

Managements' Discussion and Analysis  
(Expressed in Canadian Dollars)

## **MIRACULINS INC.**

Years ended November 30, 2011 and 2010

# MIRACULINS INC.

## Management's Discussion and Analysis

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The following management's discussion and analysis ("MD&A") is current to March 9, 2012 and should be read in conjunction with the financial statements for the year ended November 30, 2011, and related notes, which are prepared in accordance with Canadian generally accepted accounting principles ("GAAP"). Annual references are to the Company's fiscal years, which end on November 30. 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 Inc. ("Miraculins" or the "Company") 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 tools 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 future operations are dependent upon its ability to generate product sales, negotiate collaboration or license agreements with upfront payments, obtain research grant funding, and secure additional funds. 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.

The Company's two primary technology programs are in the areas of maternal health, and cardiovascular disease. Miraculins maternal health program is centred on a suite of promising markers for preeclampsia and is partnered with Alere, Inc. (NYSE: ALR) (formerly Inverness Medical Innovations), one of the world's largest diagnostic companies. The Company's cardiovascular disease program is focused on the PreVu Non-Invasive Skin Cholesterol Test ("PreVu") from PreMD Inc. PreVu has been previously cleared for sale as part of coronary artery disease (CAD) risk assessment in Canada against the general population and had previously received a CE marking for selling into certain European countries under the same broad risk assessment parameters. The test has also been previously cleared for sale by the Food and Drug Administration (FDA) in the United States (PreVu POC Test format) as part of risk assessment for CAD in persons suspected of having significant CAD and/or persons with a history of myocardial infarction. Miraculins continues to make steady and significant progress and is in the final stages of the planned launch of the PreVu technology in the second quarter of calendar 2012.

In addition to the preeclampsia and PreVu development programs, the Company continues to seek opportunities to advance the scientific evidence supporting its internally developed prostate cancer program and the utility of its assay for Prostate Secretory Protein (PSP94, also known as microseminoprotein-beta or MSMB). Miraculins has developed a research use only (RUO) PSP94 Immunoassay for Urine Specimens (the assay is for research use only and not for diagnostic procedures) to enable further independent study of the marker in pre-clinical and non-clinical research settings.

Miraculins continues to be open to the evaluation of new licensing and acquisition opportunities that fit strategically with the Company's business model, but for the foreseeable future management remains primarily focused on preparing for the successful commercial launch of the Company's PreVu technology, which will transition Miraculins into a sales and marketing organization. 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.

The Company has continued to access capital during difficult market conditions, having successfully completed private placement financings, obtained non-dilutive grant funding to advance its programs, and finalized a \$1.0 million Non-Convertible Secured Loan in October 2011 to further 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. The Company is pursuing capital conservation efforts by focusing on rationalizing overhead and is exploring various alternatives towards further strengthening its financial position. In this regard the Company has discontinued internal wet lab operations and strengthened its relationship with third-party contract research facilities.

The Company's future operations are dependent upon its ability to generate product sales, negotiate collaboration or license agreements with upfront payments, obtain research grant funding, and secure additional funds. 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. If the Company cannot generate product sales, negotiate collaboration or license agreements with upfront payments, obtain research grant funding, or if it cannot secure additional financing on terms that would be acceptable to it, the Company will have to consider additional strategic alternatives which may include, among other strategies, exploring the monetization of certain intangible assets as well as seeking to outlicense and/or divest assets. Based on management's current estimates and expected operating activities, sufficient financial resources exist to fund operations into the second quarter of 2012.

On March 8, 2012, Miraculins announced an Agreement that will see The Stevens Company Limited, the largest, privately-owned Canadian distributor of hospital, physician and nursing home supplies, distribute the PreVu POC Test to medical professionals in clinical settings across Canada. The PreVu POC test contains two components: the PreVu Handheld Spectrophotometer which is used to both guide the operator through the test and take the skin cholesterol reading; and the Reagent Test Kit, comprised of reagent solution and test consumables to run 40 individual procedures. To facilitate the direct marketing and selling of the product to their medical customer base, the agreement calls for The Stevens Company to purchase a start-up inventory sufficient for national servicing, which will represent Miraculins' first commercial sale of the PreVu technology. Both companies will jointly participate in promotional initiatives directed towards the medical segment.

### **Development Program Highlights**

- The Company's PreVu Non-Invasive Skin Cholesterol Test is designed to address the worldwide market of cardiovascular risk assessment. This novel test measures cholesterol in the skin tissues to assess risk of coronary artery disease (CAD). Miraculins continues to make steady and significant progress and is in the final stages of the planned launch of the PreVu technology in the second quarter of calendar 2012.
- 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 is being developed through a collaborative research and development partnership with Alere, Inc. (NYSE:ALR) (formerly Inverness Medical Innovations), one of the world's largest diagnostic companies.
- The Company's prostate cancer program is centred on the biomarker PSP94 (also known as microseminoprotein-beta or MSMB). The Company's PSP94 Immunoassay for Urine Specimens (research use only and not for diagnostic procedures) has demonstrated positive analytical performance and has been launched to enable further independent study of the marker in pre-clinical and non-clinical research settings.

The following table summarizes the Company's research and development programs:

Product	Program/Indication	Status
PreVu Non-Invasive Skin Cholesterol Test	Coronary Artery Disease Risk Assessment	Nearing product Launch <sup>(1)</sup>
Placental Development Biomarkers	Preeclampsia Biomarkers	Partnered with Alere, Inc. <sup>(2)</sup> Research Stage
Endoglin Assay	Preeclampsia Biomarker	Partnered with Alere, Inc. <sup>(2)</sup> Assay Development & Optimization
Prostate Secretory Protein (PSP94) Assay also known as microseminoprotein-beta (MSMB)	Prostate Cancer Biomarker	RUO Kit On Market <sup>(3)</sup>
MIR-CR1, MIR-GP1, Suite of Markers	Cancer Biomarkers	On hold Research Stage

<sup>(1)</sup> See discussion of the Company's PreVu Program on page 4.

<sup>(2)</sup> See discussion of the Company's Preeclampsia Program on page 6.

