
# SERNOVA CORP.

## MANAGEMENT'S DISCUSSION AND ANALYSIS

## FOR THE YEARS ENDED

## OCTOBER 31, 2022 AND 2021

Dated January 26, 2023

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The following management's discussion and analysis (MD&A) explains the consolidated operating results, financial position, and cash flows of Sernova Corp. (Sernova, the Company, We, Us, or Our) for the three months and years ended October 31, 2022, and 2021. This MD&A should be read in conjunction with the Company's Annual Information Form (AIF) dated January 26, 2023 and its audited consolidated financial statements and related notes for the years ended October 31, 2022, and 2021, which have been prepared in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB).

The Company's accounting policies under IFRS are set out in *Note 3 – Significant Accounting Policies* of the audited consolidated financial statements for the years ended October 31, 2022, and 2021. All amounts are in Canadian dollars. The information in this report is dated as of January 26, 2023, unless otherwise noted.

## FORWARD-LOOKING STATEMENT

This MD&A contains "forward-looking statements" that reflect the Company's current expectations and projections about its future results. When used in this MD&A, the use of words such as "estimate", "project", "potential", "belief", "anticipate", "intend", "expect", "plan", "predict", "may", "could", "should", "will", "consider", "anticipate", "objective" and the negative of these words or such variations thereon or comparable terminology, are intended to identify forward-looking statements and information. Forward-looking statements are, by their nature, not guarantees of the Company's future operational or financial performance and are subject to risks and uncertainties and 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. No representation or warranty is intended with respect to anticipated future results or that estimates or projections will be sustained.

The Company's statements of "belief" concerning its technologies and product candidates are based primarily upon results derived to date from the Company's research and development programs. The Company also uses the term "demonstrated" in this MD&A to describe certain findings that it makes arising from its research and development (R&D), including any preclinical and clinical studies that the Company has conducted to date.

Specifically, this MD&A contains forward-looking statements which include, but are not limited to, statements regarding:

- the Company's corporate strategy and strategic objectives;
- the availability of various forms of external financing to fund the Company's ongoing operations, liabilities and commitments;
- the expected benefits to patients with Cell Pouch™ transplanted with therapeutic cells or tissue;
- the conduct of preclinical studies and clinical trials of our Cell Pouch System™ for the treatment of insulin-dependent diabetes, hypothyroid disease, hemophilia A and other clinical indications, and the Company's ability to conduct its clinical studies;
- the expected benefits to patients of our Cell Pouch diabetes, hypothyroid disease and hemophilia A cell therapy programs;
- the expected benefits to patients with type 1 diabetes (T1D) implanted with Cell Pouch and human donor islets and or induced pluripotent stem cell (iPSC) derived islet-like clusters;
- the Company's intention to protect therapeutic cells within Cell Pouch from immune attack

using local immune protection technologies such as conformal coating, gene-editing, tolerance, or using a systemic anti-rejection regimen or a combination thereof and the expected benefits therefrom;

- the expected benefits of any next generation Cell Pouch System technologies;
- the expectation of successful development up to an IND submission and beyond combined with the expected benefits of using iPSC derived islet-like clusters in combination with Cell Pouch and ancillary technologies within the Evotec Collaboration (defined hereafter);
- the Company's intentions and ability to secure academic and pharmaceutical / medtech collaborations to develop and implement partnering strategies and manage partnerships;
- the Company's intention and ability to use human autograft cells or tissues or human donor allograft cells or xenogeneic cells for treatment, and the intention to use human stem cell-derived cells (i.e., iPSCs), considered unlimited cell sources for our Cell Pouch and Cell Pouch System for the potential treatment of various diseases;
- the Company's intention and ability to obtain regulatory clearance for clinical trials and marketing approval of the Cell Pouch or Cell Pouch System for the treatment of insulin-dependent diabetes, hemophilia A, thyroid disease, and other diseases;
- the Company's intentions and ability to obtain Orphan Drug (for rare diseases), Fast Track, Breakthrough Technology, Regenerative Medicine Advanced Therapy (RMAT), Accelerated Approval or Priority Review in the US, and similar regulatory designations in North America, Europe or other jurisdictions abroad, and the related impact on timeline estimates to conduct clinical trials or obtain marketing approval for the Company's products;
- the Company's expectations that Sernova's technologies are unique and may become a standard of care in therapeutic cell transplantation if they prove to be safe and effective in clinical trials;
- the Company's expectations with respect to the research and development of Sernova's products, clinical trials, and commercialization of our products;
- the Company's commercialization strategy for our technologies including Cell Pouch or Cell Pouch System and associated technologies;
- the Company's intentions regarding the development and protection of Sernova's intellectual property;
- the Company's intentions with respect to obtaining licenses for technologies compatible with the Cell Pouch System;
- the Company's intention to develop next-generation Cell Pouch or Cell Pouch System related technologies;
- the Company's ability to secure cGMP manufacturing facilities for its cell therapy programs;
- sufficient availability of Cell Pouch product for the conduct of preclinical studies, clinical trials, and following marketing approval for commercial use;
- the direct and indirect impact of the novel coronavirus (COVID-19) and variants and any other further global health emergencies on our business and operations, including supply chain, manufacturing, research and development costs, clinical trials including patient enrollment, contracted service providers and employees; and
- the Company's general business and economic conditions.

In developing the forward-looking statements in this MD&A, the Company has applied several material assumptions, including the availability of financing on reasonable terms, the ability to form and maintain strategic alliances with other business entities, and general business and economic conditions.

Forward-looking information is based on the reasonable assumptions, estimates, analysis, and opinions of management made in light of its experience and perception of trends, current conditions, and expected developments, as well as other factors that management believes to be relevant and reasonable in the circumstances at the date that such statements are made, but which may prove to be incorrect. We believe that the assumptions and expectations reflected in such forward-looking information are reasonable.

Key assumptions upon which the Company's forward-looking information are based include:

- the Company's ability to manage its growth effectively;
- the expected benefits to patients of our technologies including Cell Pouch and Cell Pouch System cell therapy programs;
- the absence of material adverse changes in our industry or the global economy;
- trends in our industry and markets;
- the Company's ability to comply with current and future regulatory standards;
- the Company's ability to protect its intellectual property rights;
- the Company's continued compliance with third-party license terms and the non-infringement of third-party intellectual property rights;
- the Company's ability to complete all necessary preparatory work to file an IND for iPSC derived islet-like clusters in combination with Cell Pouch and any applicable ancillary technologies;
- the Company's ability to supply Cell Pouches, therapeutic cells and or any complementary technologies comprising a product;
- the Company's ability to effectively conduct and manage clinical trials;
- the Company's ability to attract and retain key personnel; and
- the Company's ability to raise sufficient equity or debt financing to support continued growth and operational needs.

There are a number of important factors that could cause Sernova's actual results to differ materially from those indicated or implied by forward-looking statements and information, including but not limited to: early-stage development and scientific uncertainty, lack of product revenues and history of losses, additional financing requirements and access to capital, patents and proprietary technology, dependence on collaborative partners, licensors, contract research organizations (CROs), contract manufacturing organizations (CMOs) and others, government regulations, hazardous materials and environmental matters, rapid technological change, competition, reliance on key personnel, status of healthcare reimbursement, potential product liability and volatility of share price, absence of dividends, fluctuation of operating results and the impacts of the continuing novel coronavirus (COVID-19) pandemic or related outbreaks. Such risks are further described under "**RISK FACTORS AND UNCERTAINTIES**" in this MD&A or under *"RISK FACTORS"* in our AIF. Potential investors, and other readers are urged to consider these factors carefully in evaluating these forward-looking statements and information and are cautioned not to place undue reliance on them. Sernova has no responsibility, nor does it intend, to update these forward-looking statements and information unless as otherwise required by law.

Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this MD&A or as of the date otherwise specifically indicated herein. Due to risks and uncertainties, including the risks and uncertainties associated with COVID-19 and as described elsewhere in this MD&A, actual events may differ materially from current expectations. The Company disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise.

This MD&A has been prepared to help investors understand the financial performance of Sernova in the broader context of the Company's strategic direction, the risks and opportunities as understood by management, and some of the key metrics that are relevant to the Company's performance. This MD&A has been reviewed and approved for filing by the Company's Audit Committee and the Board of Directors. The Company's Audit Committee consists of three independent Directors, who are all considered to be "financially literate" as defined in NI 52-110.

## ABOUT SERNOVA

Sernova is a clinical-stage cell therapeutics company focused on development and commercialization of our proprietary technologies, including Cell Pouch implantable device technologies and immune-protected therapeutic cells, herein termed Cell Pouch System. The Cell Pouch System is a technology platform being developed for the treatment of and a potential 'functional cure' for chronic debilitating diseases including type 1 diabetes (insulin-dependent diabetes or T1D), thyroid disease, and rare diseases such as hemophilia A. The Cell Pouch is a scalable, implantable, medical device, designed to create a highly vascularized organ-like environment for the transplantation and engraftment of therapeutic cells, which then release proteins and / or hormones into the microvasculature for the long-term treatment of various chronic diseases. The therapeutic cells used for therapeutic purposes may be autograft cells or tissues (self-cells / tissues) or allograft cells (non-self, donor cells) or cells derived from sources known to provide a virtually unlimited supply of cells such as human stem cell-derived cells or from a xenogeneic (non-human) source. Furthermore, the therapeutic cells may be unmodified or may be genetically modified to produce their therapeutic product.

Our preclinical and clinical research studies to date support the safety and biocompatibility of Cell Pouch and long-term survival and function of therapeutic cells transplanted into the vascularized Cell Pouch chambers. Our data demonstrates that, following implantation of a Cell Pouch deep under the skin or in other locations in the body, vascularized tissue incorporates through pores in the device forming fully enclosed vascularized tissue chambers. Upon transplantation of therapeutic cells into these vascularized chambers a natural tissue matrix forms around the cells along with microvessels to the cells, enabling them to engraft (survive and function). Thus, an anticipated benefit of the Cell Pouch is formation of a natural environment for the therapeutic cells that provides for enhanced long-term therapeutic cell survival and function. We believe this is due in part to the therapeutic cells living in a natural tissue matrix within close contact of microvessels.

We believe our unique approach in providing a natural environment for therapeutic cells and its ease of use may provide an opportunity for Sernova's technologies including the Cell Pouch System to become the standard of care in therapeutic cell transplantation for multiple diseases if they continue to demonstrate safety, tolerability and clinical benefit in preclinical and clinical trials.

As noted in our latest AIF, filed under the Company's SEDAR profile at www.sedar.com on January 26, 2023, our research activities during the past three years have focused on the development of the Cell Pouch System platform as a potential new treatment for various therapeutic indications including T1D, hemophilia A, thyroid disease and additional chronic debilitating and rare diseases. We have also

entered into strategic collaborations and acquired, in-licensed or obtained an exclusive option to in-license related technologies to expand and support our research efforts. Earlier history of the corporate development of the Company and its business is also available on SEDAR.

## RECENT QUARTER HIGHLIGHTS

### *R&D HIGHLIGHTS*

January 2023: We announced an update on the progress in our collaboration with Hamburg, Germany based Evotec SE (NASDAQ:EVO | FSE:EVT) for the development and commercialization of an iPSC-based beta cell replacement therapy for diabetes (Evotec Collaboration). The Evotec Collaboration has to date resulted in the following significant achievements:

- development of a robust, cost-efficient, scalable, highly controlled iPSC differentiation protocol with the ability to cryopreserve and store batches of differentiated islet-cell clusters;
- demonstration of excellent islet-like cluster survival under standard shipping conditions and following transplantation;
- demonstration of consistent long-term insulin independence with no hypoglycemic events and consistent safety profiles in a gold standard T1D preclinical model with Evotec's iPSC-derived islet-like clusters transplanted in Sernova's Cell Pouch;
- iPSC islet-like cluster manufacturing scale-up and technology transfer activities to Evotec's iPSC GMP facility are well under way in preparation for manufacture of clinical and commercial iPSC islet-like clusters supply; and
- interactions with experts in support of design of a Phase 1/2 clinical trial.

Preparatory activities will continue in preparation for the anticipated IND filing in 2024.

November 2022: We announced the approval of a protocol amendment for our US Phase 1/2 Cell Pouch Clinical Trial for T1D, adding a second cohort of up to seven patients and incorporating a larger capacity 10 channel Cell Pouch and optimized dose of transplanted islet cells. It was also announced that we have engaged a clinical trial recruitment agency to assist with expediting patient enrollment and the first two patients of the second cohort have been implanted with the new 10 channel Cell Pouch.

June 2022: Updated interim data from our ongoing US Phase 1/2 Cell Pouch Clinical Trial was presented on June 6th, 2022, as an oral podium presentation "*Modified Approach for Improved Islet Allotransplantation into Prevascularized Sernova Cell PouchTM Device: Preliminary Results of the Phase I/II Clinical Trial at University of Chicago"* at the American Diabetes Association (ADA) 82nd Scientific Sessions, held in New Orleans, LA. Key observations included the following:

- surgical implantation of Cell Pouch continues to be generally well tolerated with a favorable safety profile;
- the first three patients with long standing T1D and serious hypoglycemia events (SHE), presented positive serum C-peptide values confirming active insulin production after islet transplantation into the Cell Pouch;
- a supplemental marginal dose islet transplantation via the portal vein was sufficient to allow those three patients to achieve and maintain insulin independence, ranging at the time of presentation from 3 months to over 2 years;
- the insulin independent patients have HbA1c in the normal range; and

- immunosuppression for three additional patients on the study who did not maintain optimal levels has been resolved, enabling those patients to receive further protocol-defined islet transplants.

Another key finding from the interim clinical update was that decreasing the packing density of the islets transplanted into Cell Pouch resulted in greater stimulated C-peptide. Consequently, we believe implementing a higher capacity Cell Pouch will optimize patient efficacy outcomes.

May 2022: We announced entering into an exclusive global strategic partnership with Evotec SE, the leading developer of iPSC cell technologies for therapeutic applications, for the development and commercialization of an iPSC-based beta cell replacement therapy for diabetes The Evotec Collaboration is a transformative partnership for Sernova that will combine our proprietary Cell Pouch System, which has demonstrated Phase 1/2 clinical proof-of-concept using human donor islets, and related technologies with Evotec's iPSC-based beta cells (islet-like clusters). We believe incorporating Evotec's insulin-producing, ethically derived islet-like clusters into Sernova's Cell Pouch platform creates the potential to provide a 'functional cure' for millions of people suffering from diabetes using an off-the shelf cGMP manufactured, scalable product.

