada. For further information refer to Note 7 contained in the audited financial statements for the year ended November 30, 2013.

The Company is obligated to pay royalties to PreMD based on any future commercial sales of PreVu® Skin Cholesterol test equal to 10 percent of gross revenue associated with PreVu®. The Company retains the right to buy-out the royalty at anytime for a one-time payment of \$1,000,000. Royalties for the year ended November 30, 2013 total \$3,445 in regards to the royalty obligation (2012 - nil), with payments made during the year ended November 30, 2013 of \$3,445 (2012 - nil).

The Company is obligated to pay royalties to Canada-Israel Industrial Research and Development Foundation ("CIIRDF") based on any future product revenues, if any, from the exploitation of the preeclampsia technology contemplated in the project funding agreement equal to 2.5 percent up to a maximum of the amounts funded under the agreement. To November 30, 2013, no royalties are due and/or payable.

The Company is obligated to pay a royalty to MSH, subject to minimum annual royalties, of a stipulated percentage of the net sales of licensed products related to the worldwide rights to commercialize a portfolio of biomarkers for use in developing diagnostic assays for the early detection of preeclampsia, if any, along with other milestone payments. If the Company sub-licenses any rights under the MSH Agreement to a third party, the Company shall pay MSH a stipulated percentage of sub-license fee and sub-license royalty fee. In conjunction with Alere's decision to license under the Alere Agreement on January 10, 2013, a royalty of \$6,234 became payable to MSH and was paid during the year ended November 30, 2013 and is recorded within finance expense (2012 - nil).

## MIRACULINS INC.

### Management's Discussion and Analysis

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As described in note 10 to the Company's financial statements, on December 23, 2013, the Company entered into an amending agreement to extend the \$1,000,000 non-convertible secured loan with a lender (the "2011 Lender") that was originally announced on October 13, 2011. The loan has been extended for an additional six months and will now mature on October 14, 2014. The Loan will continue to bear interest at a rate of 12% per annum, payable quarterly, and any overdue payment will bear additional interest at a rate of 6% per annum, for a combined interest rate of 18% per annum on any overdue payment. As consideration for the extension of this loan, the Company issued 100,000 common shares (pre-consolidation - 1,000,000 common shares) of the Company to the 2011 Lender. Additionally, the Company entered into a shares for debt agreement with the lender and issued 126,806 shares (pre-consolidation - 1,268,055 shares) to satisfy \$63,403 of interest owing on the loan.

Additionally, on December 23, 2013, the Company announced it had arranged a non-convertible secured loan of up to \$1,000,000 from a third party lender (the "2013 Lender"). Any amounts advanced under this loan will be evidenced by promissory notes purchased by the 2013 Lender at a 10% discount to the principal amount of the promissory note. Assuming full draw down under this loan, the aggregate purchase price of the promissory notes will be \$900,000. All amounts owing under this loan will be due and payable on December 31, 2014 and will bear interest at 12% per annum, payable quarterly. In addition, any overdue payment will bear additional interest at a rate of 6% per annum for a combined interest rate of 18% per annum on any overdue payment. In certain circumstances, the Company has the option to satisfy its obligations with respect to any interest payable on the loan by issuing common shares at a discounted price. As consideration for providing the loan, in connection with each purchase of a promissory note by the 2013 Lender, the Company will issue common shares equal to 10% of the principal amount of the promissory note based on the closing price of the Company's common shares on the trading day immediately preceding the purchase of the promissory note.

On January 10, 2014, the Company closed the initial tranche under this loan and received an initial advance of \$250,000 when the 2013 Lender purchased a promissory note for \$278,000. As consideration for providing the initial tranche of the loan, the Company issued 55,600 common shares (pre-consolidation - 556,000 common shares) to the 2013 Lender.

On February 10, 2014, the Company closed the second tranche under this loan and received an additional advance of \$150,000 when the 2013 Lender purchased a promissory note for \$166,667. As consideration for providing the second tranche of the loan, the Company issued 33,333 common shares to the 2013 Lender. Additionally, on March 20, 2014, the Company issued an additional 17,172 common shares to the 2013 Lender in connection with the second tranche of the loan.

On March 20, 2014, the Company closed the third tranche under this loan and received an additional advance of \$150,000 when the 2013 Lender purchased a promissory note for \$166,667. As consideration for providing the third tranche of the loan, the Company issued 75,758 common shares to the 2013 Lender.

The Company has the option to request the 2013 Lender to advance additional tranches under this loan, which the 2013 Lender may approve or reject at its sole discretion.

A summary of the Company's contractual obligations may be found in Note 13 of the financial statements for the year ended November 30, 2013.