<sup>(3)</sup> Miraculins' PSP94 Immunoassay for Urine Specimens is for Research Use Only (RUO) and not for Diagnostic Procedures

## 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. Through basic discovery research, subsequent development and the acquisition of complementary technologies, Miraculins established programs in the areas of prostate, colorectal, gastric, pancreatic and breast cancer.

In the spring of 2008, Miraculins announced a shift in 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. (formerly Inverness Medical Innovations) in January 2010 for development and commercialization.

In late summer 2010, Miraculins completed the acquisition of all assets relating to the PreVu Non-Invasive Skin Cholesterol Test. PreVu is a revolutionary new coronary artery disease (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 technology, Miraculins' management has been focused on preparing all aspects of the product for market launch.

As part of its ongoing strategy transition, Miraculins has continuously reduced its reliance on in-house research and development activities by utilizing external contract service providers for an increasing majority of the Company's laboratory research and development activities. Miraculins presently uses third parties for all laboratory needs after closing its internal wet lab operations and strengthening its relationship with third-party contract research facilities.

## RESEARCH PROGRAMS

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 advancing its preeclampsia program and capitalizing on the acquisition of its PreVu program.

The Company has also successfully developed an immunoassay for PSP94 in urine and is exploring commercialization opportunities for its intellectual property on PSP94's use in combination with other markers for detecting prostate cancer. Miraculins' PSP94 Immunoassay for Urine Specimens (research use only and not for diagnostic procedures) was launched to enable further independent study of the marker in pre-clinical and non-clinical research settings.

### Cardiovascular Disease Program (PreVu Non-Invasive Skin Cholesterol 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. However, blood cholesterol test results may be highly variable over a series of days, relatively expensive to perform and require 12 hours of fasting to obtain an ideal blood sample from the patient. In fact, studies suggest that more than 70% of all surviving heart attack patients actually have blood cholesterol levels within what is considered a normal, healthy range. It is also accepted that a significant number of individuals suffer fatal heart attacks without experiencing any prior symptoms of heart disease whatsoever (as high as 50% by some counts), based upon the currently available screening and risk assessment applications. Their first and only symptom is sudden death. So 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.

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 and help avoid that critical first coronary event.

In September 2010, Miraculins announced the acquisition of the PreVu Non-Invasive Skin Cholesterol test, a new and non-invasive test for risk assessment of CAD. As a new risk factor for heart disease, skin cholesterol measurement provides valuable information to augment traditional CAD risk assessment. Skin contains over 10% of the body's cholesterol and ages in parallel with vascular connective tissue. As blood vessel walls accumulate cholesterol, peer reviewed clinical data has shown that so too does skin tissues. A high skin cholesterol level is a reliable predictor of the risk of higher cholesterol accumulation in the arteries and, accordingly, the risk of heart disease. High levels of skin cholesterol have been shown to be correlated to CAD as measured by stress test, angiography, coronary calcium, and carotid intima-media thickness, inflammatory markers of vascular disease, previous heart attack incidents and Framingham risk score.

The PreVu Non-Invasive Skin Cholesterol Point of Care (POC) Test is a non-invasive, painless and cost-effective tool to measure skin cholesterol that does not require any patient preparation or dietary changes.

This test is conducted by placing a drop of detector reagent on the palm of the hand, 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 quantitative number which indicates a patient's skin cholesterol value.

In addition to the POC format of the test, the PreVu technology is also being developed by Miraculins 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 self-administered collection device that allows a patient to capture skin cells and cholesterol from the palm of the hand with a medical grade adhesive.

The PreVu POC test has recently received Health Canada clearance and has been CE-Marked for sale in Europe. In Canada and Europe, 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). 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.

PreVu has been successfully test marketed on a limited basis in North America, and Miraculins is currently in the final stages of preparing for the planned launch of the PreVu technology and making the product commercially available in the second quarter of calendar 2012. During the past year, Miraculins has focused on making the PreVu technology available for commercial sale with six critical activities of focus leading to this significant milestone. The following progress can be reported:

**1. Re-established key manufacturing partnerships for the PreVu reagent test kits and the PreVu handheld spectrophotometer:**

- Announced a manufacturing agreement with International Aerospace/Medical Device Contractor HEI, Inc. for the handheld spectrophotometer.
- Executed a manufacturing agreement for the reagent testing kits with Thermo Fisher Scientific Inc., the world leader in serving science.

**2. Coordinated the establishment of an ISO 13485 certified quality system at Miraculins in order to become the medical manufacturer of record:**

- Developed a complete Quality Management System for the manufacturing and sale of medical devices, including the comprehensive documentation and implementation of a quality manual, standard operating procedures, forms and work instructions, followed by the requisite training of Miraculins' management and team.
- Appointed the BSI Group to provide assessment and certification services.
- Engaged the Emergo Group to provide technical support during the implementation and certification process.
- Successfully passed an ISO 13485 certification audit and was issued an ISO certificate.

**3. Prepared for regulatory notifications required for medical device product marketing in Canada, the United States and Europe:**

- Completed a full review of all available historical regulatory documentation and developed detailed regulatory strategies for both the point of care (POC) and lab processed (LP) versions of the test.
- Obtained Health Canada regulatory clearance in January 2012.
- Appointed Emergo Europe as the European Authorized Representative and received CE-mark for European marketing in January 2012.
- Received clarification from the FDA on PreVu's current Indication for Use, under which the POC technology can be sold into the US market.

**4. Refreshed the PreVu brand across all marketing and promotional platforms to communicate technology value proposition:**

- Introduced revised PreVu logo and product positioning language to most effectively communicate the full value proposition of the technology.
- Preliminary reconstruction of a new PreVu website.

**5. Evaluated multiple sales channels to more precisely target end consumers:**

- Conducted high level pre-sales discussions with key decision makers in a number of important markets including medical clinic chains, retail pharmacies, the life insurance industry, alternative healthcare and established medical device distributors.
- Exhibited the PreVu technology to over 250 potential future customers at the Health Fusion conference of the Canadian Association of Naturopathic Doctors (CAND) in Calgary, a three-day congress, with strong indications that PreVu will be incorporated into Naturopathic Doctors practices across the country once the product is launched.