### *CORPORATE HIGHLIGHTS*

January 2023: We attended the J.P. Morgan 41st Annual Healthcare Conference in San Francisco, CA (JPM) and engaged with pharma and biotech companies during the BIO Partnering sessions and other corporate meetings. We also met with and provided a corporate update to analysts and bankers as well as current and potential US investors during LifeSci Partners' 12th Annual Corporate Access Event hosted concurrently at JPM.

December 2022: As part of a planned leadership succession process and management team expansion, we announced that after a successful 13-year tenure leading the Company through the development of its pioneering Cell Pouch System and ensuing growth, current President and Chief Executive Officer Dr. Philip Toleikis will assume the new position of Chief Technology Officer once a new Chief Executive Officer has been recruited and joins the Company. A comprehensive executive search process is underway.

October 2022: We announced the appointment of KPMG LLP, Chartered Professional Accountants as new auditor of the Company. There were no reservations in the Company's former auditor's audit reports for any financial period during which they were our auditor nor were there any "reportable events" (as the term is defined in National Instrument 51-102 - Continuous Disclosure Obligations).

September 2022: We announced full exercise of the remaining common share purchase warrants expiring in September 2022. Combined with the full exercise of remaining common share purchase warrants expiring in August 2022, total proceeds of $16,136,728 were received during the fiscal year.

September 2022: We announced the appointment of Daniel Mahony, Ph.D. to our Board of Directors, effective September 30th, 2022. Dr. Mahony is Entrepreneur-in-Residence at Evotec SE (Evotec) and is also responsible for managing Evotec's equity investment portfolio. Dr. Mahony brings over 25 years of global healthcare investment, management and research experience covering biotechnology, medical technology, and healthcare service sectors.

September 2022: We closed the second and final tranche of Evotec's strategic investment private placement with the effective exercise of an unconditional common share purchase warrant for 2,709,800 common shares at a price of $2.50 per share for total proceeds of $6,774,500.

June 2022: On June 2nd, 2022, trading of the Company's common shares commenced on the Toronto Stock Exchange (TSX:SVA) with its graduation from the TSX Venture Exchange (TSXV). Concurrently, the Company voluntarily delisted its common shares from the TSXV.

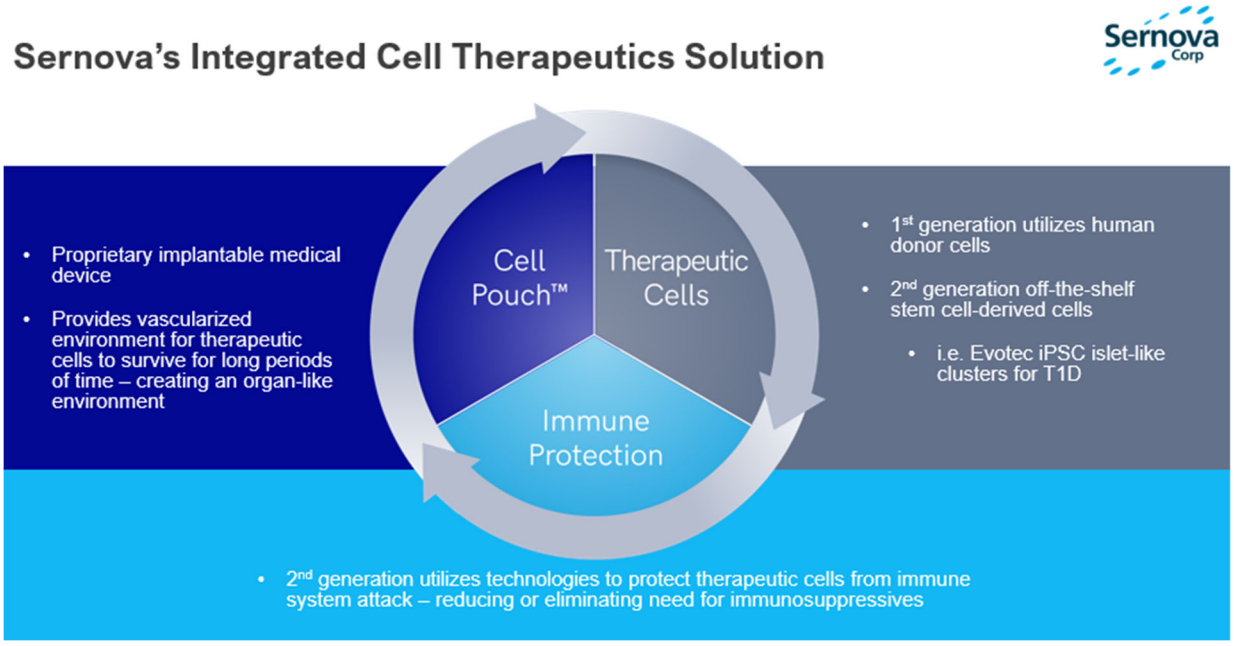
May 2022: Concurrent with entering into the Evotec Collaboration noted above, Evotec made a strategic equity investment commitment totaling approximately $27 million of proceeds for the Company. The first tranche of 12,944,904 common shares at a price of $1.57 per share for gross proceeds of $20,323,500 was closed.

May 2022: We announced engaging New York based LifeSci Communications, a global life science and medical technologies-focused communications and marketing agency. LifeSci Communications will assist Sernova to expand and elevate its profile through strategic communications and public relations. Sernova is also working with affiliate LifeSci Advisors LLC, a leading investor relations consultancy firm serving life science companies, providing institutional investor communications and capital markets outreach services in support of the Company's U.S. capital markets objectives.

April / May 2022: We presented Sernova's vision and progress at a number of investment and healthcare industry conferences including: Alliance of Regenerative Medicine's Cell Gene Therapy Meeting on the Med in Barcelona, Spain; Roth Capital's Canada Corporate Access Day in New York, NY; the JDRF-NIH-FDA Beta Cell Replacement Workshop in Bethesda, MD; and the H.C. Wainwright Global Investment Conference in Miami Beach, FL.

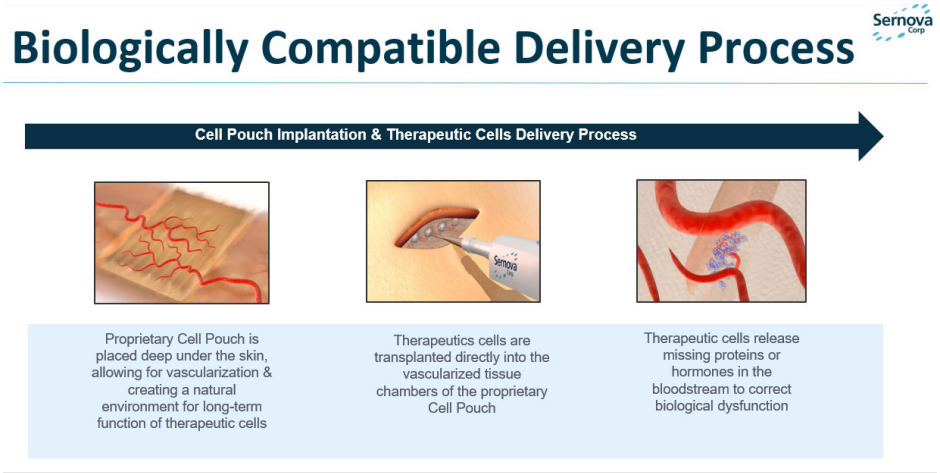
## BUSINESS OVERVIEW

***Sernova Cell Pouch System: A Platform Technology Approach***



Sernova's patented Cell Pouch System is designed to take into consideration the biological requirements of therapeutic cells. This is achieved through the establishment of an organ-like environment defined as a vascularized tissue matrix for therapeutic cells, which develops within the device chambers following implantation. We believe this unique approach of encouraging vascularized tissue incorporation into the device also helps prevent fibrosis that plagues other implantable cell therapy devices and provides a biologically optimal environment for the engraftment and function of therapeutic cells.

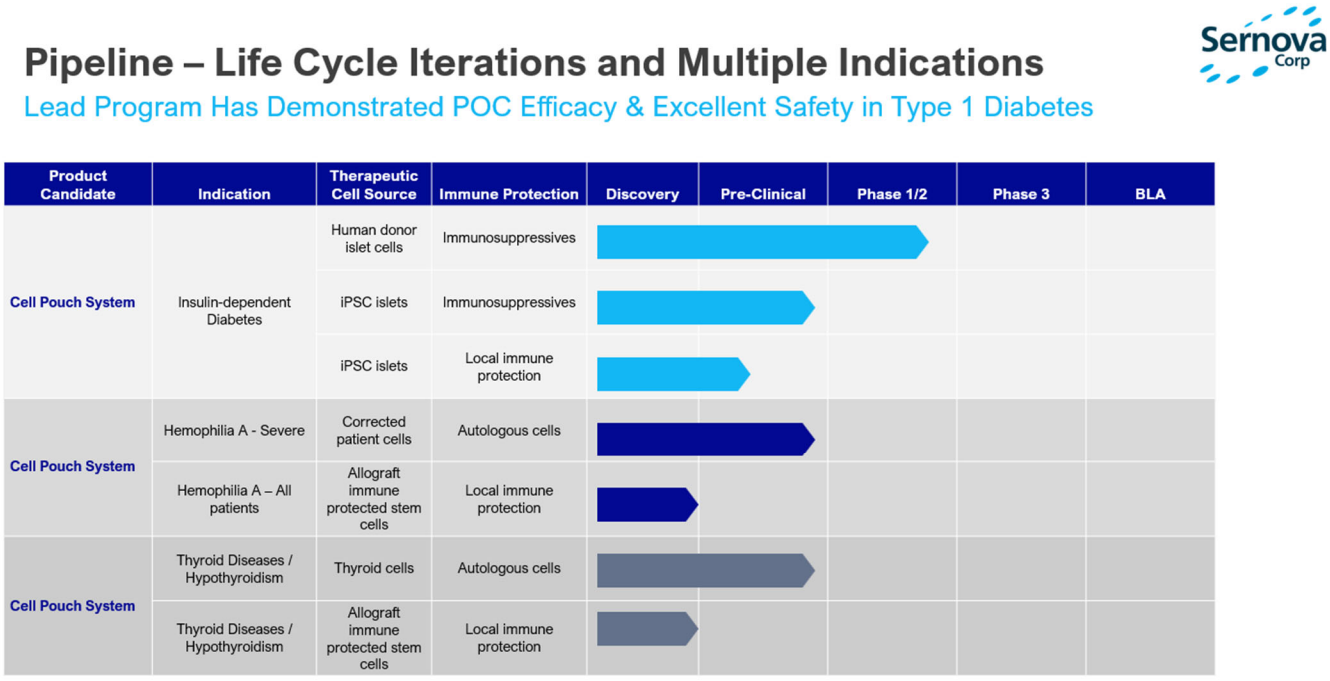
The Cell Pouch is designed to be scalable to match the required cell dose for each clinical application. Our research demonstrates that following Cell Pouch implantation deep under the skin or in other locations, vascularized tissue chambers develop within the device. Long-term preclinical studies have shown that the Cell Pouch creates a stable, vascularized, native-tissue environment prior to transplantation of therapeutic cells, which we believe is key for maintaining long-term survival and function of therapeutic cell grafts. We believe Sernova's approach also addresses the potential issues of other competing implantable devices wherein therapeutic cells are pre-inserted prior to the device being implanted into the body which may result in hypoxia, ischemia, and cell death (resulting in poor engraftment). These issues relate to the lack of an integrated vascularized tissue environment into which cells are transplanted.




We have demonstrated in a series of ISO 10993 biocompatibility studies, multiple animal studies, a pilot human clinical trial and our ongoing US Phase 1/2 clinical trial that the Cell Pouch is biocompatible and safe. Long-term studies in several animal models have demonstrated that following transplant, insulin-producing islets become well-supported with microvessels, as occurs in their natural pancreatic environment. An anticipated benefit of Cell Pouch is enhanced short and long-term therapeutic cell survival and function, which we believe is due in part to cells being transplanted into a natural tissue matrix in close contact of microvessels. For diabetes, this close vessel proximity enables islets to continuously monitor blood glucose levels and produce the appropriate amount of insulin into the bloodstream. The Cell Pouch platform technology appears to achieve this ideal islet-to-microvessel interaction via the Cell Pouch-mediated local tissue environment. Our preclinical studies have shown that islets transplanted into the Cell Pouch can control blood glucose levels in small and large animal models of diabetes over extended periods. We have also observed encouraging preclinical results in other therapeutic cell applications, such as hemophilia A with corrected patient cells gene-edited to produce factor VIII, the missing protein preventing blood clotting, and hypothyroid disease with patient transplanted thyroid tissue with the goal to replace the function of the removed thyroid gland.

The cells transplanted into Cell Pouch may be protected from immune system attack, when required, by systemic medications, through mechanisms that provide tolerance of the immune system to transplanted cells or through other Sernova immune protection technologies such as microencapsulation or conformal coating of cells. Microcapsules surrounding the cells have tiny pores, which have been shown to provide a means to allow nutrient and protein exchange within the local vascularized environment while preventing immune system attack. Conformal coating is a proprietary technology forming a cross-linked polymer coating around cells using a 'shrink wrap' approach that may also provide protection from immune system attack and has been shown to allow natural exchange of glucose and insulin between conformally coated cells and systemic blood. Sernova is also evaluating gene editing technologies for our stem cell-derived programs and other approaches such as promoting immune system tolerance to transplanted cells that may provide an alternative method of cellular immune protection. These approaches alone or in combination are anticipated to reduce or eliminate the requirement of systemic anti-rejection medications, across a range of disease indications.

Thus, we believe our technology platform approach and its minimally invasive implantation approach through placement deep under the skin may provide an opportunity for the Cell Pouch System to become the standard of care for the treatment of multiple diseases with the goal of a 'functional cure'.