### **RELATED PARTY TRANSACTIONS**

As of November 30, 2011 \$68,712 was owed to GVI, a party which was related to the Company until November 1, 2011, when a director who controlled GVI resigned from the Board of Directors, which bore interest at 12% per annum, calculated and compounded on a monthly basis until September 30, 2011. On January 20, 2012, the payable to GVI was settled in exchange for \$4,416 of cash and 95,253 Common Shares (pre-consolidation - 952,533 Common Shares) with a fair value of \$64,296 being issued to GVI for payment for services rendered in accordance with the terms of an agreement between the two parties.

The Company has an on-going consulting agreement with a shareholder to provide services as needed from time to time. For the year ended November 30 2013, \$48,000 (2012 - \$156,000) has been recorded in selling, general and administration expenses relating to this consulting agreement.

## **OFF-BALANCE SHEET ARRANGEMENTS**

Other than as described above, the Company does not have any off-balance sheet arrangements.

## **CONTROLS**

### **Effectiveness of disclosure controls and procedures**

Management has established and maintained disclosure controls and procedures for the Company in order to provide reasonable assurance that material information relating to the Company is made known to management in a timely manner and that information required to be disclosed by the Company is reported within the time periods prescribed by applicable securities legislation.

A control system can only provide reasonable, not absolute, assurance that the objectives of the control system are met. The design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs.

As a result of the Company's limited administrative staffing levels, internal controls which rely on segregation of duties in many cases are not appropriate or possible. Due to resources constraints and the present stage of the Company's development, the Company does not have sufficient size and scale to warrant the hiring of additional staff to correct this potential weakness at this time. To help mitigate the impact of this potential weakness and to ensure quality financial reporting, the Company is highly reliant on the performance of compensating procedures and senior management's review and approval to ensure that the controls are as effective as possible.

During the year ended November 30, 2013, the Company made no material changes to its systems of internal controls over financial reporting.

## **CRITICAL ACCOUNTING POLICIES AND ESTIMATES**

The preparation of financial statements in conformity with International Financial Reporting Standards (IFRS) requires the Company to select from possible alternative accounting principles and to make estimates and assumptions that determine the reported amounts of assets and liabilities at the balance sheet date, and revenue and reported costs and expenditures during the reporting period. Management believes that the estimates and assumptions upon which the Company relies are reasonable based upon information available at the time these estimates and assumptions are made. Estimates and assumptions may be revised as new information is acquired, and are subject to change.

In addition to the going concern assumption previously described, management believes that its most critical accounting policies and estimates relate to the following areas, with reference to notes contained in the audited financial statements for the year ended November 30, 2013:

### **Acquired intellectual property**

The Company's accounting policy over acquired intellectual property may be found in Note 3(f)(ii) to the Company's audited financial statements for the year ended November 30, 2013. Costs incurred for acquired intellectual property - PreVu® is being amortized over the estimated period that it is available for use in the manner intended by management, commencing with the commercial launch of the products associated with the acquired intellectual property - PreVu®, which is estimated to be five years.

### **Patents and trademarks**

The Company's accounting policy over patents and trademarks may be found in Note 3(f)(iii) to the Company's audited financial statements for the year ended November 30, 2013. Costs incurred for patents, patents pending and trademarks are capitalized and amortized from the date of issuance on a straight-line basis over their respective legal lives or economic life, if shorter. Trademarks have an indefinite life. Costs incurred in successfully obtaining a patent or trademark are measured at cost less accumulated amortization and accumulated impairment losses. The cost of servicing the Company's patents and trademarks is expensed as incurred.

### **Revenue recognition**

The Company's accounting policy over revenue recognition may be found in Note 3(c) to the Company's audited financial statements for the year ended November 30, 2013. Revenue from the sale of goods is measured by reference to the fair value of consideration received or receivable for goods supplied. Revenue from product sales is recognized when all the following conditions have been satisfied:

- The Company has transferred to the buyer the significant risks and rewards of ownership of the goods.
- The Company retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold.
- The amount of revenue can be measure reliably.
- It is probable that the economic benefits associated with the transaction will flow to the Company, and
- The costs incurred or to be incurred in respect of the transaction can be measured reliably.

The Company may enter into sales agreements with customers that have multiple element arrangements. When these multiple elements have stand-alone value to the customer, the components are accounted for separately, based on the relative selling prices, using the appropriate revenue recognition criteria as described above.

Lease revenue from leasing Scout DS<sup>®</sup> devices to customers under operating leases is recognized as earned over the term of the lease on a straight-line basis.

Royalty and license revenues will be recognized in revenue once an option to license a technology is exercised and as the contracted services are performed in accordance with the terms of the specific agreement.

Up-front payments and option fees received for the use of technology where further services are to be provided or fees received on the signing of collaborative research agreements are recognized over the period of performance of the related activities within collaborative research and option fees on the statement of net loss and comprehensive loss. Amounts received in advance of recognition are included in deferred collaborative research and option fees.