- Exhibited the PreVu technology at the Ontario Association of Naturopathic Doctors Annual Convention and Tradeshow in Toronto in November 2011.

**6. Conducted partnership discussions to seed sales and distribution channels:**

- Announced an agreement that will see The Stevens Company Limited distribute the PreVu POC Test to medical professionals in clinical settings across Canada.
- Formed a critical partnership with Gamma-Dynacare Medical Laboratories, one of Canada's largest and most respected medical laboratories, for the final development and commercialization of the lab processed (LP) format of the technology – designed to become PreVu's over-the-counter retail test format.
- Conducted meetings and discussions with interested parties for the licensing/distribution rights to PreVu in foreign markets including China, India, South Korea, Mexico, the European Union and Saudi Arabia.

To support the launch plan, 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 product prior to Miraculins' acquisition also provide a continuity of technical knowledge as the product advances to commercialization.

Of particular note, Miraculins has established a PreVu Medical Advisory Board (MAB) of distinguished medical professionals to advise on PreVu matters, including product launch strategy. The founding member of the MAB, and its chair, is Dr. G.B. John Mancini, MD, FRCPC, FACC, Vancouver Coastal Health Research Institute - University of British Columbia. Subsequently, both Dr. Milan Gupta, MD, FRCPC, FACC, Associate Clinical Professor of Medicine at McMaster University in Hamilton, Ontario and Assistant Professor of Medicine at the University of Toronto, and Dr. Henry A. Solomon, MD, FACP, FACC, Senior Medical Advisor to the American College of Cardiology, have joined the PreVu MAB.

**Preeclampsia Program**

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 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. It is estimated that preeclampsia costs the global health care system US \$3 billion per year. 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 35 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.

On January 8, 2010, Miraculins announced a partnership with Alere, Inc. (NYSE: ALR) (formerly Inverness Medical Innovations, Inc.), a global leader in the convergence of medical diagnostic testing and health management, to advance and commercialize Miraculins' preeclampsia technology. The partnership agreement included a fee paid to Miraculins by Alere to acquire the exclusive option to license the worldwide rights to biomarkers of interest from the program. The goal of the partnership is to commercialize Miraculins' biomarkers for worldwide distribution.

The development program is established in a Collaborative Research and Option Agreement, whereby Alere develops tests for Miraculins' biomarkers and evaluates their performance in large cohorts of patient blood samples. The biomarkers are also being assessed for their utility in detecting intrauterine growth restriction and other diseases of pregnancy. Alere can exercise its option to license at any time during the term of the Collaborative Research and Option Agreement. Upon exercise of the option, Miraculins will receive additional fees, developmental and commercial milestone payments, and royalties on sales.

In January 2011, Miraculins announced that significant progress had been made towards the development of tests for a number of Miraculins' preeclampsia biomarkers under the Collaborative Research and Option Agreement between the parties. A further update was provided in June 2011, and again in January 2012, when the Company announced that Alere had maintained its exclusive option on Miraculins' preeclampsia technology through payment of a non-refundable fee in accordance with the terms of the Collaborative Research and Option Agreement. In accordance with the terms of that agreement, Alere must maintain the exclusive option at regular intervals.

Miraculins has retained certain commercial rights to pursue complementary commercial strategies for the markers and receives a secure supply of reagents and certain rights to intellectual property related to the biomarker Endoglin from Alere. While the development program advances through the Alere partnership, Miraculins continues to pursue complimentary strategies for its markers.

### **Prostate Cancer Program**

Through the discovery and identification of proteins specific to prostate cancer, Miraculins has developed intellectual property surrounding the combination of markers including Prostate Secretory Protein (PSP94, also known as microseminoprotein-beta or MSMB) with the goal of reducing the number of men proceeding to biopsy based on current methods. These unnecessary biopsies are costly, invasive and can lead to complications. The current standard screen for prostate cancer, the Prostate Specific Antigen (PSA) test, although sensitive, is not highly specific, sending upwards of 750,000 men for unnecessary prostate biopsies annually in the United States alone.

PSP94 is a basic 94 amino acid protein found in high concentration in the epithelial cells of the prostate. The marker has been examined in independent literature for its potential to be a cancer biomarker and was found to be decreased in the 24 hour collection of urine from men with late stage tumours compared to men with enlarged prostate or benign prostatic hyperplasia. Further research is needed to confirm the utility of PSP94 as a biomarker in men with prostate cancer. Miraculins has completed a number of studies which have added to the growing body of evidence that levels of PSP94 are differentially expressed in this disease.

Discovery and validation of the Miraculins prostate cancer markers has been conducted on nearly 600 separate and distinct patient samples including the PCSC04 study, a 200 patient, 15 site study. The data from that study showed that Miraculins' urine-based test performed with a specificity that would have eliminated approximately 23% of the biopsies for patients who did not have prostate cancer and a sensitivity that correctly identified 93% of patients who were true positives for prostate cancer.

Additionally, Miraculins has discovered that the detection of PSP94 in urine can improve the performance of free over total (F/T) PSA ratio in detecting aggressive prostate cancer, which could help significantly improve upon the standard free PSA test.

Miraculins has had discussions in regards to its prostate cancer program with a number of diagnostic developers and laboratory service providers and has had dialogue with the US Food and Drug Administration (FDA) through the pre IDE (Investigational Device Exemption) process. Furthermore, Miraculins research has been presented to the academic research community at various scientific meetings.

The Company has developed a PSP94 ELISA kit to allow researchers to expand the scientific data involving PSP94 using a rapid test.



# MIRACULINS INC.

## Management's Discussion and Analysis

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In 2010, Miraculins launched the PSP94 Immunoassay for urine specimens (research use only and not for diagnostic procedures) to enable further independent study of the marker in pre-clinical and non-clinical research settings.

### Other Cancer Programs

Miraculins has a number of potential biomarkers for colorectal, gastric and pancreatic cancers. In order to effectively manage its financial and other resources, the Company is currently focused on its cardiovascular and preeclampsia programs while evaluating the next steps for this program and therefore research and development for these programs is currently on hold.