***Development of the Cell Pouch System Platform for the Treatment of Diabetes / T1D***

The goals of our T1D program are to provide people with T1D the ability to better control their diabetes, an improved quality of life, the reduction of debilitating disease side effects and complications, and ultimately a 'functional cure' to this disease.

According to the International Diabetes Federation (IDF), there are approximately 537 million people worldwide with diabetes, and nearly 10% of these individuals have T1D (insulin-dependent) diabetes (https://www.idf.org/aboutdiabetes/what-is-diabetes/facts-figures.html) where the cells in the pancreas

that control blood sugar levels through controlled release of insulin have stopped functioning or have died, allowing blood sugar levels to rise resulting in short and long-term debilitating effects of the disease. In particular, the sub-set of people with diabetes who suffer from hypoglycemia unawareness events represents a significant proportion of diabetic patients that could be addressed by Sernova's products – following regulatory approval. About 17% of people with T1D suffer from hypoglycemia unawareness, according to diabetesnet.com.

The primary treatment for T1D to help control blood sugar levels is insulin injections by needle or insulin pump. The life of a person with diabetes is consumed with constant monitoring and frequent treatments in an attempt to control blood sugar levels to minimize both the acute effects of hypoglycemia and severe long-term effects of diabetes, which include heart and kidney disease, blindness, and amputations. There is a critical need to improve treatments for diabetic people and to improve the quality of life for these individuals. Sernova believes its Cell Pouch System may provide an efficacy advantage and reduction of diabetes-related side effects in these people relative to the current standard of care, leading to significant improvements in their quality of life. The goal of Sernova's cell therapy approach for T1D is to improve the quality of life of patients with the ultimate goal to return blood sugar regulation to a normal healthy state.

Our most advanced development program involves the clinical development and validation of the Cell Pouch System for the treatment of people with T1D who suffer from unstable diabetes and life-threatening severe hypoglycemic episodes. In some countries, the current cell therapy is transplantation of donor islets in the portal vein of the patient's liver. This first-generation cell therapy approach involves the transplantation of pancreatic donor islets, often from multiple donors, into a patient's portal vein in which islets lodge in the microvasculature of the liver. Life-long systemic immunosuppressive drugs are required to inhibit rejection of this irreversible transplant. A portal vein islet transplant is the only cell therapy treatment approach possible for this population of people with diabetes and is only occasionally offered to reduce the occurrence of severe hypoglycemic episodes in these patients. Portal vein islet transplant remains categorized as an experimental procedure by some regulators, including the United States Food and Drug Administration (USFDA), and may only be administered under a clinical trial protocol.

It is encouraging that islet cell transplantation, even into the portal vein in humans, has shown some positive outcomes for diabetic patients. These positive effects demonstrate the potential of a standardized cell therapy treatment approach for diabetes.

Despite the positive effects, there are a number of issues with portal vein delivery of either donor islets or stem cell derived technologies that we believe could be improved with Sernova's technologies. For example, following islet infusion with portal vein delivery, there is a significant reduction in the number of surviving islets due to an immediate blood-mediated inflammatory reaction (IBMIR), which may damage and destroy a substantial proportion of the islet cells infused into the portal vein. Due to IBMIR, large quantities of islets, often from multiple donor organs are required to achieve blood sugar control. Paradoxically, while a small dose of islets into the portal vein may be safe, undesirable portal vein hypertension, thrombosis, and liver steatosis (fatty liver) may occur following multiple cell transplants, which are typically required to achieve efficacy. This limits the number of doses of cells that can be infused into the portal vein during a patient's lifetime. A further shortcoming of portal vein transplant is that infusion of cells into the portal vein is not easily amenable to technologies such as glucose-responsive insulin-producing stem cell-derived cells, that are being developed to overcome the limited supply of donor islet cells. When infused into the liver, these cells are not retrievable if there is a safety or tolerability issue. The only way to explant liver infused cell technologies is to perform a liver transplant, which becomes a life-threatening issue due to the lack of donor organs.

As noted in Table 1 below, we believe the Cell Pouch System can alleviate a number of important issues with portal vein transplantation. With the Cell Pouch System, the therapeutic cells live within a tissue matrix integrated with microvessels, similar to the islets' natural pancreatic environment rather than being subjected to immersion in blood with immune-reactive cells, which is believed to lead to IBMIR. We believe islet transplant to Cell Pouch may eliminate the inflammatory response observed after portal vein infusion, enabling improved islet survival. Improved islet survival and engraftment potentially lowers the number of islets required for each transplant. Consequently, by transplanting islets into a Cell Pouch, rather than the portal vein, fewer islets, and therefor fewer donor pancreata are anticipated to be required to achieve glucose control for each recipient, thereby increasing the availability of these life-sustaining organs. In addition, the known side effects of multiple islet infusions into the portal vein, along with the risks and costs associated with their treatment are expected to be eliminated with the use of Sernova's Cell Pouch System. These benefits are expected to be further magnified by Sernova's development of Cell Pouch therapy with our glucose responsive stem cell-derived technologies. (see Table 1).

Table 1. Potential Benefits of Cell Pouch Islet Transplant over the Portal Vein Islet Transplant

| **Characteristics** | **Cell Pouch** | **Portal Vein Transplant** |
|---|---|---|
| Smaller islet dose to achieve efficacy | Yes | No |
| Tissue matrix to house islets | Yes | No |
| Improved vascularization of islets | Yes | No |
| Retrievable site | Yes | No |
| Safe site for stem cell-derived cells | Yes | No |
| Minimally invasive subcutaneous site | Yes | No |
| Elimination of liver-associated toxicities | Yes | No |
| Elimination of IBMIR | Yes | No |
| Safer local immune protection of cells | Yes | No |

While infusion of glucose responsive stem cell derived technologies into the portal vein may appear to be a solution to the limited supply of donor islets, the issues with portal vein transplant including IBMIR and the inability to retrieve the cells, if required, still remain.

With the encouraging initial results of portal vein islet transplantation, there is a need to develop a more suitable and retrievable environment for therapeutic cells. We believe an implantable and retrievable medical device that becomes highly vascularized when implanted into an appropriate area of the body for the placement and function of therapeutic cells, including donor islets and stem cell-derived technologies is a feasible and more sustainable approach. Sernova's Cell Pouch is a minimally invasive, retrievable device for the placement and long-term survival and function of therapeutic cells for the production of needed missing protein(s) or hormone(s) into the bloodstream.

Importantly, Cell Pouch technologies are specifically and uniquely designed to be biocompatible featuring pores that incorporate with vascularized tissue to form fully enclosed chambers with central void spaces for placement of therapeutic cells. A serious problem that may be encountered with other implanted therapeutic medical devices is the development of unwanted fibrosis in which the body treats the device as foreign and walls off the device with scar tissue resulting in starving of the cells of oxygen and nutrients. We believe the unique design of the Cell Pouch device prevents the formation of scar like fibrotic tissue following implantation for the long-term survival and function of therapeutic cells.

As a novel approach beyond portal vein infusion of islets, we believe that islets (donor or stem cell-derived) transplanted into the Cell Pouch may provide a better means to optimize cell therapy for the treatment of diabetes. The data gained from our current clinical study using donor islets is being used to provide a basis for advancement of glucose-responsive immune-protected stem cell-derived cells for transplant into the Cell Pouch. We believe stem cell-derived islets have the potential to treat millions of people suffering from T1D.

Sernova's Cell Pouch technologies are designed and patented to take into consideration the biological requirements of therapeutic cells. In long-term preclinical evaluation, Cell Pouch has been shown to maintain a stable, vascularized tissue environment prior to the placement of these transplanted therapeutic cells.

An independent preclinical study published in the journal "*Transplantation*" (Transplantation 2015 Nov: 99 (11):2294-300) demonstrated that the Cell Pouch with islets provided insulin independence for the length of the study (100 days) in a small animal model of diabetes using a marginal transplanted islet mass where over 95% of the animals achieved insulin independence. This study supports the concept that Cell Pouch may require a smaller than initially anticipated dose of cells (marginal islet dose) resulting in a lower overall Cell Pouch cell density to achieve efficacy, one of the parameters being investigated and optimized in human clinical evaluation to achieve glucose control in patients with diabetes.

We have manufactured our Cell Pouch at a U.S. medical device contract-manufacture facility in compliance with ISO13485, EU Medical Devices Regulation MDR 2017/745, United States Food and Drug Administration Quality System Regulations (QSR) 21 CFR 820 and Canadian Medical Device Regulation (CMDR). We are testing additional sizes of Cell Pouch that will enable us to further optimize islet dosing and dose density which we believe may lead to enhanced patient outcomes with the Cell Pouch System, including our current US Phase 1/2 Cell Pouch Clinical Trial T1D study with donor islets and in preparation for next step studies with the Evotec iPSC beta cell technology.

To validate our Cell Pouch System technologies in preparation for clinical evaluation for T1D, in addition to safety studies of Cell Pouch alone we successfully transplanted donor islets into the Cell Pouch, in multiple small and large animal models (syngeneic, autograft and allograft) of diabetes. The reversal of diabetes in these studies provided proof of concept of the Cell Pouch System to support clinical evaluation of the Cell Pouch with donor islets. Based on the encouraging preclinical results with donor islets, we conducted a first-in-human proof-of-concept (POC) clinical study for the treatment of human subjects with diabetes and hypoglycemia unawareness. Patients received donor islets, protected by the standard of care immunosuppressives for a first in human Canadian safety study, cleared by Health Canada. The approach of using human donor islets in the Cell Pouch has enabled Sernova to understand the behaviour of transplanted insulin-producing cells in the Cell Pouch in humans as an initial step to the development of an immune-protected stem cell product to treat the larger treatable population of patients with diabetes.

Our initial Canadian safety and tolerability clinical study demonstrated encouraging results for the Cell Pouch alone and with transplanted islets.

In summary, our first-in-human clinical results showed the following important findings:

- the biocompatibility and a favorable safety profile of Cell Pouch in these subjects; and
- the islets within the Cell Pouch, as shown by independent histological analysis, were well-vascularized, living within a natural tissue matrix, and able to make insulin, glucagon and other key hormones important in the control of blood glucose levels and hypoglycemic events.

We believe such revascularization of islets and islet metabolic function within Sernova's implantable medical device for therapeutic cells in humans in this patient population is an important step forward in the cell therapeutics field.

While donor islets provide a first Cell Pouch System therapeutic cell source and potential product to treat patients with the most significant unmet need, those with severe hypoglycemic events, our goal is to have and enable the Cell Pouch System to offer treatment to the broader general patient population of millions of people with diabetes. Consequently, we sought out an ethically derived advanced iPSC beta cell technology with the potential to be successfully commercialized. With the proprietary assets of multiple pharmaceutical companies, we demonstrated that ethically derived iPSC stem cell-derived beta cells can provide long-term insulin independence in small animal models of diabetes when transplanted into the Cell Pouch. We believe ethically derived induced pluripotent stem cells - iPSCs - are superior to progenitor embryonic stem cell-derived cells as embryonic cell-derived technologies are not allowed in certain regulatory jurisdictions limiting their use in patients and potential commercial viability. Furthermore, fully differentiated islet-like clusters could provide required insulin to patients sooner than progenitor islet technologies.

We chose Evotec's iPSC technology for this transformative component of our therapeutics platform based on multiple scientific, regulatory, manufacturing capabilities, business and commercial factors. We believe the Evotec Collaboration secures a virtually unlimited supply of ethically derived advanced iPSCs and eliminates the limitation of a restrictive supply of donor islets for product commercialization. We believe that this broadens and strengthens our appeal to strategic partners for business development and or M&A opportunities with our cell therapy platform and the Company overall. Evotec's iPSCs in combination with the Cell Pouch and immune protection technologies is a priority in our future clinical development plans and product pipeline. For more information on Evotec's iPSC technology, refer to the *Significant Acquisitions, In-Licensing and Collaborations During 2022 Fiscal Year* section within this MD&A.

***Type 1 Diabetes Phase 1/2 US Clinical Trial for Patients with T1D and Severe Hypoglycemia Unawareness***

With the encouraging results and learnings from our first Cell Pouch clinical trial, we initiated a second clinical study - "*A Safety, Tolerability and Efficacy Study of Sernova's Cell Pouch™ for Clinical Islet Transplantation"* - to further address the safety, tolerability as well as function of Cell Pouch with therapeutic cells. The primary objective of the study is to demonstrate the safety and tolerability of islet transplantation into the Cell Pouch. The secondary objective is to assess efficacy through a series of defined measures. This clinical study is defining our understanding of the relationship of treatment response to the dose and dose-density of islets transplanted into the Cell Pouch. Continuous glucose monitoring (CGM), mixed meal tolerance tests and changes in daily insulin use are efficacy measures used to track the function of the cells transplanted into Cell Pouch at key time points throughout the clinical trial. The use of CGM in this study supports the analysis of serum glucose concentrations and variability, the number, severity and duration of both high and low glycemic episodes.

Following a peer review of the new clinical protocol, Sernova was awarded up to US$2.45 million (approximately $3.35 million) grant under an agreement with JDRF. The grant is supporting our Cell Pouch Phase 1/2 diabetes clinical trial, which is being conducted at the University of Chicago in collaboration with Principal Investigator Dr. Witkowski, M.D., Ph.D., Director of the University of Chicago's Pancreatic, and Islet Transplant Program, who is a leading expert in diabetes and islet transplantation and a published diabetes researcher and surgeon with a longstanding record in both basic science and clinical research pertaining to islet cell and abdominal organ transplantation.

This clinical trial is a Phase 1/2 non-randomized, unblinded, single-arm, company-sponsored trial to evaluate the safety and efficacy of Cell Pouch as a potential treatment for diabetic patients with hypoglycemia unawareness (US Phase 1/2 Cell Pouch Clinical Trial).

Patients eligible for the study have long standing T1D, severe hypoglycemic unawareness and a history of severe hypoglycemic events despite optimized medical care, and lack the ability to produce insulin from their pancreas, as shown in a glucose tolerance test by the lack of necessary blood levels of C-peptide, a quantitative biomarker of islet insulin production. Eligible patients are implanted with therapeutic Cell Pouches, and small sentinel pouches. Following the development of vascularized tissue chambers within the Cell Pouch, enrolled patients are stabilized on immunosuppression and activated on the donor transplant list. Upon receipt of a suitable donor pancreas and isolation of the islets under strict release criteria, a marginal dose of the purified islets is transplanted into the pre-implanted Cell Pouches.