### **Inventory**

The Company's accounting policy over inventory may be found in Note 3(d) to the Company's audited financial statements for the year ended November 30, 2013. Inventory consists of parts to be used in the manufacture of finished PreVu<sup>®</sup> medical devices that are held for resale, as well as finished and fully assembled and tested PreVu<sup>®</sup> medical devices and purchased PreVu<sup>®</sup> testing kit inventories that are held for resale. Inventory is recorded based on the first in first out principle and is valued at the lower of cost and net realizable value.

### **Stock-based compensation**

The Company's accounting policy over stock-based compensation may be found in Notes 3(i)(ii) and 11(c) to the Company's audited financial statements for the year ended November 30, 2013. The grant date fair value of share-based payment awards granted to employees is recognized as a personnel expense, with a corresponding increase in equity, over the period that the employees unconditionally become entitled to the awards. The amount recognized as an expense is adjusted to reflect the number of awards for which the related service and non-market vesting conditions are expected to be met, such that the amount ultimately recognized as an expense is based on the number of awards that do meet the related service and non-market performance conditions at the vesting date. For share-based payment awards with non-vesting conditions, the grant date fair value of the share-based payment is measured to reflect such conditions and there is no true-up for differences between expected and actual outcomes.

Share-based payment arrangements in which the Company receives goods or services as consideration for its own equity instruments are accounted for as equity-settled share-based payment transactions. In situations where equity instruments are issued and some or all of the goods or services received by the entity as consideration cannot be specifically identified, they are measured at fair value of the share-based payment.

### **Impairment of non-financial assets**

The Company's accounting policy over impairment of non-financial assets may be found in Note 3(h)(ii) to the Company's audited financial statements for the year ended November 30, 2013. The carrying amounts of the long-lived non-financial assets, including intangible assets and property and equipment, are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. Intangible assets that have indefinite lives and intangible assets not yet put into use are evaluated for impairment at least annually.

An impairment exists when the carrying value of an asset exceeds its recoverable amount, which is the higher of its fair value less costs to sell or its value in use. The fair value less costs to sell calculation is based on available data from observable market prices, less incremental costs. The value in use calculation is based on a discounted cash flow model. These calculations require the use of estimates and forecasts of future cash flows. Qualitative factors, including market size and market growth trends, strength of customer demand and degree of variability in cash flows, as well as other factors, are considered when making assumptions with regard to future cash flows and the appropriate discount rate. A change in any of the significant assumptions or estimates used to evaluate the underlying assets could result in a material change to the results of operations.

Impairment losses recognized in prior periods are assessed at each reporting date for any indications that the loss has decreased or no longer exists. An impairment loss is reversed, to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of amortization, if no impairment had been recognized. Write-downs as a result of impairment are recognized in research expense in the statement of comprehensive loss.

A summary of all of the Company's significant accounting policies and estimates may be found in Note 3 to the audited financial statements for the year ended November 30, 2013.

### **CHANGES IN ACCOUNTING POLICIES**

There were no changes in Accounting Policies during the period.

### **NEW STANDARDS AND INTERPRETATIONS NOT YET ADOPTED**

#### **IFRS 9 *Financial Instruments: Classification and Measurement***

IFRS 9 replaces the guidance in IAS 39 *Financial Instruments: Recognition and Measurement*, on the classification and measurement of financial assets. The Standard eliminates the existing IAS 39 categories of held to maturity, available-for-sale and loans and receivables.

Financial assets will be classified into one of two categories on initial recognition:



- financial assets measured at amortized cost; or
- financial assets measured at fair value.

Under IFRS 9, for financial liabilities measured at fair value under the fair value option, changes in fair value attributable to changes in credit risk will be recognized in other comprehensive income ("OCI"), with the remainder of the change recognized in profit and loss.

The mandatory effective date has not yet been determined by the IASB.

### **IFRS 13 - Fair Value Measurement**

In May 2011, the IASB published IFRS 13 *Fair Value Measurement*, which is effective prospectively for annual periods beginning on or after January 1, 2013, with earlier application permitted. The disclosure requirements of IFRS 13 need not be applied in comparative information for periods before initial application. IFRS 13 replaces the fair value measurement guidance contained in individual IFRSs with a single source of fair value measurement guidance. It defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, i.e. an exit price. The standard also establishes a framework for measuring fair value and sets out disclosure requirements for fair value measurements to provide information that enables financial statement users to assess the methods and inputs used to develop fair value measurements and, for recurring fair value measurements that use significant unobservable inputs (Level 3), the effect of the measurements on profit or loss or other comprehensive income. IFRS 13 explains how to measure fair value when it is required or permitted by other IFRSs. IFRS 13 does not introduce new requirements to measure assets or liabilities at fair value, nor does it eliminate the practicability exceptions to fair value measurements that currently exist in certain standards.