- Biomarkers, including Miraculins' lead biomarker for colorectal cancer (known as MIR-CR1) have been shown to be 100% more sensitive than the fecal occult blood test (FOBT), the current preliminary screening standard for colorectal cancer, according to numbers available in the scientific literature in studies conducted in collaboration with the European Tumour Sample Institute gGmbH, and Fox Chase Cancer Center.
- MIR-CR1 has been identified by amino acid sequence, and the next step for this program involves the development of a clinical grade immunoassay for the marker.
- Seven blood based protein biomarkers of interest for their potential to separate gastric cancer patients from non gastric cancer patients. This included a single marker that performs with a 72% sensitivity at 95% specificity (AUC=0.925) known as MIR-GP1.
- Miraculins also has intellectual property related to pancreatic cancer markers that requires further research.

### New Program Opportunities

Miraculins is continually evaluating in license/acquisition opportunities in areas where there are unmet clinical diagnostic and risk assessment needs. Miraculins has evaluated and catalogued over 500 opportunities and has had numerous licensing discussions in regards to a number of promising technologies. 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.

### OUTLOOK

The strategic direction of the Company is centered on the acquisition, development and commercialization of diagnostic and risk assessment tests 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 2012, as compared to fiscal 2011 and fiscal 2010. Any increase in expenditures would result from the continued development of current technology programs and the potential addition of complementary technologies.

The Company's financial statements have been prepared using Canadian generally accepted accounting principles ("Canadian GAAP") that are applicable to a going concern, which contemplates that Miraculins 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. The Company has experienced operating losses and cash outflows from operations since incorporation and has not reached successful commercialization of its products.

The Company's future operations are dependent upon its ability to generate product sales, negotiate collaboration or license agreements with upfront payments, obtain research grant funding, and secure additional funds. 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. If the Company cannot generate product sales, negotiate collaboration or license agreements with upfront payments, obtain research grant funding, or if it cannot secure additional financing on terms that would be acceptable to it, the Company will have to consider additional strategic alternatives which may include, among other strategies, exploring the monetization of certain intangible assets as well as seeking to outlicense assets or potential asset divestitures.

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 the successful completion of the actions taken or planned, some of which are described above, which management believes will mitigate the adverse conditions and events which raise doubt about the validity of the going concern assumption used in preparing these financial statements. There is no certainty that these 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 in the carrying values of assets and liabilities, expenses, and the balance sheet classification used, that would be necessary if the going concern assumption were not appropriate. Such adjustments could be material.

Based on current estimates and expected operating activities, management believes the Company has sufficient financial resources to fund operations into the second quarter of 2012.

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. 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. The Company is subject to risks inherent in the biotechnology industry, including:

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

- The Company has not derived any revenue to date from the commercial sale of its diagnostic products. 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.
- 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 that may not be available to the Company on favourable terms, and may be dilutive.
- The Company may fail to obtain additional financing and be unable to fund operations and commercialize its product candidates.
- 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.

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 availability of financing will be affected by the results of scientific and clinical research, 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.

**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.
- Failure to protect intellectual property, or infringement on the intellectual property rights of others, may impede the Company's ability to operate freely.
- The Company's business is subject to significant government regulation and failure to achieve regulatory approval of diagnostic products would negatively affect its business.
- 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.
- 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, 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 product 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 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 rapid change and a failure by the Company to react to these changes could have a material adverse effect on its business.
- 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.
- If the Company fails to hire or retain needed personnel, the implementation of its business plan could slow and future growth could suffer.
- 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.

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 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.

**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 market price and trading volume of the Company's common shares may be volatile. In addition, variations in earnings estimates by securities analysts and the market prices of the securities of our competitors may also lead to fluctuations in the trading price of the 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.

To date, no dividends have been declared or paid on the common shares, and it is not expected that dividends will be declared or paid in the immediate or foreseeable future. The policy of the Board of Directors of the Company is to reinvest 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.

**SELECTED ANNUAL FINANCIAL INFORMATION**

The following is selected financial information about the Company, for its 2011, 2010, and 2009 fiscal years:

<b>Years ended November 30,</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>
General and administration expenses	\$ (981,705)	\$ (1,156,937)	\$ (519,554)
Research expenses	(416,415)	(269,230)	(256,750)
Interest expense	(224,865)	(57,095)	(1,964)
Other income	104,490	89,041	2,671
Loss and comprehensive loss for the year	(1,617,182)	(1,428,811)	(843,891)
Loss per share	(0.02)	(0.03)	(0.03)
Total assets	1,953,604	1,333,275	346,714
Total liabilities	1,890,500	1,100,720	581,679
Deficit	(11,127,805)	(9,510,623)	(8,081,812)
Total capital stock, warrants and contributed surplus	11,190,909	9,743,178	7,846,847

**SELECTED QUARTERLY FINANCIAL INFORMATION**

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

	<b>Q4 - 2011</b>	<b>Q3 - 2011</b>	<b>Q2 - 2011</b>	<b>Q1 - 2011</b>	<b>Q4 - 2010</b>	<b>Q3 - 2010</b>	<b>Q2 - 2010</b>	<b>Q1 - 2010</b>
Loss for the period	(628,469)	(326,649)	(352,764)	(309,300)	(406,924)	(565,714)	(268,495)	(187,677)
Investment income	1,576	6,169	3,102	2,044	2,187	846	725	168
Loss per share	(0.01)	-	(0.01)	-	(0.01)	(0.01)	(0.01)	-

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 loss over the past two years relates primarily to the expansion of the Company's research and development programs, primarily the acquisition and the move towards commercialization of the PreVu Non-Invasive Skin Cholesterol Test. The increased losses for Q4 and Q3 2010, as compared to preceding quarters, is primarily due to the professional fees and other costs related to the acquisition of PreVu assets. The increased losses in fiscal 2011 as compared to Q2 and Q1 2010 relate to costs associated with the move towards commercialization of PreVu. The Q4 2011 loss has also increased due to the revaluation of the royalty obligation and interest on the long-term debt, both recorded as interest expense in Q4 2011.