A sentinel pouch, also transplanted with islets, is removed at approximately 90 days following transplant for an early assessment of islet function within the Cell Pouch. Following three to six months post-transplant the clinical investigator determines if a second small islet dose will be transplanted followed by a subsequent six-month safety and efficacy follow-up period. Patients are then followed for approximately one year. Patients not demonstrating optimal therapeutic benefit are eligible to receive a protocol-defined marginal dose portal vein top-up dose of donor islets. The goal of providing up to three doses of islets is to determine the relationship between therapeutic effect and both islet dose and dose density in the Cell Pouch. Interim analyses have resulted in the development and implementation of higher capacity 10 channel Cell Pouches, that provide > 50% more islet capacity relative to the 8 channel Cell Pouches used for the first cohort in our US Phase 1/2 Cell Pouch Clinical Trial. The transition to this new larger Cell Pouch under the revised protocol enables optimized dosing and shorter efficacy evaluation periods to ultimately decrease time to key efficacy endpoints. These endpoint measures include survival of transplanted islet cells, proportion of patients with a reduction of severe hypoglycemic episodes, and proportion of patients with an improvement in HbA1c. We believe the higher dose of islets at a lower cell density will further enhance graft function. Subjects who complete the study protocol continue long-term follow-up by Dr. Witkowski.

We believe these preliminary findings from the ongoing, adaptive-design trial support the safety, viability, and efficacy of the Cell Pouch System approach following protocol-defined islet transplants for the treatment of patients with T1D, hypoglycemia unawareness and severe hypoglycemic episodes.

At key timepoints during the trial, islet-transplanted sentinel devices are removed and subjected to histological assessment by an independent pathologist. In several patients, and from multiple timepoints, healthy and abundant insulin-producing islets have been observed in the sentinel Cell Pouches to be intimately associated with blood vessels within the native-tissue matrix. Of significant importance, observations have been reported reflective of early diabetes improvement in the most advanced trial patients: fasting and glucose-stimulated blood levels of C-peptide (a biomarker of insulin produced by cells), reduction in the number of severe hypoglycemic episodes, reduction in HbA1c, and other metabolic parameters. These indicators were further improved with the protocol defined supplemental islet transplant to portal vein, following which subjects rapidly converted to insulin independence. We believe these indicators suggest a cumulative effect of islet transplants to Cell Pouch that facilitate conversion to a non-diabetic state with a minimal supplemental dose via the portal vein. It is for these reasons that we recently introduced, in November 2022, the noted higher capacity 10 channel Cell Pouch to accommodate what we believe to be the optimal full dose of islets required to potentially eliminate the need for intraportal islet transplantation.

We believe these preliminary findings are an important achievement in the cell therapeutics field and a first for an implanted prevascularized device with islet cells, transplanted deep under the skin. These encouraging results using human donor islets in our Cell Pouch in subjects with hypoglycemia unawareness represents an important advance of our stepwise approach toward our goal of developing and optimizing a treatment for all T1D patients employing immune protected stem cell-derived iPSC islet-like clusters within our Cell Pouch.

We believe Cell Pouch can be used with a variety of cell sources, such as glucose-responsive insulin-producing cells derived from stem cells, addressing the limited availability of donors and allowing the extensive treatment of insulin-dependent diabetes and we have demonstrated this in several pharmaceutical collaborations using small animal models of T1D. Leveraging our extensive learnings of human donor islets within the Cell Pouch, we are using knowledge gained as we develop iPSC beta cell technologies to provide an immune-protected cell-based therapeutic suitable for all people with insulin-dependent diabetes.

Advancements with the T1D study and additional findings over the past year are summarized below.

On January 10, 2022, we reported on the highlights of Dr. Witkowski's updated interim data for our US Phase 1/2 Cell Pouch Clinical Trial as follows:

- ongoing safety and tolerability of Cell Pouch has been maintained in all study patients;
- islet transplantation to the Cell Pouch resulted in the establishment of new, measurable islet function documented by detectable levels of stimulated C-peptide in the first three patients, who completed the protocol-defined course of transplants;
- a supplemental, single intraportal islet transplant was sufficient for the first two patients to achieve and maintain sustained ongoing insulin independence and freedom from severe hypoglycemic events for over 21 and 2 months, respectively;
- the third transplanted patient recently completed their course of Cell Pouch transplants and a supplemental intraportal islet infusion, with favorable improvements in glucose control, near-normal levels of C-peptide, an absence of severe hypoglycemic events and reductions in daily insulin use; and
- the other three enrolled study patients are progressing through the study protocol, as planned. All have received Cell Pouch implants and are at various stages of protocol-defined islet transplants and follow-up.

The preliminary results to-date for our US Phase 1/2 Cell Pouch Clinical Trial are encouraging and are providing important information on the behaviour of our device with donor islets in real life situations in our study patients. As the therapeutic benefit of Sernova's Cell Pouch with donor islets for T1D continues to be demonstrated and validated, we progress in our ongoing pursuit of developing and commercializing a 'functional cure' for people with T1D using Sernova's Cell Pouch System technologies.

On March 17, 2022, we announced that after having completed its third annual review of our ongoing US Phase 1/2 Cell Pouch Clinical Trial, the DSMB recommended continuation of the clinical study according to the study plan.

On June 6, 2022, the Research Team from Dr. Piotr Witkowski's laboratory at the University of Chicago for our US Phase 1/2 Cell Pouch Clinical Trial presented updated positive data from the ongoing study at the American Diabetes Association's 82nd Scientific Sessions in New Orleans, LA. Updated data was presented in an oral podium presentation, "*Modified Approach for Improved Islet*

*Allotransplantation into Prevascularized Sernova Cell PouchTM Device: Preliminary Results of the Phase I/II Clinical Trial at University of Chicago"* [Abstract 306-OR].

The presented data reviewed the six patients who lived with long-standing insulin dependent T1D and hypoglycemia unawareness prior to study treatment that underwent both Cell Pouch implantation and islet transplantation. Graft function was measured by blood glucose, patient insulin usage, and C-peptide, a widely used measure of islet function. The first three patients achieved complete and sustained insulin independence. Three additional patients in the study did not maintain optimal immunosuppression, however this was resolved enabling those patients to receive further protocol-defined islet transplants.

Key highlights included:

- the first three patients have been insulin independent for over 2 years, 6 months, and 3 months, respectively;
- those first three patients with islets transplanted into the Cell Pouch subsequently presented positive serum C-peptide values confirming active insulin production by the Cell Pouch islet grafts; and
- the Cell Pouch was well tolerated with implant durations exceeding 35 months.

Key findings from the interim clinical update:

- surgical implantation of the Cell Pouch was found to be well tolerated with a favorable safety profile;
- all patients who had favorable immunosuppression achieved complete insulin independence:
    - first three transplanted patients presented positive serum C-peptide values confirming active insulin production after islet transplantation into the Sernova Cell Pouch;
    - supplemental marginal dose islet transplantation via the portal vein was sufficient to allow those three patients to achieve and maintain insulin independence for over 2 years, 6 months, and 3 months, respectively; and
    - insulin independent patients have HbA1c in the normal range.
- Dr. Witkowski further optimized outcomes in the ongoing clinical trial:
    - replacing patients' own plasma with serum as the islet suspension medium;
    - decreasing the concentration of islet suspensions transplanted to Cell Pouch resulted in greater stimulated C-peptide; and
    - the Cell Pouch implantation procedure was optimized with two shorter incisions to minimize infection risk and enhance healing.

On November 3, 2022, we announced the adoption of a protocol amendment, approved by the University of Chicago Institutional Review Board (IRB) and without objection from USFDA, to add a second cohort of up to seven patients to test the aforementioned enhanced capacity 10 channel Cell Pouch and further optimize patient outcomes. The amendment was based on promising positive interim data to date from our clinical study informing on islet dose and density. The amendment enables us to proceed with a strategically optimized protocol reducing the time required for patient treatment while accelerating potential secondary endpoint efficacy achievement with more optimal dosing. We have engaged a clinical trial recruitment partner with extensive experience and success in accelerating T1D clinical trial patient enrollment to expedite recruiting and patient enrollment and we expect to report on interim data from the second cohort with the enhanced capacity Cell Pouches in 2023. On November

17, 2022, we provided an update that the first two patients of the second cohort have been implanted with the enhanced 10 channel Cell Pouch. Recruitment of the second cohort is continuing.

Results from the combined cohorts will help guide the design of Sernova's pivotal study, which would support an anticipated BLA submission to the USFDA and accelerate our iPSC stem cells into the clinic.

Further trial information may be found at https://www.clinicaltrials.gov/ct2/show/NCT03513939.

***Development of the Cell Pouch System for the Treatment of Postoperative Hypothyroidism***

The goals of our thyroid transplant program are to provide people with hypothyroid disease improvement in the natural thyroid hormone feedback loop, an improved quality of life and ultimately a 'functional cure' to this disease.

According to the American Thyroid Association (ATA), 20 million Americans currently live with thyroid disease, and 12% of Americans will develop a thyroid condition during their lifetime. The thyroid gland is essential for life as it produces and secretes thyroid hormones that regulate the body's metabolism. The development of new treatments for patients with unsatisfactory control of the thyroid hormone feedback loop may satisfy this unmet medical need. We believe that thyroid tissue transplanted into an implanted Cell Pouch offers a novel approach that could improve the quality of life and outcomes of patients experiencing postoperative hypothyroidism. Sernova's first approach in the treatment of hypothyroid disease is to take healthy tissue from each patient's own thyroid gland - removed during a thyroidectomy – and transplant that tissue into the pre-implanted vascularized Cell Pouch. The goal is to recover the natural feedback system for release of thyroid hormones from each patient's own thyroid tissue.

The thyroid gland affects all critical body functions including heart rate, energy levels, and the rate at which energy is produced from nutrients. Its essential functions include control of how quickly the body uses energy, makes proteins, and sensitivity to other hormones, principally through the production of the thyroid hormones triiodothyronine (T3) and thyroxine (T4).

Hypothyroidism is a condition where the thyroid gland does not produce sufficient hormones thereby upsetting the normal balance of chemical reactions. If left untreated, hypothyroidism can cause health problems such as obesity, joint pain, infertility, heart disease, and eventually death. Common causes are autoimmune diseases, radiation treatment, and surgical removal of the thyroid (thyroidectomy). Patients may undergo surgical reduction (thyroid lobectomy) or complete removal of the thyroid gland (total thyroidectomy) for treatment of several disorders such as thyroid nodules, which are reported to occur in up to 65% of patients observed upon autopsy (PMID: 19041821); Grave's Disease (a type of hyperthyroidism); and or large multinodular goiters. Thyroidectomy is also commonly performed for cancer diagnosis or treatment.

Hypothyroidism inevitably occurs after total thyroidectomy and may also occur in up to 10% of people after thyroid lobectomy (Johner, A. et al, Ann of Surg One 2011; 18(9):2548-2554). The American Thyroid Association estimates that about 150,000 thyroidectomies are performed in the US yearly, and most individuals undergoing a thyroid operation will be diagnosed with benign disease after their operation.

Following thyroidectomy, patients require daily hormone replacement therapy with T4. Published research indicates up to 50% of thyroxine users do not achieve adequate hormone levels (Okosieme, OE et al. Expert Opin Pharmacother 2011; 12(15):2315-2328). Moreover, it is evidenced that patients treated with T4 still experienced several symptoms of hypothyroidism, including deficits in cognition and

mood, ability to focus, and general mental well-being (Kansagra, S. et al. Laboratory Medicine 2010; 41(6):338-48.). Results of our preclinical research are being used as a foundation for anticipated clinical trials using Cell Pouch in combination with thyroid-hormone producing cells with the goal to preserve or recover normal thyroid regulation and improve patient quality of life.

Sernova has conducted preclinical research with our Cell Pouch for the treatment of postoperative hypothyroidism in collaboration with Dr. Sam Wiseman, BSc, MD, FRCSC, FACS, Professor, Faculty of Medicine at the University of British Columbia, Director of Research in the Department of Surgery at Providence Healthcare in Vancouver, BC, Canada and, in part, funded by a Transplant Venture Grant awarded by the Transplant Research Foundation (TRF) of British Columbia. We have assessed healthy human thyroid tissue transplanted into a previously implanted Cell Pouch in a preclinical model, in preparation for a clinical program. Our planned initial clinical approach to the treatment of postoperative hypothyroid disease is to auto-transplant healthy thyroid tissues of patients undergoing thyroidectomy into the pre-implanted vascularized Cell Pouch, to restore thyroid regulation and reduce the burden and risks of postoperative hypothyroidism. The overall aim of the program is to evaluate the survival and function of thyroid tissue after implantation into the Cell Pouch to establish proof-of-concept of this novel approach.

On January 27, 2022, we announced the publication of a peer reviewed preclinical study demonstrating positive results of a novel Cell Pouch System cell therapy approach to treat hypothyroidism and potentially avoid lifelong dependence on thyroid medication following surgical removal of the thyroid gland. The journal article entitled "*Subcutaneous transplantation of human thyroid tissue into a pre-vascularized Cell Pouch™ device in a Mus musculus model: Evidence of viability and function for thyroid transplantation*" by lead author, Dr. Wiseman, a leading surgeon, researcher and internationally renowned expert in the management of thyroid and parathyroid disease, was published in the scientific journal, *PLOS ONE*, January 20, 2022 edition. In this study, thyroid tissue from patients undergoing surgery for treatment of benign disease was transplanted into Sernova Cell Pouches that had been previously implanted into laboratory mice. The aim of the study was to investigate the long-term survival of human thyroid tissue in the Cell Pouch and evaluate the ability of these thyroid transplants to release thyroid hormones into the bloodstream. The study confirmed that the human thyroid tissue transplanted into the Cell Pouch survived and released human thyroglobulin into the bloodstream, with no adverse effects for the three-months duration of the study. Thyroglobulin was used as a biomarker efficacy measure in this study as it is the precursor of thyroid hormones.

The results to date from this collaboration have been encouraging and support the potential of transplanted thyroid tissue to provide clinical benefit for the treatment of hypothyroidism.