The Company intends to adopt IFRS 13 prospectively in its financial statements for the annual period beginning on December 1, 2013. The extent of the impact of adoption of IFRS 13 has not yet been determined.

### **Annual Improvement to IFRSs 2009-2011 Cycle - Various Standards**

In May 2012, the IASB published Annual Improvements to IFRSs - 2009-2011 Cycle as part of its annual improvements process to make non-urgent but necessary amendments to IFRS effective for annual periods beginning on or after January 1, 2013 with retrospective application.

The impending changes that potential have an effect on the Company include:

- IAS 1 *Presentation of Financial Statements* - the changes involve amendments to the presentation and disclosure of comparative information beyond the minimum and the presentation of the opening statement of financial position.

The Company intends to adopt the amendments to the standards in its financial statements for the annual period beginning on December 1, 2013. The extent of the impact of the adoption of the amendments has not yet been determined.

## **FORWARD-LOOKING STATEMENTS**

This Management's Discussion and Analysis ("MD&A") contains forward-looking information as defined in applicable securities laws (referred to herein as "forward-looking statements") that reflect the Company's current expectations and projections about its future results. All statements other than statements of historical fact are forward-looking statements. Forward-looking statements are based on the current assumptions, estimates, analysis and opinions of management of the Company made in light of its experience and its perception of trends, current conditions and expected developments, as well as other factors which the Company believes to be relevant and reasonable in the circumstances.

The Company uses words such as "believes," "may," "plan," "will," "estimate," "continue," "anticipates," "intends," "expects," and similar expressions to identify forward-looking statements, which, by their very nature, are not guarantees of the Company's future operational or financial performance, and are subject to risks and uncertainties, both known and unknown, as well as other factors that could cause the Company's actual results, performance, prospects or opportunities to differ materially from those expressed in, or implied by, these forward-looking statements.

Specifically, this MD&A contains forward-looking statements regarding, but not limited to, the Company's:

- intention to acquire, develop and commercialize diagnostic tests for unmet clinical needs;
- intention to partner with large diagnostic companies and reference laboratories to commercialize and market technology;
- expectation regarding collaborative research agreements, upfront payments, milestone payments, ongoing royalties on sales and other sources of revenue;
- expectation regarding new diagnostic program opportunities;
- intentions regarding the protection of intellectual property;
- business strategy; and
- intention with respect to dividends.

Inherent in forward-looking statements are known and unknown risks, uncertainties and other factors beyond the Company's ability to predict or control that may cause the actual results, events or developments to be materially different from any future results, events or developments expressed or implied by such forward-looking statements. Such risk factors include, among others, the Company's stage of development, lack of product revenues, additional capital requirements, the ability to protect its intellectual property, dependence upon collaborative partners, changes in government regulation or regulatory approval processes, and rapid technological change in the industry. These factors should be considered carefully and readers are cautioned not to place undue reliance on such forward-looking statements.

Actual results and developments are likely to differ, and may differ materially, from those expressed or implied by the forward-looking statements contained in this MD&A. Such statements are based on a number of assumptions which may prove to be incorrect, including, but not limited to, assumptions about:

- the availability of financing for the Company's research and development projects, or the availability of financing on reasonable terms;
- general business and economic conditions;
- the timing of the receipt of regulatory and governmental approvals for the Company's research and development projects;
- interest rates and foreign exchange rates;
- the Company's costs of research projects;
- positive results of current and future clinical trials;
- the uncertainties associated with the acceptance and demand for new products;
- research projects not being unreasonably delayed and expenses not increasing substantially;
- government regulation not imposing requirements that significantly increase expenses or that delay or impede the Company's ability to bring new products to market;
- the Company's ability to attract and retain skilled staff;
- the impact of changes in Canadian-US dollar and other foreign exchange rates on the Company's costs and results;
- market competition;
- tax benefits and tax rates; and
- the Company's ongoing relations with its employees and with its business partners.

Although management of the Company believes that these forward-looking statements are based on reasonable assumptions, a number of factors could cause the actual results, performance or achievements of the Company to be materially different from the future results, performance or achievements expressed or implied by such forward-looking statements. The forward-looking statements contained in this MD&A and any documents incorporated by reference herein are expressly qualified by this cautionary statement. The Company cautions you that the foregoing list of important factors and assumptions is not exhaustive. Events or circumstances could cause actual results to differ materially from those estimated or projected and expressed in, or implied by, these forward-looking statements. You should also carefully consider the matters discussed under "Risk Factors" in this MD&A which provides for additional risks and uncertainties relating to the Company and its business. The Company undertakes no obligation to update publicly or otherwise revise any forward-looking statements or the foregoing list of factors, whether as a result of new information or future events or otherwise, other than as may be required by applicable legislation.