**RESULTS OF OPERATIONS**

**General and Administration**

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.

The changes in general and administration expenditures, including stock-based compensation, for the years ended November 30, 2011 and 2010 are reflected in the following table:

<b>Years ended November 30,</b>	<b>2011</b>	<b>2010</b>	<b>Increase (Decrease)</b>
Compensation related costs			
Wages, consulting fees, and benefits	\$ 428,900	\$ 208,754	\$ 220,146
Stock compensation related costs	54,619	344,304	(289,685)
Business development costs	371,378	517,064	(145,686)
Other administration costs	126,808	86,815	39,993
<b>Total general and administration</b>	<b>\$ 981,705</b>	<b>\$ 1,156,937</b>	<b>\$ (175,232)</b>

The decrease in costs for the year ended November 30, 2011 as compared to 2010 can be attributed to the following factors:

- The increase in wages, consulting fees, and benefits is primarily related to the appointment of new executive team members.
- The decrease in stock compensation related costs is related to the granting of stock options to certain of the Company's management, directors and employees during fiscal 2010. In fiscal 2011, the compensation related to stock option grants was significantly less.
- The decrease in business development costs is related to a decrease in investor communication fees and legal fees, as compared to the same period of the prior year.
- The increase in other administration costs is primarily higher professional fees and transfer agent and filing fees.

The Company expects higher levels of general and administration expenditures for the coming fiscal year.

**Research and development**

Research and development expenditures include costs associated with the Company's research and development programs, the significant portion of which are salaries paid to research staff (prior to Q4 2011), equipment rental, consumables, and consulting. The Company is in the development stage and devotes a significant portion of its financial resources to research and development activities.

The changes in research and development expenditures, including stock-based compensation, for the years ended November 30, 2011 and 2010 are reflected in the following table:

<b>Years ended November 30,</b>	<b>2011</b>		<b>2010</b>		<b>Increase (decrease)</b>
Compensation related costs	\$	83,146	\$	137,072	\$ (53,926)
Consumables		10,807		33,016	(22,209)
Contract research and scientific consulting		52,647		37,647	15,000
Laboratory rent and occupancy costs		38,011		47,880	(9,869)
PreVu Non-Invasive Cholesterol test		327,198		72,205	254,993
Other research costs		9,916		15,401	(5,485)
less: Government assistance		(105,310)		(73,991)	31,319
<b>Total research and development</b>	<b>\$</b>	<b>416,415</b>	<b>\$</b>	<b>269,230</b>	<b>\$ 147,185</b>

As expected, research and development expenditures for the year ended November 30, 2011 were higher as compared to the year ended November 30, 2010. This net increase can be attributed to the following factors:

- Compensation related costs are lower due to a decrease in research staff throughout fiscal 2011, followed by the closure of the Company's internal wet lab during Q4 2011.
- The Company required fewer consumables as part of its laboratory based activities related to its preeclampsia programs as compared to the prior fiscal year.
- The Company incurred certain scientific consulting costs related to its preeclampsia project supported by the Canada-Israel Industrial Research and Development Foundation (CIIRDF). Lower costs were incurred in the prior fiscal year.
- Upon expiry of its laboratory lease, the Company negotiated a reduction in total square footage rented as part of its new lease agreement resulting in lower costs during fiscal 2011.
- In 2010, the Company acquired assets related to the PreVu Non-Invasive Cholesterol test. Costs incurred in the current year were directly related to development activities of this technology as the Company moves towards commercialization of the product.
- The decrease in other research costs is primarily related to lower research and development related travel associated with the Company's preeclampsia project which was being supported by CIIRDF as compared to the prior fiscal year.
- Government assistance in fiscal 2011 relates partially to the cooperation and project funding agreement with CIIRDF. The Company receives funding to offset \$1 for every \$2 spent on research on the project. During fiscal 2011, \$25,252 was recorded under agreement. Additionally, in June 2011, the Company received a grant from the Province of Manitoba through the Manitoba Technology Commercialization Program to support the PreVu\* Non-Invasive Cholesterol Test. The program provides 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 maximum of \$100,000. During the year ended November 30, 2011, \$80,057 was recorded under this program. In fiscal 2010, the government assistance relates entirely to the cooperation and funding agreement with CIIRDF.

The Company expects higher levels of research and development expenditures for the coming fiscal year as the Company moves towards commercialization of PreVu.

**Interest Expense**

The change in interest expense for the years ended November 30, 2011 and 2010 is reflected in the following table:

<b>Years ended November 30,</b>	<b>2011</b>		<b>2010</b>		<b>Increase (Decrease)</b>
Interest expense	\$	224,865	\$	57,095	\$ 167,770

Interest expense for the current year is the result of the revaluation of the royalty obligation associated with the acquisition of PreVu of \$181,000, interest on the long-term debt that was obtained in October of 2011 of \$21,701, interest on the amount payable to Genesys Venture Inc. ("GVI") of \$21,077 and interest on the capital lease of \$1,087. In fiscal 2010, the interest related to interest on the amount payable to GVI of \$55,559 and interest on the capital lease of \$1,536. The increase is due to the accretion of the royalty obligation and the interest on the long-term debt that was obtained in Q4 of 2011, partially offset by lower interest on the amount payable to GVI which was reduced throughout fiscal 2011. The Company anticipates higher levels of interest expense as a result of the outstanding debt for the coming year.

**Other Income**

The changes in other income for the years ended November 30, 2011 and 2010 are reflected in the following table:

<b>Years ended November 30,</b>	<b>2011</b>		<b>2010</b>		<b>Increase (Decrease)</b>
Collaborative research and option fees	\$	91,599	\$	85,115	\$ 6,484
Investment and other income	\$	12,891	\$	3,926	\$ 8,966
<b>Total Other Income</b>	<b>\$</b>	<b>104,490</b>	<b>\$</b>	<b>89,041</b>	<b>\$ 15,449</b>

The increase in other income for the current year is the result of higher collaborative research and option revenues from the agreement with Alere Inc. and higher investment and other income as a result of higher average cash balances as compared to the same period in the prior year. The Company anticipates similar levels of investment income for the coming year.