We are completing preclinical studies to enable advancement to clinical development for this novel approach to the prevention of post-operative hypothyroidism. Simultaneously, Sernova is preparing documentation to support a clinical trial application. Furthermore, the Company has commissioned an independent market assessment of the hypothyroid indication for this initial and next generation stem cell-derived technology. Documentation has been submitted to the regulatory authorities to determine how the product will be regulated, whether through the device or combination product process. Our goal is to file the regulatory documentation and to seek regulatory authorization to initiate an early phase clinical trial for patients with planned thyroidectomy for benign disease.

***Development of the Cell Pouch System for the Treatment of Hemophilia A***

The goals of our hemophilia program are to provide people with hemophilia A improvement in the natural production of factor VIII (FVIII) in their bloodstream from FVIII corrected cells within the Cell

Pouch, to reduce bleeds associated with this disease, an improved quality of life and ultimately a 'functional cure' to this disease.

Hemophilia A is a rare, serious genetic bleeding disorder caused by missing or defective clotting factor VIII in the bloodstream. A cellular genetic deficiency in FVIII results in a reduced ability for blood to clot naturally resulting in increased bleeding, even in circumstances where small blood vessels naturally break and heal such as in joints, resulting in inflammatory arthritic type symptoms and joint damage. To counteract this reduction in blood clotting, patients require frequent blood transfusions which put them at risk of acquiring blood-borne infections, such as HIV, hepatitis B and hepatitis C. The alternative is taking infusions of FVIII up to three times a week to maintain a blood level of FVIII that can reduce the bleeding.

According to a publication by the Alliance for Regenerative Medicine (ARM), the estimated annual cost of treatment for hemophilia A represents an average of US$200,000 per patient.

We believe that the therapeutic potential to have a constant release of FVIII from a hemophilia A patient's own genetically corrected cells placed within the implanted Cell Pouch would be a very significant advancement in the treatment of hemophilia A and a disruptive approach to the current standard of care treatment for hemophilia A. Corrected cells placed in an implanted Cell Pouch could release FVIII at a rate expected to reduce disease-associated hemorrhaging and joint damage. The continuous delivery of FVIII could also reduce or eliminate the need for multiple weekly infusions, which is the current standard of care using plasma-derived or recombinant, genetically engineered FVIII for the prophylactic treatment of hemophilia A. This approach is analogous to that used for CAR T-cell therapy as a validated therapeutic approach where a patient's own cells are collected from a blood sample and modified, scaled-up and placed back into the body to treat disease.

Sernova's approach to the cell therapy treatment of hemophilia A involves obtaining a blood sample from the patient and correcting the genetic defect in certain isolated cells so the cells produce the required FVIII. The cell numbers are then expanded for placement into our Cell Pouch, that has been previously implanted into the patient. We believe the therapeutic potential to have a constant release of FVIII from a hemophilia A patient's own genetically corrected cells in the Cell Pouch would be a significant advancement in the treatment of hemophilia A and other diseases that can be treated with genetically engineered cells. Sernova's therapeutic approach could reduce or eliminate the need for patients to take expensive life-long infusions of FVIII to reduce or prevent the deleterious effects of this disease.

In the development of this novel technology multi-year product development and proof-of-concept studies have been conducted and successfully completed by Sernova and a European team of experts collectively forming the HemAcure Consortium (HemAcure Consortium). The aim of the HemAcure Consortium three-year project was to develop a permanent, safe, therapeutic solution for those living with hemophilia A in the form of a novel ex vivo gene therapy, cell-based approach within Sernova's proprietary Cell Pouch. This combination therapy strives to replace missing clotting human FVIII in the patient's own Blood Outgrowth Endothelial Cells (BOECs) transplanted into the Cell Pouch. These corrected cells function to release FVIII into the bloodstream restoring the ability for blood clotting to occur preventing uncontrolled bleeding. The HemAcure Consortium was funded by a €5.6 million (approximately $8.5 million) European Commission Horizon 2020 grant (Horizon 2020 Grant) to develop a Good Manufacturing Practices (cGMP) compliant human cell product to enable the completion of safety and efficacy studies in the Cell Pouch as part of a regulatory package in preparation for human clinical testing.

On May 19, 2020, the HemAcure Consortium presented the scientific results of the consortium's HemAcure Hemophilia Cell Therapy Program research, noted above, at the 23rd American Society of Gene & Cell Therapy (ASGCT) Annual Meeting. The results support the potential of using genetically corrected cells from a patient's own BOECs transplanted into the Cell Pouch to replace missing clotting human FVIII in patients with hemophilia A.

The following are the highlights of the results presented in the peer-reviewed abstract entitled "*Combined Gene and Cell Therapy for the Treatment of Hemophilia A within an Implantable Therapeutic Device*":

- BOECs were safely isolated and grown from a small sample of circulating peripheral blood of volunteer hemophilia A patients unable to express the required FVIII for clotting;
- to regain the function of the BOECs' ability to produce clotting FVIII, techniques were successful in safely inserting the gene responsible for the correction and production of human FVIII into the patient's BOECs, and these corrected cells were safely multiplied to increase their number;
- tests were conducted to ensure the safety, and the newly corrected BOECs produced enough human FVIII both in the laboratory and in an initial preclinical animal model deficient of FVIII. FVIII blood levels reached up to 10%, a therapeutically relevant level of FVIII;
- to further test cell dose-response, in the preclinical model of hemophilia A, animals originally unable to clot their blood were implanted with a Cell Pouch and in separate groups transplanted with two different doses of human BOECs corrected for the ability to produce human FVIII;
- to assess the safety of the combined product, the Cell Pouch and corrected human FVIII BOECs derived from the volunteer participants with hemophilia A were examined using histological analyses. Importantly, histology showed healthy tissue represented by the presence of stromal growth and new blood vessel formation within the Cell Pouch;
- further histological investigation of the transplanted Cell Pouch sections demonstrated long-term survival of human FVIII BOECs present within the vascularized Cell Pouch achieved through co-staining for blood vessels (von Willebrand Factor stain) and the presence of the patients corrected human cells (HLA-ABC stain) in a preclinical animal model;
- in both experimental doses, human FVIII was detected in circulating peripheral blood up to 4 months following transplantation, with more human FVIII present in peripheral blood using the higher dose of corrected BOECs; and
- data further confirmed functional clotting improvement in the blood at the four months' time point where FVIII BOECs transplanted into the hemophilia A mouse model restored the animal's FVIII activity at a therapeutic level in the Cell Pouch.

During December 2021, the results of the HemAcure Consortium's study were published in a journal article entitled "*Efficient and Safe Correction of Hemophilia A by Lentiviral Vector-Transduced BOECs in an Implantable Device (Sernova's Cell Pouch™)*" in the scientific journal *Molecular Therapy: Methods & Clinical Development, Volume 23*.

We believe these published results demonstrate the potential of our Cell Pouch System to provide a novel approach for the treatment of hemophilia A using an ex vivo gene therapy, cell-based technology that could lead to improved efficacy and quality of life of people suffering from hemophilia A.

The proposed hemophilia A therapy is paving the way for future human clinical testing in hemophilia A patients using Sernova's Cell Pouch transplanted with genetically corrected FVIII releasing cells

developed by the HemAcure Consortium team.

***Developing the Cell Pouch for the Treatment of Additional Disorders and Rare Diseases***

We are exploring the potential use of our technology for the treatment of other rare disease indications to further expand the application of our Cell Pouch™ and cell therapy platform technologies further.

On January 28, 2021, we provided a Collaborations Update highlighting Sernova had multiple active research collaborations with major pharmaceutical companies. In this regard, Sernova is deploying its in-house cell therapy expertise and proprietary Cell Pouch technologies in combination with proprietary therapeutic cell assets designated by the pharmaceutical collaborators to conduct proof of concept studies for additional potential clinical indications. These collaborations with leaders in the pharmaceutical industry build upon our business strategy to develop a portfolio of therapeutic technologies to realize the full potential of Sernova's cell therapeutics platform. We believe collaborating / partnering with multiple pharmaceutical and life science companies will not only expand our therapeutic treatment potential but also provides a de-risked approach for Sernova as we develop our technologies and bring new therapies to patients with the goal to provide people with a 'functional cure' for multiple chronic and rare diseases. To date we have obtained encouraging results assessing various stem cell-derived technologies for a number of clinical indications and we are continuing to advance select collaborations with the goal of achieving long-term development partnerships.

***Local Immune Protection & Other Complementary Technologies***

We believe that encapsulation and other advanced technologies such as gene-editing may protect therapeutic cells from immune system attack within the Cell Pouch vascularized environment while providing the means to enable direct communication between therapeutic cells and microvessels within the established tissue matrix. Such approaches may enable long-term survival and function of therapeutic cells in Cell Pouch, with transient or even no need for immunosuppressive medications. Consequently, development of cellular local immune protection technologies is an important pillar for our cell therapeutics platform. During the 2020 fiscal year, we secured exclusive rights to local immune protection technologies for our Cell Pouch cell therapy platform via acquisition and licensing agreements.

Our approach of providing immune protection for cells locally, within the Cell Pouch tissue matrix, is anticipated to be a competitive advantage and accelerate development of our therapeutic programs. We continue to evaluate additional immune protection technology approaches. We believe we are well-positioned to advance our total regenerative medicine cell therapy therapeutics platform to multiple clinical applications and broader patient populations.

***Cellular Conformal Coating Approach***

The goal of our conformal coating program is to apply local immune protection to transplanted therapeutic cells to avoid the current need for life long antirejection medications. This technology would improve overall outcomes and quality of life for patients through freedom from the maintenance and side-effects of immunosuppressive agents. We expect to accomplish this by providing local immune protection that shields therapeutic cells from detection and attack by a patient's own immune system.

In June 2020, we acquired an innovative cellular local immune protection technology. Pursuant to an asset purchase agreement, we acquired all intellectual property for a conformal coating cell technology (Conformal Coating Technology), including issued patents, patent applications and know-how. This technology acquisition provides a pivotal component required for our regenerative medicine

therapeutics platform and could accelerate our first-to-market strategy for T1D and significantly expand the number of treatable patients suffering from chronic diseases.

The Conformal Coating Technology consists of a thin proprietary cross-linked polymer coating layer designed to surround therapeutic cells with the goal to protect them from an auto-response attack by one's own immune system post cell transplantation into the body.

The advantages and potential benefits of Conformal Coating Technology are anticipated as follows:

- provides protection of the therapeutic cells from immune system attack locally within the Cell Pouch chambers, potentially avoiding the need for life-long immunosuppression medications that are currently required following cell transplantation;
- enables close contact of the transplanted therapeutic cells with the vascularized tissue matrix within the Cell Pouch chambers to enable more intimate interactions;
- enables the diffusion of small molecules and biomolecules (i.e. glucose, insulin, and other proteins or hormones), to provide a physiological glucose-stimulated insulin response without delay that occurs with other encapsulation technologies; and
- due to the improved diffusion of biomolecules relative to other encapsulated technologies, it may require a smaller load of therapeutic cells to achieve the desired therapeutic effect in comparison to standard microcapsules.

In August 2020, we announced entering into an exclusive, worldwide license with the University of Miami (UMiami) for the commercial rights to novel complementary conformal coating immune protection technologies, which enables Sernova to broaden the intellectual property and technology scope of its immune protection conformal coating technologies.

In September 2021, we announced a collaboration with the UMiami and Dr. Alice Tomei, a leading international expert in immunoprotection and diabetes management from the renowned Diabetes Research Institute at the University of Miami Miller School of Medicine, to validate our Conformal Coating Technology in combination with therapeutic cells in Sernova's Cell Pouch for T1D. Under the terms of the two-year agreement, the Company committed to fund the first-year budget of up to US$833,154 (approximately $1,137,172). Technology optimization and further preclinical validation work is progressing as expected and continuing, with the associated second year budget awaiting finalization but anticipated to be similar to that of the first year noted above. Dr. Tomei is one of the original inventors of the Conformal Coating Technology that has been developed and optimized over twelve years with her dedicated team. This important collaboration is multifaceted in nature and designed to advance for the first time locally immune protected cells within the Cell Pouch with the goal of advancing these technologies into clinical trials without the need for life long immune suppression technologies. We believe successful development of this combination technology could meet an unmet need in a broader population of people with T1D who seek a 'functional cure' for their diabetes without the need to take life-long immunosuppression medications.

Subsequent to the collaboration announcement, in September 2021 we hosted an information session webinar "The Ultimate Combination of Two Proven Technologies as a Potential Functional Cure for Type 1 Diabetes and Other Chronic Diseases". The webinar featured Dr. Tomei, who spoke about the use of our Conformal Coating Technology as a technology approach for local cellular immune protection. The webinar is available at https://www.sernova.com/investor/#News_Releases or at https://youtu.be/U57fkmsBT7k.

Our R&D group has been working closely with Dr. Tomei's team to advance the collaboration as well as the scale up processes to manufacture sufficient coated cells for clinical applications. We have substantially increased our knowledge regarding the combination of conformally coated islets in the Cell Pouch and have gathered important information about the criteria needed to release the combined product for clinical use.

***Gene Editing Approaches***

In May 2020, we entered into a research collaboration with AgeX Therapeutics, Inc. to investigate their UniverCyte gene-editing technology to generate such transplantable therapeutic cells for use in combination with our Cell Pouch to provide a total regenerative medicine cell therapy therapeutic solution for the treatment of chronic diseases. The goal of this collaboration was to evaluate the technology as one of several potential next-generation local immune protection approaches for therapeutic cells or tissue transplanted into the Cell Pouch. The research collaboration was extended into fiscal year 2022 and the initial evaluation work was concluded during the recently completed 2022 fiscal year.

UniverCyte uses a novel modified form of HLA-G, a potent immunomodulatory molecule, which may mask transplanted therapeutic cells from immune detection and attack. The objective of the research collaboration was to evaluate whether stem cell-derived therapeutic cells engineered with the UniverCyte technology could potentially evade human immune detection. The approach of HLA-G is one of a number of immune evasive mechanisms that alone or in combination could enable the transplantation of therapeutic cells in patients within an off-the-shelf manner using Sernova's Cell Pouch, without human leukocyte antigen (HLA) tissue matching or permanent concurrent administration of immunosuppressive medications. We continue to evaluate these mechanisms to find the optimal solution, in light of the complex human immune system.