**Loss and comprehensive loss for the year**

The loss and comprehensive loss for the years ended November 30, 2011 and 2010 is reflected in the following table:

<b>Years ended November 30,</b>	<b>2011</b>		<b>2010</b>		<b>Increase (Decrease)</b>
Loss and comprehensive loss for the period	\$	1,617,182	\$	1,428,811	\$ 188,371
Loss per share	\$	0.02	\$	0.03	\$ (0.01)

As discussed above, the increase in loss in fiscal 2011 as compared to fiscal 2010 resulted mainly from higher PreVu development activities and interest expense, partially offset by lower general and administration expenses, primarily stock-based compensation.



## **LIQUIDITY AND CAPITAL RESOURCES**

Since inception to October 2011, the Company has financed its operations from public and private sales of equity, the exercise of warrants and stock options, interest income on funds available for investment, government grants and tax credits. In October 2011, the Company obtained net debt financing in the amount \$950,000 from a private lender. As at November 30, 2011, the Company had unrestricted cash totaling \$683,169 as compared with \$126,825 at November 30, 2010.

### **Cash used in operating activities**

Cash used in operating activities totaled \$1,591,146 for the year ended November 30, 2011 from ongoing research and development programs as well as general and administration activities, compared to cash used by operating activities of \$1,074,239 for the same period in fiscal 2010. The increase in cash used in operating activities is due to a higher loss for the year ended November 30, 2011. Additionally, accounts receivable increased from November 30, 2010 to November 30, 2011 and the amount due to a related party was paid down significantly during fiscal 2011.

### **Cash from financing activities**

For the year ended November 30, 2011, cash provided from financing activities totaled \$2,262,260. Of this amount, \$950,000 related to proceeds from the debt financing, \$9,233 was for repayment of obligation under capital lease, and \$1,321,493 was from the issuance of shares and the exercise of warrants. In the previous fiscal year, cash provided from financing activities totaled \$1,339,948. Of this amount, \$8,784 was for repayment of obligation under capital lease and \$1,348,732 was from the issuance of shares and the exercise of warrants.

### **Cash used in investing activities**

Cash used in investing activities totaled \$114,770 for the year ended November 30, 2011. Of this amount, \$112,149 was for patent costs and \$2,621 was for the acquisition of property and equipment. In the previous fiscal year, cash used in investing activities totaled \$291,815. Of this amount, \$37,668 was for patent costs, \$4,147 was for the acquisition of property and equipment, and \$250,000 related to cash paid for the acquisition of the PreVu assets.

### **Shares, options and warrants**

On December 15, 2010, the Company closed a non-brokered private placement offering (the "Q1 2011 Offering") with aggregate gross proceeds to the Company of \$730,000 from the sale of 6,083,331 units ("Units") at a price of \$0.12 per Unit. Each Unit is comprised of one common share of the Company (a "Share") and one half of one Share purchase warrant (a "Warrant"). Each Warrant entitles the holder to purchase one Share at a price of \$0.18 per Share for a period of 12 months from the date the Warrant is issued. The Warrants are callable, at the option of the Company, at any time after six months following their issuance, in the event that the Shares trade at or above \$0.25 per Share for any five out of 10 consecutive trading days. The net proceeds of the Offering are being used for research and development and working capital purposes.

On March 11, 2011, the Company announced the receipt of gross proceeds equal to \$554,000 from the exercise of 5,540,000 warrants through the Company's previously announced warrant exercise incentive program (the "Exercise Program"). Under the terms of the Exercise Program, each exercised warrant entitled the holder thereof (the "Warrantholder") to receive one common share of the Company (a "Common Share") and one-half of one common share purchase warrant, with each whole additional common share purchase warrant (each an "Incentive Warrant") entitling the holder to purchase a Common Share. Each Incentive Warrant will be exercisable at a price of \$0.18 from the date of issue until December 15, 2011. The Company issued 5,540,000 common shares and 2,770,000 Incentive Warrants to Warrantholders in exchange for the warrants that were exercised under the Exercise Program.

On June 17, 2011, 300,000 warrants were exercised. The warrants had an exercise price of \$0.10 and resulted in 300,000 shares being issued for gross proceeds to the Company of \$30,000.

On October 12, 2011, the Company issued 1,428,571 Common Shares from treasury in connection with a loan to the Company as described in note 11 to the financial statements. The shares had a value of \$71,428, net of issue costs of \$1,050.

Subsequent to year end, on January 20, 2012, the Company issued 952,533 Common Shares to Genesys Venture Inc. (GVI) in accordance with the terms of an agreement between the two parties to settle the amount payable by the Company to GVI.

Subsequent to year-end, the Company granted 2,680,000 options to purchase Common Shares to certain directors, an officer, employees and advisors of the Company all with an exercise price of \$0.10. Additionally, 130,000 options expired subsequent to year end.

The outstanding warrants at November 30, 2011 expired subsequent to year end, on December 15, 2011.

	March 9, 2012	November 30, 2011	November 30, 2010
Common shares issued and outstanding	70,375,261	69,422,728	54,634,826
Options outstanding	6,755,000	4,205,000	4,270,000
Warrants outstanding	-	6,248,332	12,486,000

The Company believes it has sufficient financial resources to fund operations into the second quarter of 2012. The Company's management may consider all financing alternatives and may seek to raise 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 lease of laboratory 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				Total
	Within 1 year	2 - 3 years	4 - 5 years		
Management services agreement	\$ 13,333	\$ -	\$ -	\$ 13,333	
Contractual commitments	45,000	57,500	40,000	142,500	
Capital lease	10,320	6,880	-	17,200	
Accounts payable and accrued liabilities	234,522	-	-	234,522	
Long-term debt	120,000	1,180,000	-	1,300,000	
	\$ 423,175	\$ 1,244,380	\$ 40,000	\$ 1,707,555	

The Company has a management services agreement with GVI. As at November 30, 2011, the Company was committed to pay \$13,333 per month or \$160,000 per annum. Subsequent to year end, as at January 1, 2012, this agreement was renegotiated at \$7,083 per month or \$85,000 per annum for a period of one year.

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 6 contained in the audited financial statements.

# MIRACULINS INC.

## Management's Discussion and Analysis



The Company leases its laboratory space under an operating lease. In addition to the annual lease payments, the Company also pays maintenance, property taxes, insurance and other operating costs. The premises and equipment are leased from GVI, a company controlled by a now former director. Subsequent to year end, on January 16, 2012, the Company and GVI mutually agreed to terminate the remainder of the laboratory lease for a one-time payment of \$17,500 and there is no further obligation under this lease.

The Company is obligated to pay royalties to PreMD based on any future commercial sale 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. To date, no revenue had been recorded related to PreVu.

The Company is obligated to pay royalties to CIIRDF based on any future product revenues, if any, from the exploitation of the technology contemplated in the project funding agreement, described in note 9 to the audited financial statements, equal to 2.5 percent up to a maximum of the amounts funded under the agreement. To date, no royalties are due and/or payable.

The Company will also 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 agreement to a third party, the Company shall pay MSH a stipulated percentage of the sub-license fee and sub-license royalty fee as described in note 6 to the audited financial statements.

A summary of the Company's contractual obligations may be found in Note 14 of the audited financial statements for the year ended November 30, 2011.

### RELATED PARTY TRANSACTIONS

Related parties consist of companies with significant influence, and companies in which certain directors, officers, or shareholders have interests. These transactions are in the normal course of operations and are measured at the exchange amount, which is the amount of consideration established and agreed upon by the related parties. Genesys Venture Inc. (GVI) and GVI Clinical Development Solutions (GVI CDS) were related parties of the Company until November 1, 2011, when a director who controlled these entities resigned from the Board of Directors. CanAm Bioresearch Inc, a company related to GVI through common management also ceased to be a related party on this date.

The Chief Financial Officer's services are provided through the business and administrative services agreement with GVI (the "GVI Agreement"). In addition, intellectual property, accounting, payroll, human resources and information technology services are provided to the Company through the GVI agreement. Subsequent to year end, as at January 1, 2012, the terms of this agreement were renegotiated.

Clinical and research services are provided through a consulting agreement with CanAm Bioresearch Inc. (CanAm), a company related to GVI through common management. CanAm ceased to be a related party on November 1, 2011 when a now former director who controlled GVI resigned from the Board of Directors. Regulatory affairs, quality assurance and clinical support are provided to the Company through a consulting agreement with GVI Clinical Development Solutions Inc. (CDS).

Related party transactions incurred during the years ended November 30, 2011 and 2010 are as follows:

	November 30, 2011	November 30, 2010
<b>General and administration</b>		
Business and administrative services	\$ 160,000	\$ 195,000
Interest on due to related party	21,077	55,559
<b>Research and development</b>		
Rent	30,000	39,479
Clinical research services	154,531	39,120
Scientific equipment lease	10,320	10,320

# MIRACULINS INC.

## Management's Discussion and Analysis



As of November 30, 2011, \$68,712 (November 30, 2010 - \$255,125) is owed to GVI which bore interest at 12% per annum, calculated and compounded on a monthly basis until September 30, 2011. At November 30, 2011, the \$68,712 owing to GVI was recorded within accounts payable and accrued liabilities as GVI was no longer a related party. Subsequent to year end, on January 20, 2012, the payable to GVI was settled in a shares for debt transaction when 952,533 Common Shares were issued to GVI for payment for services rendered in accordance with the terms of an agreement between the two parties.

Included in accounts payable and accrued liabilities as of November 30, 2011 is \$12,748 (November 30, 2010 - \$12,494) owed to CDS and \$5,513 (November 30, 2010 - \$12,915) owed to CanAm, neither of which were interest bearing or had any specific terms of repayment.

### 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, 2011, 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 Canadian generally accepted accounting principles (Canadian GAAP) 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 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 assumptions described above, management believes that its most critical policies and estimates relate to the following areas, with reference to notes contained in the audited financial statements for the year-ended November 30, 2011:

**Research and development costs**

The Company's accounting policy over research and development costs may be found in Note 2(h) to the audited financial statements for the year-ended November 30, 2011. Research expenditures are expensed as incurred. Development expenditures are deferred when they meet the criteria for capitalization in accordance with Canadian GAAP, and the future benefits could be regarded as being reasonably certain. Related tax credits are accounted for as a reduction to research and development expenditures on the condition that the Company is reasonably certain that these credits will materialize.

**Intangible assets**

The Company's accounting policy over intangible assets may be found in Notes 2(d) and 2(e) to the audited financial statements for the year-ended November 30, 2011. Intangible assets are reviewed for impairment on an ongoing basis whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment is recognized when the carrying amount of an asset to be held and used exceeds the projected undiscounted future net cash flows expected from its use and disposal, and is measured as the amount by which the carrying amount of the asset exceeds its fair value. Triggering events for reviews for impairment typically include abandonment of patent applications which result in the related asset being written down to a nil value.

**Stock-based compensation**

The Company's accounting policy over stock-based compensation may be found in Notes 2(i), 12(c) and 12(d) to the audited financial statements for the year ended November 30, 2011. Where the Company issues warrants and stock options (to its employees, directors and officers), a fair value is derived using the Black-Scholes pricing model. The application of this pricing model requires Management to make assumptions regarding several variables, including the expected life of the options and warrants, the price volatility of the Company's stock over a relevant timeframe, the determination of a relevant risk-free interest rate and an assumption regarding the Company's dividend policy in the future.

A summary of all of the Company's significant accounting policies and estimates may be found in Note 2 to the audited financial statements for the year-ended November 30, 2011.

**CHANGES IN ACCOUNTING POLICIES****1. New Accounting Standards adopted during the year:**

There were no changes in Accounting Policies during the period.