This work is allowing Sernova to further identify and evaluate technologies complementary to Sernova's Cell Pouch therapeutic platform and to expand Sernova's immune protection offerings with potential benefit over current immunosuppressive strategies for cell therapeutics and to expand market penetration potential for our future product offerings.

***Sernova's Access to Multiple Sources of Therapeutic Cells***

Our transplantation technologies may incorporate autologous cells, donor cells, or other sources of cells, including therapeutic cells derived from human stem cells or derived from xenogeneic sources, depending on the clinical indication under evaluation. As such, we continue to work with academic collaborators and industry partners to identify and secure the required cells for our therapeutic indications.

We are developing stem cell-derived technologies with the expectation to provide a virtually unlimited supply of cells for the treatment of diabetes to overcome the limited supply of human donor islets. Pursuant to our strategy of obtaining sources of supply for our therapeutic cell applications, the Company entered into a license agreement with the University Health Network in Toronto, Ontario, Canada. This license agreement gives us exclusive worldwide rights to certain patented and patent-pending technologies for the advancement of glucose-responsive insulin-producing stem cells for treatment of patients with insulin-dependent diabetes. As mentioned above, Sernova is also expanding its collaborations with global pharmaceutical partners to evaluate various cell technologies using different approaches combining Sernova and partner technologies with the goal to create best-in-class therapeutics.

In addition, a collaboration with an international pharmaceutical company to study Sernova's Cell Pouch in a large animal diabetes model has been successfully conducted. The collaboration involved the study of safety, survival, and efficacy of locally immune protected xenogeneic therapeutic islets in our Cell Pouch in a proof-of-concept study.

We have demonstrated long-term insulin independence in several collaborations with global pharmaceutical partners using advanced iPSC stem cell-derived diabetes technologies within the Cell Pouch in accepted animal models of T1D. This work supported the concept of the Cell Pouch combined with an advanced stem cell source meant to provide an unlimited supply of therapeutic cells to treat a significant number of T1D subjects. These collaborations resulted in Sernova and Evotec coming to terms on an iPSC derived beta cell technology for Sernova.

Sernova plans to continue to establish and develop additional collaborations with pharmaceutical and medtech companies for its diabetes and other clinical indications with the end goal to have long-term licensing and or co-development relationships. In addition to pharmaceutical companies, Sernova has entered collaborations with various academic institutions relating to its Cell Pouch technologies for next-generation products.

### *Significant Acquisitions, In-Licensing and Collaborations During 2022 Fiscal Year*

*Exclusive License Option for Leading Advanced iPSC Beta Cells for Islet Replacement Therapy*

On May 16, 2022, we entered into an exclusive global strategic partnership with Evotec, the global life science company and leading developer of iPSC cell technologies for therapeutic applications, to develop a best-in-class cell therapy treatment for people living with insulin-dependent diabetes. Together we will combine and leverage our respective technologies and scientific expertise to develop an implantable iPSC-based beta cell (islet-like clusters) replacement therapy to provide an off-the shelf unlimited insulin-producing cell source to treat patients with insulin-dependent diabetes.

The Evotec Collaboration combines our Cell Pouch System with complementary technologies and Evotec's iPSC-based beta cells for clinical development and commercialization. Incorporating Evotec's insulin-producing, ethically derived islet-like cluster beta cells within our Cell Pouch platform creates the potential to provide a 'functional cure' for the significant number of people worldwide suffering from diabetes through this scalable, off-the-shelf product.

With its long-standing beta cell development program, Evotec has demonstrated the ability to reliably generate high quality, stable, human iPSC-derived beta cells using its proprietary process for producing islet-like clusters in a quality-controlled, scalable, bioreactor process. These islet-like clusters have been demonstrated to be functionally equivalent to primary human islets in their ability to normalize blood glucose levels in *in vivo* models of T1D for approximately one year and ongoing.

After continued development and optimization of its iPSC technologies and evaluation of the commercial and development landscapes for implantable medical devices, Evotec concluded that the Cell Pouch is the optimal device component to complement its field-leading iPSC technologies in a complete treatment solution for T1D. Similarly, based on data from our collaborations with other prospective partners, Sernova concluded that Evotec had the ideal, ethically derived iPSC beta cell technology with the greatest potential to become a highly successful commercial product in combination with Sernova's proprietary technologies.

The Evotec Collaboration provides Sernova with a worldwide exclusive option to license Evotec's iPSC-based beta cells for use in treating both type 1 and type 2 diabetes.

On January 10, 2023 we provided an update on the Evotec Collaboration - refer to the *R&D Highlights* section within this MD&A for more information.

*Pharmaceutical and Life Sciences Company Collaborations*

The goal of our collaborations with pharmaceutical and life sciences companies is to establish new cell therapeutic products to provide potential 'functional cures' for a series of diseases involving replacement of missing proteins or hormones through the combination of Sernova and collaborator technologies. The collaborations may result in the in-licensing or out-licensing of technologies or co-development of therapeutic products. These collaborations may also result in other M&A activities between Sernova and the collaborator companies.

In this regard, Sernova is deploying its in-house cell therapy expertise and proprietary Cell Pouch technologies in combination with proprietary therapeutic cell assets designated by pharmaceutical or life science company collaborators. The research collaborations follow the ongoing clinical success of our Cell Pouch technologies in diabetes and reflect the value and evolving recognition of our technologies and cell therapy platform. These important partnerships with leaders in the pharmaceutical industry build upon our business strategy to develop a portfolio of products to realize the full potential of Sernova's cell therapeutics platform by extending and broadening its application to new therapeutic areas and modalities. We believe partnering with multiple pharmaceutical companies not only will expand our therapeutic treatment potential but also provides a de-risked approach for us as we develop our technologies and bring new therapies to patients with the goal to provide people with a functional cure for multiple chronic and rare diseases.

***Protection of Proprietary Intellectual Property***

Sernova has filed international patent applications related to Cell Pouch and the Cell Pouch System to protect its intellectual property rights related to its therapeutic programs. Sernova has been successful at achieving patent claims in multiple countries around the world.

Our international patent portfolio currently consists of issued and pending patents in multiple families covering our platform and related enabling technologies in important markets in North America, South America, Europe, and Asia. We strive to obtain broad claims for our patents, including exclusivity of our Cell Pouch device and related technologies in combination with a wide range of therapeutic cell technologies including glucose-responsive insulin-producing stem cell-derived cells, and with our acquired local immune protection conformal coating intellectual property and that licensed from UMiami, for the treatment of a number of chronic diseases. We intend to continue to expand our patent and licensing portfolio, through inventions developed internally as well as through strategic in-licensing, to maximize the commercial potential of our platform technologies.

Sernova will continue to protect the commercial therapeutic applications of its discoveries and inventions. In addition, the Company has developed technologies, which it may elect to keep as trade secrets and not publicly disclose in patent applications.

***Research and Development (R&D)***

Our R&D efforts focus principally on the development of our Cell Pouch System cell therapy platform in conjunction with various therapeutic cells and local immune protection technologies for the treatment of major and rare diseases in humans.

Our overall objective is to advance our medical technologies through the various stages of preclinical and

clinical development and ultimately to provide commercial products to patients. The programs we undertake may involve internal preclinical and clinical development efforts in addition to third-party collaborations and corporate partnerships.

Our primary activities to achieve our overall objective and related goals include the following:

- conducting the series of clinical trials required to gain eventual marketing approval for the Cell Pouch System in countries that have a significant market opportunity. We are developing our first therapeutic product for the treatment of T1D and severe hypoglycemic events utilizing human donor islets;
- advancing a treatment that we believe could potentially treat millions of people with diabetes consisting of the Cell Pouch System using immune protected Evotec iPSCs and our owned, licensed or controlled technologies; and
- ongoing R&D activities related to our proprietary Cell Pouch in the following areas:
    - continuing our research and development of additional therapeutic indications such as hemophilia A and postoperative hypothyroid disease;
    - developing therapeutic cell sources for transplantation within our Cell Pouch, such as autologous cells (self-cells) and allogeneic cells (stem cell-derived cells) to treat patients with these chronic diseases;
    - identifying, evaluating and potentially in-licensing complementary technologies which may improve the safety and efficacy of cells within the Cell Pouch:
    - establishing research collaborations to assess alternative cellular immune protection technologies;
    - developing acquired and in-licensed cellular local immune protection technologies;
    - continuing to develop proprietary processing and supply of therapeutic cells;
    - ongoing international development of our intellectual property portfolio and development of new and or licensing of intellectual property; and
    - establishing partnerships with medical device (medtech) and or pharmaceutical companies as well as academic institutions for the development of our products and to advance our next-generation technologies.

## SELECTED ANNUAL INFORMATION

| | Year ended October 31, 2022 | Year ended October 31, 2021 | Year ended October 31, 2020 |
|---|---|---|---|
| Expenses | | | |
| Research and development | $ 16,896,624 | $ 4,637,989 | $ 2,758,633 |
| General and administrative | 7,857,137 | 2,298,518 | 2,501,131 |
| Total expenses | 24,753,761 | 6,936,507 | 5,259,764 |
| Other Expense (Income) | | | |
| Interest income | (577,285) | (70,552) | (38,853) |
| Finance costs | 118,002 | 58,368 | 86,278 |
| Foreign exchange loss | 126,058 | 41,216 | 14,119 |
| Net other expense (income) | (333,225) | 29,032 | 61,544 |
| Loss and comprehensive loss | $ 24,420,536 | $ 6,965,539 | $ 5,321,308 |
| Basic and diluted loss per common share | $ 0.09 | $ 0.03 | $ 0.03 |

Financial Position

| | As at October 31, 2022 | As at October 31, 2021 | As at October 31, 2020 |
|---|---|---|---|
| Total assets | $ 52,484,921 | $ 29,820,344 | $ 5,725,524 |
| Total non-current financial liabilities | $ 136,123 | $ 275,979 | $ 702,612 |

## RESULTS OF OPERATIONS

Stock option and DSU awards granted during the first quarter of the 2022 fiscal year represented two fiscal years of "catch-up" awards in combination with initial grants for new employees. With some grants effectively delayed up to two fiscal years, a portion was immediately vesting to affect a similar vesting result as if the relevant awards had been granted more timely. These factors significantly increased quarterly and annual non-cash share-based compensation expense for the 2022 fiscal year. Vesting aside, the magnitude of the relevant expense recognized for all stock options and DSUs granted was significantly amplified by an approximate 3.5 and 6 fold increase in the Black Scholes fair value of each award type, respectively. This fair value increase was driven by a 528% increase in the Company's share price since the last grant date in fiscal year 2019. The fair value of the non-immediately vested stock options and DSUs are being recognized (i.e. expensed) over up to three years.

For the three months ended October 31, 2022, we recorded a loss of $8,210,422, an increase of $6,035,079 / 277% compared to the same period in the prior year. The increase was driven by the combined effect of increased R&D and G&A costs. Approximately $1.3 million or 21% of the total increase was primarily attributable to incremental non-cash share-based compensation expense associated with new stock option and DSU grants during the 2022 fiscal year first quarter and to a lesser extent stock option grants to new personnel since that quarter. Excluding the effect of the non-cash share-based compensation expense, the latest quarter's loss of $6,917,041 increased by 224% versus the comparative period.

For the year ended October 31, 2022, we recorded a loss of $24,420,536, an increase of $17,454,997 / 251% compared to the same period in the prior year. Similar to the fourth quarter, higher R&D and G&A costs both had an impact on the year-to-date increase. Approximately $7.2 million or 41% of the total increase is attributable to incremental non-cash share-based compensation expense associated with the 2022 Q1 stock option and DSU grants, of which approximately $2.4 million was the one-time impact of the awards granted with immediate vesting. Excluding non-cash share-based compensation expense, the annual loss increased by 152% to $16,969,485 compared to the prior year. The increase is reflective of our continued growth and the advancement of our US Phase 1/2 Cell Pouch Clinical Trial, our Cell Pouch System platform and related technologies and costs associated with our new iPSC initiative collaboration with Evotec. R&D and G&A changes from period to period are further discussed below.

As at October 31, 2022, total assets were $52,484,921 compared to $29,820,344 as at October 31, 2021. The increase is primarily due to proceeds received from the exercise of common share purchase warrants and a private placement with our iPSC collaborator, Evotec, offset by funds used to finance our operating activities.

***Research and Development Expenses***

For the three months ended October 31, 2022, the Company incurred net R&D expenses of $6,543,576, a $4,651,937 / 246% increase from the comparative period. Excluding the effect of the non-cash share-based compensation expense discussed above, the latest quarter's net R&D costs of $5,907,397 increased by $4,031,213 / 215% compared to the same period in the prior year. The increase reflects the continued advancement of our US Phase 1/2 Cell Pouch Clinical Trial, advancement of our iPSC initiative and Evotec Collaboration and expansion of our R&D initiatives. Other significant contributory factors were higher personnel costs with the expansion of our R&D team and recruiting costs; higher clinical trial costs reflecting a greater number of study patients coupled with the protocol progression of all study patients; a higher level of iPSC development activities and related cost recognition; and timing of patent renewal fees. Lower variable grants, contributions and tax credits, which predominantly includes JDRF grant contribution amounts earned and cost recoveries related to our pharmaceutical company collaboration activities, also had a smaller impact on net R&D costs than in the comparative quarter.

Excluding the effect of the non-cash share-based compensation expense, net R&D costs of $13,194,245 increased by $8,652,719 / 191% for the year ended October 31, 2022 over the comparative period, with the same factors driving the increase as described above for the latest quarter.

***General and Administrative Expenses***

For the three months ended October 31, 2022, total G&A expenses increased by $1,342,063 / 237% from the comparative period. Approximately half of this increase was attributable to higher non-cash share-based compensation expense related to new stock options and DSUs granted during the first quarter of our 2022 fiscal year, as discussed above. Excluding the non-cash share-based compensation expense impact, G&A expenses increased by $707,926 / 130% to $1,251,049. This normalized increase reflects incremental costs related to: higher personnel costs attributable to additional hires and recruiting costs; increased business development activities and professional services provided; a corporate communications services contract entered into during the current year; and a significant increase in insurance costs, with program changes and an increase in premium rates.

Total G&A expenses of $7,857,137 for the year ended October 31, 2022 increased by $5,558,619 / 242% from the comparative period. Higher non-cash share-based compensation expense, discussed above, accounted for 65% of this increase. Excluding non-cash share-based compensation, G&A

expenses of $4,108,465 increased by $1,931,880 / 89% over the comparative period. The increase was primarily attributable to the same factors noted above for the current quarter, coupled with incremental costs related to expanded investor relations activities; our uplisting to the TSX; and increased business development and conference related travel with COVID-19 pandemic related travel restrictions having eased during the period.

Amidst the ongoing growth of the Company and the turbulent capital markets, we continue to manage our costs closely.

## SUMMARY OF QUARTERLY RESULTS

The following table presents unaudited selected financial information for the eight most recently completed fiscal quarters:

| | Year ended October 31, 2022 | | | | Year ended October 31, 2021 | | | |
|---|---|---|---|---|---|---|---|---|
| | Q4 | Q3 | Q2 | Q1 | Q4 | Q3 | Q2 | Q1 |
| | $ | $ | $ | $ | $ | $ | $ | $ |
| Loss | 8,210,422 | 5,831,492 | 4,919,687 | 5,458,935 | 2,175,343 | 1,630,998 | 1,666,966 | 1,492,232 |
| Loss per share | 0.03 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 |

Since the beginning of fiscal year 2021 and furthermore during the current 2022 fiscal year, quarterly losses have generally trended higher reflecting the ongoing overall growth of the Company and the advancement of our R&D programs and commensurate with increased study patient activities and support for our US Phase 1/2 Cell Pouch Clinical Trial. In addition, costs associated with our new iPSC research initiative with Evotec began during the second quarter of fiscal year 2022. A higher level of iPSC program activities increased R&D costs considerably during the last quarter of the completed fiscal year 2022 compared to the third quarter. Further costs for iPSC IND enabling activities will be regularly incurred until early fiscal year 2024 and planned preparatory activities are completed.

Quarterly clinical trial costs have continued to trend up as expected due to additional patient enrollment, an increase in the number of patient protocol-based procedures performed for all patients, the conduct of individual patient trial procedures being more expensive the further a patient advances along the study protocol and incremental clinical trial support activities internally and conducted by our study CRO and other service providers. Cell Pouch manufacturing development and production activities during the last quarter of fiscal year 2021 and each of the current fiscal year's completed quarters have contributed to higher R&D costs in those particular quarters. Other factors contributing to up trending quarterly losses include increased costs for the addition of personnel and building core competencies internally to support our future activities and R&D programs.

Compared to the quarters of fiscal year 2021, fiscal year 2022 quarterly losses also increased significantly due to non-cash share-based compensation expense recognized as discussed above.

R&D and G&A costs can vary significantly between reporting periods due to differences in timing of expenditures as well as the level and status of specific R&D and corporate activities being undertaken.

## RELATED PARTY TRANSACTIONS

During the years ended October 31, 2022, and 2021, there were no related party transactions other than for the payment of compensation to key management personnel of the Company in the ordinary course of business. Refer to Note 10 – *Related Party Transactions* in our audited annual consolidated financial statements for further information.

## LIQUIDITY AND CAPITAL RESOURCES

The Company's audited consolidated financial statements have been prepared assuming the Company will continue as a going concern. As at October 31, 2022, the Company had working capital of $46,350,475 (October 31, 2021 – $26,851,474) and for the year ended October 31, 2022 had a negative cash flow from operations of $14,421,398 (2021 - $6,843,744), excluding grant contributions received in the amount of $224,168 (2021 - $871,799). The Company has experienced operating losses and net cash outflows from operations since its inception.

During the year ended October 31, 2022, capital expenditure investment increased to $329,000 (2021 - $17,229) as we expand and upgrade the equipment in our laboratory to support our R&D efforts.

We anticipate increased cash requirements for the next 12 months as we continue to advance our US Phase 1/2 Cell Pouch Clinical Trial and Evotec Collaboration, accelerate development of our local immune protection technology assets, prepare for and initiate additional clinical trials, advance research collaborations and execute our strategic initiatives.

Until such time as our biotechnology therapeutic products are approved and available for sale and profitable operations are developed, our liquidity requirements and ability to continue as a going concern are subject to management's ongoing ability to successfully raise additional working capital and ultimately generate cash flow from the commercialization of its products. Failure to do so could have a material adverse effect on the Company's financial condition and financial performance. During the year ended October 31, 2022, we raised proceeds of $20,279,178 from a private placement financing and $16,136,728 from the exercise of common share purchase warrants. Cash and marketable securities on hand of approximately $49.8 million as at October 31, 2022 are anticipated to fund our operating plan for a period of at least twelve months. Future financing will depend on many factors, including, but not limited to, market conditions that are not within the Company's control and the market acceptance of its products. No assurance can be given that any such additional financing will be available or that, if available, it can be obtained on terms favourable to the Company. See section "**RISKS AND UNCERTAINTIES**" and "**CAPITAL MANAGEMENT, FINANCIAL INSTRUMENTS AND RISKS**" in this MD&A.

If the going concern assumption was not appropriate for the consolidated financial statements, adjustments would be necessary to the carrying value of assets and liabilities, the reported expenses, and the classifications used in the consolidated statements of financial position. The consolidated financial statements do not include adjustments that would be necessary if the going concern assumption was not appropriate.

### *Financing Activities*

During the year ended October 31, 2022:

- received proceeds of $16,230,479 from the exercise of common share purchase warrants and stock options and the corresponding issuance of 29,254,524 common shares; and

- closed a non-brokered private placement as part of an exclusive global strategic partnership with Evotec, issuing a total of 12,944,904 common shares at a price of $1.57 and 2,709,800 unconditional common share purchase warrants which were fully exercised at a price of $2.50 per share, for gross proceeds of $20,323,500 and $6,774,500 respectively. Total gross proceeds received from Evotec's strategic investment into the Company were $27,098,000.

During the year ended October 31, 2021:

- received proceeds of $8,777,772 from the exercise of common share purchase warrants and stock options and the corresponding issuance of 29,141,731 common shares;
- issued 4,000,000 common shares for the conversion of convertible debentures with outstanding principal of $1,000,000, at the fixed conversion price of $0.25 per common share. No additional consideration was received for the conversion into common shares. In accordance with terms of the convertible debentures, the Company elected and also issued 138,980 common shares as settlement for $40,110 of interest accrued on the convertible debentures; and
- closed on March 1, 2021 a brokered bought deal offering (Offering) of 19,205,000 units, including the full exercise of the underwriters' 15% over-allotment option, at the issue price of $1.20 per unit (2021 Units) for cash proceeds of $23,046,000. Each 2021 Unit consists of a common share and one common share purchase warrant, with each common share purchase warrant being exercisable into one common share at a price of $1.70 per share until March 1, 2023, subject to abridgment of the exercise period if the ten-day volume-weighted price of the Company's common shares exceeds $3.05 per share. As consideration for services provided in connection with the Offering, the Company paid to the underwriters: a cash commission of $1,452,981, a corporate finance fee of 384,100 2021 Units (Corporate Finance Fee Units) and 1,210,818 broker warrants (also referred to as compensation options), where each broker warrant upon exercise entitles the holder to purchase one 2021 Unit at $1.20 until March 1, 2023 (Broker Warrant). The Corporate Finance Fee Units and Broker Warrants issued were valued at $460,920 and $2,350,924, respectively. Share issuance costs totalling $466,915 were also incurred and paid. The value of the Broker Warrants was determined using the Geske Model with the following assumptions: volatility of 129%, a risk-free interest rate of 0.3%, an expected life of two years, a dividend yield of 0% and no forfeiture.

**Common Shares**

| | Number of common shares |
|---|---|
| Balance outstanding as at October 31, 2021 | 261,133,258 |
| Issued in conjunction with a private placement | 12,944,904 |
| Issued upon exercise of stock options | 437,500 |
| Issued upon exercise of warrants | 28,817,024 |
| Balance outstanding, as at October 31, 2022, and the date of this MD&A | 303,332,686 |

**Warrants**

| | Number of warrants | Weighted average exercise price |
|---|---|---|
| Balance outstanding as at October 31, 2021 | 46,144,142 | $ 0.93 |
| Issued in conjunction with a private placement | 2,709,800 | 2.50 |
| Issued in conjunction with the exercise of broker unit warrants | 100,000 | 1.70 |
| Exercised | (28,817,024) | (0.56) |
| Balance outstanding as at October 31, 2022, and the date of this MD&A | 20,136,918 | $ 1.67 |

**Incentive Plan**

The Company has an incentive plan with two components: (i) a fixed Share Option Plan (Option Plan) and (ii) a Deferred Share Unit Plan (DSU Plan) (collectively the Incentive Plan).

| | Number of options | Weighted average exercise price |
|---|---|---|
| Balance outstanding as at October 31, 2021 | 8,892,500 | $ 0.24 |
| Granted | 14,465,984 | 1.32 |
| Cancelled / forfeited | (150,000) | (1.32) |
| Exercised | (437,500) | (0.21) |
| Balance outstanding as at October 31, 2022 | 22,770,984 | 0.92 |
| Granted | 120,000 | 0.80 |
| Balance outstanding as at the date of this MD&A | 22,890,984 | $ 0.92 |

| | Number of DSUs |
|---|---|
| Balance outstanding as at October 31, 2021 | 4,150,001 |
| Granted | 1,360,000 |
| Balance outstanding as at October 31, 2022, and the date of this MD&A | 5,510,001 |

The Company initiated its Incentive Plan in 2015, with the latest amendments thereto approved by shareholders of the Company on June 30, 2021. The aggregate maximum of 38,746,536 common shares allowable under the Incentive Plan consists of: (i) a maximum of 30,997,229 common shares reserved for the exercise of share options pursuant to the Option Plan and (ii) a maximum of 7,749,307 DSUs reserved under the DSU Plan component, representing 12.5% and 2.5% respectively of the then issued and outstanding common shares of the Company.

## COMMITMENTS AND CONTINGENCIES

The Company was previously awarded a US$2.45 million (approximately $3.35 million) grant under an agreement with JDRF Therapeutics Fund LLC (JDRF). The grant supports a Phase 1/2 clinical trial of Sernova's Cell Pouch for treatment of patients with T1D. Pursuant to the agreement, the Company has committed to perform certain clinical trial activities and to use commercially reasonable efforts to introduce a diabetes product into the US market. Contributions relating to milestones achievement totaling US$281,160 ($369,976) were earned during the year ended October 31, 2022 (2021 – US$581,160 ($724,182)). Remaining funding available to be earned under the JDRF grant award totals approximately US$0.29 million ($0.39 million) as at October 31, 2022. The Company is required to pay royalties to JDRF as a percentage of any future net sales received from such diabetes product or in certain future license or disposition transactions up to an aggregate maximum of four times the aggregate amount of JDRF grant funding received. A bonus amount equal to the total amount of grant funding received is also payable to JDRF on two aggregate net sales thresholds if they are achieved. Given the early and inconclusive stage of development of the diabetes product, the royalty is not probable at this time and therefore no liability has been recorded.

In May 2022, the Company entered into an exclusive global strategic partnership with Evotec SE for the development and commercialization of an iPSC-based beta cell replacement therapy ("iPSC Program") with the goal to provide an unlimited insulin-producing cell source to treat patients with insulin-dependent diabetes. The Company has committed to pay future milestone and royalty payments to Evotec pursuant to the occurrence of certain events as set forth in the Evotec collaboration agreement (the "Evotec Agreement"). Under the terms of the Evotec Agreement, the preclinical development program(s) will be jointly funded up to IND with the Company's share of potential costs capped at a maximum of approximately US$25 million. The Evotec Agreement is cancellable by the Company with notice, subject to certain terms and conditions. iPSC Program costs of US$5,635,624 ($7,420,725) were incurred during the year ended October 31, 2022 (2021 – $nil). The amount of joint iPSC Program costs originally incurred by Evotec and subsequently recharged to the Company was recorded in research and development expenses in the consolidated statement of loss, and the reimbursement of iPSC Program costs originally incurred by the Company was recorded as a reduction of research and development expenses in the consolidated statement of loss.

The Company expects to pay certain future costs related to preclinical and clinical trial activities. Such payments are expected to include the cost of our clinical / R&D personnel and related overheads, for patient procedures performed and activities related to the US Phase 1/2 Cell Pouch Clinical Trial, CRO costs, additional Cell Pouch manufacturing, clinical trial insurance, and outsourced or lab work and testing, and may include travel and a portion of drug or procedure-related expenses or transplantation expenses not covered by patients' insurance. We enter into contracts and agreements in the normal course of business, including for research and development activities, consulting, and other services. The majority of these contractual obligations are cancelable at any time by us, generally upon prior written notice to the service provider or vendor. In addition, the Company has minimum annual royalty payment obligations of approximately $30,000 for third party licensing agreements.

Effective September 1, 2021, the Company entered into a two-year lease for both its existing office premises and lab facilities and additional office space at a rate of $14,000 per month with a 2% annual increase thereafter for the duration of the lease period including any extension. Under the terms of the lease, the Company has an option to extend the lease term for an additional 12 months, up to August 31, 2024.

The following table summarizes our significant contractual obligations as at October 31, 2022:

| | Payment due by period | | | | |
|---|---|---|---|---|---|
| Contractual obligations[1][2] | Total | Less than 1 year | 1 to 3 years | 3 to 5 years | More than 5 years |
| Lease obligations[3] | $ 317,587 | $ 171,931 | $ 145,656 | $ – | $ – |
| Purchase obligations[4] | 3,624,680 | 1,958,875 | 1,665,804 | – | – |
| | $ 3,942,267 | $ 2,130,807 | $ 1,811,460 | $ – | $ – |

NOTES
(1) Contractual obligations in the above table do not include amounts in accounts payable and accrued liabilities on our statement of financial position as at October 31, 2022.
(2) Contingent milestone and royalty payments under collaboration agreements noted above are not included in the table.
(3) Includes operating lease obligations for laboratory and office facilities.
(4) Purchase obligations include cancellable and non-cancellable contracts including agreements related to the conduct of our clinical trial, preclinical studies, and manufacturing activities.

## OFF-BALANCE SHEET ARRANGEMENTS

The Company does not have any off-balance sheet arrangements.