**2. International Financial Reporting Standards (IFRS) Changeover Plan:**

In February 2008, the Canadian Accounting Standards Board (AcSB) confirmed that IFRS will be mandatory in Canada for profit-oriented publicly accountable entities for fiscal periods beginning on or after January 1, 2011. Accordingly, the Company will prepare its financial statements in accordance with IFRS commencing December 1, 2011; thus, its first quarter under IFRS reporting standards will be for the three months ended February 28, 2012 for which current and comparative information will be prepared under IFRS including an opening IFRS balance sheet as at December 1, 2010 (the date of transition).

Described below are the Company's IFRS changeover plan, selected key activities and their status, and the significant, known possible high impact accounting areas on the Company's financial reporting identified to date.

This information is provided to allow investors and others to obtain a better understanding of the Company's IFRS changeover plan. Readers are cautioned, however, that it may not be appropriate to use such information for any other purpose. This information also reflects the Company's most recent assumptions and expectations; circumstances may arise, such as changes in IFRS, regulations or economic conditions, which could have an impact on these assumptions or expectations. The information presented below is therefore subject to change and does not represent a final assessment of divergences noted by the Company to date but is intended to highlight areas in which it has achieved considerable progress.

### **IFRS changeover plan**

The Company developed a plan for its changeover to IFRS which comprised three phases:

- **Phase 1: Scope and Plan:** The objective of this phase was to identify the required changes to the Company's accounting policies and practices resulting from the changeover to IFRS and to thereby determine the scope of the work effort required for the subsequent phases of the project.
- **Phase 2: Design and Build:** The objective of this phase was to design and develop solutions to address the differences identified in Phase 1.
- **Phase 3: Implementation and Review:** The objective of this phase was the implementation and review of changes that affect accounting policies and practices, business processes, systems and internal controls. Changes will be tested prior to the formal reporting requirements under IFRS to ensure all significant differences are addressed in time for the first reporting period.

The Company is working through the phases as it prepares for its February 28, 2012 unaudited interim financial statements under IFRS. The findings of the Phases, insofar as they relate to the significant accounting areas for conversion to IFRS that will impact the Company's financial statements are summarized below.

### **Progress towards completion of the Company's IFRS changeover plan**

The Company has now finalized Phase 1. Management has reviewed all currently relevant IFRS standards and identified a number of areas of measurement and classification differences under IFRS as compared to Canadian GAAP.

### **IFRS 1 "First Time Adoption of Reporting Standards"**

IFRS 1, "First-Time Adoption of International Financial Reporting Standards" ("IFRS 1"), provides entities adopting IFRS for the first time with a number of optional exemptions and mandatory exceptions in certain areas to the general requirement for full retrospective application of IFRS.

The areas below have been identified as having an impact on the Company's financial statements.

Share-based payment transactions – Full retrospective application of IFRS 2 "Share-based Payment" may be avoided for certain share-based instruments depending on the grant date, vesting terms and settlement of any related liabilities. The Company will not apply IFRS 2 to equity instruments that were granted after November 7, 2002 and vested before December 1, 2010.

Under IFRS, forfeitures due to service conditions are required to be estimated at the grant date and such estimates are revised for differences between the expected and actual number of instruments that vest. Canadian GAAP, as applied by Miraculins, permits the recognition of compensation expense as if all instruments granted were expected to fully vest and recognition of actual forfeitures as they occur. The estimated forfeitures method will result in a decrease to the Company's opening IFRS deficit balance and an increase to contributed surplus within shareholders' equity as at December 1, 2010 that is not expected to be material.

The following summarizes other significant accounting areas analyzed by management for conversion to IFRS that could possibly impact the Company's financial statements post transition:

### **IAS 36 "Impairment of Assets"**

Under Canadian GAAP, capital assets and intangible assets subject to amortization are tested for recoverability when events or changes in circumstances indicate that their carrying amount may not be recoverable.

As it relates to the measurement of the impairment loss, under Canadian GAAP for assets other than financial assets, a write-down to estimated fair value is recognized if the estimated undiscounted future cash flows from an asset or group of assets are less than their carrying value. Under IAS 36, a write-down is recognized if the recoverable amount, determined as the higher of the estimated fair value less costs to sell or the discounted future cash flows from an asset or group of assets, is less than carrying value. In contrast, under Canadian GAAP, impairments are measured at the amount by which carrying value exceeds fair value.

The difference in testing and determining an impairment may result in more frequent impairment charges, where carrying values of assets may have been supported under Canadian GAAP on an undiscounted cash flow basis, but cannot be supported on a discounted cash flow basis. The Company will complete an impairment test under the IFRS model as at December 1, 2010.

IAS 36 also requires the reversal of any previous impairment losses where circumstances requiring the impairment charge have changed and reversed, other than for goodwill. With respect to long-lived assets, Canadian GAAP does not permit the reversal of impairment losses under any circumstances.

Under IFRS, Miraculins will need to assess impairment in terms of the recoverable amount as defined under IFRS. Miraculins will monitor possible subsequent reversals of previously written down long-lived assets; this will require that the Company track assets and their original carrying values as well as implied accumulated depreciation for possible future reversals of impairment allowed under IFRS. The Company has not identified any past impairments of intangible assets that would require reversal upon transition.

#### **Other IFRS transition items**

The Company has performed an analysis of its data system infrastructure and internal controls and has concluded that transition to IFRS will not result in a material modification to any of its IT processes as a result of the differences it has identified to date. Significant impacts identified, if any, on processes and controls will be disclosed in future filings when the assessment will be finalized.

The Company is in the process of completing Phase 2 of the changeover plan and Phase 3 began in the fourth quarter of 2011. The Company is completing the final selection of accounting policies and transition options under IFRS. As described above some adjustments to the opening IFRS deficit balance as at December 1, 2010, are expected.

Prior to filing financial statements for its first quarter of 2012, the Company will complete the design and implementation effort required to ready business processes and internal controls for the changeover. Based on the analysis to date, no significant changes are anticipated to processes and internal controls.

Appropriate resources have been secured to complete the changeover on a timely basis according to the Company's plan milestones. The Company continues to ensure that appropriate training needs are met. Third-party subject matter experts continue to assist the Company throughout the changeover.

#### **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 will not be unreasonably delayed and expenses will not increase substantially;
- government regulation will not impose 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.