## CAPITAL MANAGEMENT, FINANCIAL INSTRUMENTS AND RISKS

This section provides disclosures relating to the nature and extent of our exposure to risks arising from financial instruments, including credit risk, liquidity risk, interest rate risk and foreign currency risk, and how we manage those risks.

### *Credit risk*

Credit risk is the risk of loss to the Company if a counterparty to a financial instrument fails to meet its contractual obligations. Our credit risk is primarily attributable to cash and marketable securities, in excess of insured amounts, held or invested at two financial institutions. We believe the risk of the financial institutions and or the counterparty to the underlying financial instruments held failing to meet its obligations is remote. Amounts receivable at October 31, 2022 are composed of amounts due from Canadian federal government agencies and international industry collaborators with full collection expected.

### *Liquidity risk*

Liquidity risk is the risk that we will not be able to meet our financial obligations as they fall due. We are a development stage company and are reliant on external fundraising to support our operations. Once funds have been raised, we manage our liquidity risk by investing our cash resources in high interest savings accounts or marketable securities to provide regular cash flow for our operations and monitoring actual and projected cash flows. As at October 31, 2022, we had working capital of $46,350,475 (October 31, 2021 - $26,851,474).

### *Interest rate risk*

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. We hold our cash in bank accounts and manage our interest

rate risk by holding cash in high yield savings accounts or highly liquid short-term investments. With recent increases in global interest rates and higher average investment balances, interest income is becoming more significant to our projected operational budget although rate fluctuations are not significant to our risk assessment.

***Foreign currency risk***

Foreign currency risk is the risk that future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. We are exposed to foreign currency risk on fluctuations in foreign exchange rates for any cash, amounts receivable, accounts payable and accrued liabilities and grant contributions that are denominated in foreign currencies. Our foreign currency risk is primarily related to expenses denominated in United States dollars. Fluctuations in the United States dollar exchange rate could have a significant impact on our results. Note 16(d) to the audited consolidated financial statements for the year ended October 31, 2022 provides indication of our significant foreign exchange currency exposures as at that date.

## CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The preparation of financial statements requires the Company to make judgments, estimates, and assumptions that affect the application of accounting policies, the reported amounts of assets, liabilities, and expenses, as well as the Company's ability to continue as a going concern. The estimates and assumptions made are continually evaluated and have been based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. Such estimates and assumptions are inherently uncertain, and actual results could differ materially from these estimates and assumptions. Revisions to estimates are recognized in the period in which the estimate is revised and may impact future periods.

Refer to the Company's audited consolidated financial statements for the years ended October 31, 2022 and 2021 for discussions on our accounting policies and significant estimates. Management considers that the following accounting policies and estimates most important in assessing, understanding and evaluating our annual consolidated financial statements.

***Estimated useful life of long-lived assets***

Judgement is used to estimate each component of a long-lived asset's useful life and is based on an analysis of all pertinent factors including, but not limited to, the expected use of the asset and in the case of an intangible asset, contractual provisions that enable renewal or extension of the asset's legal or contractual life without substantial cost, and renewal history. If the estimated useful lives were incorrect, it could result in an increase or decrease in the annual amortization expense, and future impairment charges or recoveries.

***Impairment of long-lived assets***

Long-lived assets are reviewed for impairment upon the occurrence of events or changes in circumstances indicating that the carrying value of the asset may not be recoverable. For the purpose of measuring recoverable amounts, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash-generating units). The recoverable amount is the higher of an asset's fair value less costs to sell and value in use (being the present value of the expected future cash flows of the relevant asset or cash-generating unit). An impairment loss is recognized for the amount by which the asset's carrying value exceeds its recoverable amount. Management evaluates impairment losses for potential reversals when events or circumstances warrant such consideration.

***Valuation of share-based payments, compensation and warrants***

The Company measures the cost of equity-settled transactions by reference to the fair value of the equity instruments at the date at which they are granted. Estimating fair value for share-based payment transactions requires determining the most appropriate valuation model, which is dependent on the terms and conditions of the grant. The fair value of equity instruments is subject to the limitations of the Black-Scholes option pricing model ("Black-Scholes Model"), as well as other pricing models, such as the Geske option pricing model ("Geske Model") for equity instruments involving compound options. An estimate requires determining the most appropriate data inputs for the relevant valuation model, including the expected option life, share price volatility, risk-free interest rate and dividend yield, and forfeiture rates as applicable. Changes in these subjective data input assumptions can materially affect the fair value estimate for share-based payments compensation and warrants.

***COVID-19***

The full extent to which the COVID-19 pandemic may directly or indirectly impact the Company's business, results of operations and financial condition, including our ability to finance our operations, expenses, clinical trials, and research and development costs, will depend on future developments that are evolving and highly uncertain, such as the duration and severity of outbreaks, including future waves or cycles, and the effectiveness of actions to contain and trat COVID-19. As events continue to evolve and additional COVID-19 or outbreak information becomes available, the Company's estimates may change materially in future periods.

## INTERNAL CONTROLS OVER FINANCIAL REPORTING

The Company's management is responsible for establishing and maintaining disclosure controls and procedures (DC&P), as defined in NI 52-109. Management has designed such DC&P to provide reasonable assurance that material information with respect to the Company is made known to them and information required to be disclosed by the Company in its annual filings, interim filings or other reports filed or submitted by it under securities legislation is recorded, processed, summarized and reported within the specified time periods and in compliance with applicable securities legislation and guidelines.

The Company's management is responsible for establishing and maintaining internal controls over financial reporting (ICFR), as defined in NI 52-109 and have designed such ICFR to provide reasonable assurance regarding the reliability of financial reporting for external purposes in accordance with IFRS.

There have been no changes in the Company's ICFR during the three months ended October 31, 2022, that have materially affected, or are reasonably likely to materially affect, the Company's ICFR.

## CHANGES IN ACCOUNTING POLICIES

***New accounting standards adopted during the current period***

None

***New accounting standards and interpretations not yet adopted***

**IAS 1 Presentation of Financial Statements**
In January 2020, the IASB issued amendments to International Accounting Standard 1 *Presentation of Financial Statements* (IAS 1) to provide a more general approach to the classification of liabilities under IAS 1 based on the contractual arrangements in place at the reporting date. The amendments to IAS 1

are effective for annual reporting periods beginning on or after January 1, 2023. The Company does not anticipate adoption of this standard to have a material impact on the consolidated financial statements.

In February 2021, the IASB issued amendments to IAS 1 and IFRS Practice Statement 2 *Making Materiality Judgements* in which it provides guidance and example to help entities apply materiality judgements to accounting policy disclosures. The amendments apply to annual reporting periods beginning on or after January 1, 2023, with earlier application permitted. The Company does not anticipate adoption of this standard to have a material impact on the consolidated financial statements.

**IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors**
In February 2021, the IASB issued amendments to International Accounting Standard 8 *Accounting Policies, Changes in Accounting Estimates and Errors* (IAS 8) in which it introduces a new definition of 'accounting estimates'. The amendments clarify the distinction between changes in accounting estimates and changes in accounting policies and the correction of errors. Also, the amendments clarify how entities use measurement techniques and inputs to develop accounting estimates. The amendments apply to annual reporting periods beginning on or after January 1, 2023, with earlier application permitted. The Company does not anticipate adoption of this standard to have a material impact on the consolidated financial statements.

**IAS 12 Income taxes**
In May 2022, the IASB issued amendments to International Accounting Standard 12 *Income Taxes* ("IAS 12") so that it no longer applies to transactions that give rise to equal and offsetting temporary differences. As a result, companies will need to recognize a deferred tax asset and a deferred tax liability for temporary differences arising on initial recognition of a lease and a decommissioning provision. The amendments apply to annual reporting periods beginning on or after January 1, 2023, with earlier application permitted. The Company does not anticipate adoption of this standard to have a material impact on the consolidated financial statements.

## RISKS AND UNCERTAINTIES

We are a clinical stage biotechnology company that operates in an industry that is dependent on several factors that include the capacity to raise additional capital on reasonable terms, obtain positive results of clinical trials, obtain positive results of clinical trials without serious adverse or inappropriate side effects, obtaining marketing authorization for products and ultimately market acceptance of its product.

An investment in our common shares is subject to several risks and uncertainties and being high risk in nature should be considered speculative. Several of the factors, risks and uncertainties are outside the control of the Company's management. Additional risks and uncertainties not presently known to us or that we believe to be immaterial may also adversely affect our business. An investor should carefully consider the risks and uncertainties described below, as well as other information contained in this MD&A. If any of such described risks occur, or if others occur, our business, operating results and financial condition could be seriously harmed and adversely impacted, and investors could lose all or part of their investment.

### Investment Risk

***Volatility of share price, absence of dividends, and fluctuation of operating results.*** Market prices for the securities of biotechnology companies, including ours, have historically been highly volatile. During the year ended October 31, 2022, our common shares traded on the TSX Venture Exchange and TSX Exchange at a high of $2.22 and a low of $0.69 per share (2021 fiscal year – high of $2.87 and low of

$0.26 per share). Factors such as general market conditions, biotech sector investment sentiment, fluctuation of our operating results, announcements of technological innovations, patents or new commercial products by us or our competitors, results of clinical testing, regulatory actions, or public concern over the safety of biopharmaceutical products and other factors could have a significant effect on the share price or trading volumes for our common shares. Our common shares have been subject to significant price and volume fluctuations and may continue to be subject to significant price and volume fluctuations in the future. We have not paid dividends to date, and we do not expect to pay dividends in the foreseeable future.

***Dilution.*** It is highly likely we will sell additional equity securities in future offerings, including through the sale of securities convertible into equity securities, to finance our operations, acquisitions, or projects, and issue additional common shares if outstanding warrants and stock options are exercised, which may result in dilution.

Our Board of Directors has the authority to authorize certain offers and sales of additional securities without the vote of, or prior notice to, shareholders. Based on the need for additional capital to fund expected expenditures and growth, it is likely that we will issue additional securities to provide such capital. Such additional issuances may involve the issuance of a significant number of common shares at prices less than the current market price for our common shares.

Sales of substantial amounts of our securities, or the availability of such securities for sale, as well as the issuance of substantial amounts of our common shares upon the exercise of outstanding warrants, DSUs, or stock options, could adversely affect the prevailing market prices for our securities and dilute our investors' earnings per share. A decline in the market prices of our securities could impair our ability to raise additional capital through the sale of securities should we desire to do so.

**Reliance on Third Parties for Supply and Manufacture of Products**

***Sernova relies on third parties to manufacture its product candidates.*** Currently, Sernova does not have manufacturing facilities to independently manufacture its product candidates. Except for any contractual rights and remedies which Sernova may have with any future third-party manufacturers, Sernova may not have any control over the availability of its product candidates, their quality, or cost. If, for any reason, Sernova is unable to secure third-party manufacturers on commercially acceptable terms, it may not be able to distribute its product candidates.

Medical device manufacturers are subject to ongoing periodic unannounced inspection by Health Canada, the USFDA, and corresponding state and foreign agencies, including European agencies and their designees, to ensure strict compliance with GMPs and other government regulations. Sernova will not have complete control over its third-party manufacturers' compliance with these regulations and standards. Failure by either Sernova's third-party manufacturers or by Sernova to comply with applicable regulations could result in sanctions being imposed, including fines, injunctions, civil penalties, failure of the government to grant review of submissions or market approval of drugs, delays, suspension, or withdrawal of approvals, product seizures or recalls, operating restrictions, facility closures and criminal prosecutions, any of which could negatively impact the business.

**Issuer Risk**

***We face risks related to the ongoing COVID-19 pandemic, health epidemics, and other outbreaks, which could materially and adversely affect our business, financial condition, and results of operations.*** In December 2019, COVID-19 emerged in Wuhan, China. During March 2020, the World Health Organization declared the COVID-19 outbreak a global pandemic. In response to the outbreak,

governmental authorities around the world introduced various recommendations and measures to mitigate the spread of COVID-19, including restrictions on travel, border closures, quarantines, forced closures for certain types of public places and non-essential businesses and social distancing. The recommendations and measures are having a significant impact on the private sector and individuals, including unprecedented business, employment and economic disruptions.

The ongoing COVID-19 pandemic has impacted the Corporation's business to some extent. Early on during the pandemic, our US Phase 1/2 Clinical Trial was impacted by the temporary COVID-19 related closure of the medical clinic at the University of Chicago and clinical trial and CRO personnel working remotely, which had the effect of slowing the screening of prospective trial participants, the conduct of patient procedures and some clinical trial data collation activities. The closure subsequently eased with COVID-19 safety provisions and the conduct of patient procedures resuming. Thereafter, efforts were made at the clinical trial site to expedite any impacted patient procedures in various stages of progress and the completion of patient enrollment. However, with the subsequent (re)emergence and (re)escalation of COVID-19 variants, the scheduling and timing of some remaining patient procedures has been and may continue to be unpredictably impacted due to changes in OR (operating room) availability due to everchanging restrictions or the reluctance of some non-local study patients to travel to the University of Chicago clinical trial site during periods of increased prevalence or resurgence of COVID-19 infections. COVID-19 has also impacted the progression of some international research collaboration activities due to third-party facility access and travel restrictions or limitations; however, provisions have been and continue to be made as required to minimize the impact on collaboration activities and conditions in general have improved.

In response to the COVID-19 pandemic, we have implemented protocols and procedures for the safety and protection of our employees, contractors, service providers and collaborators. and continue to make adjustments in response to changing government regulations and directives. COVID-19 and the emergence of variants could further impact the Corporation's expected timelines and operations, or the operations of our CRO, our third-party service providers or suppliers and our contract manufacturer, as a result of quarantines, facility closures, travel and logistics restrictions and other limitations in connection with the outbreak. The most significant risks posed by the ongoing COVID-19 pandemic is that it could significantly impact the progress and completion of our US Phase 1/2 Clinical Trial and the advancement of our preclinical and collaborative research activities.

It is unknown how long the adverse conditions associated with COVID-19 and subsequent variants will last and what the complete financial effect will be to the Corporation. Depending on the duration of the ongoing COVID-19 pandemic and actions taken or extended by federal, provincial, state or international governments and public health officials could result in:

- delays or difficulties in enrolling patients or retaining patients in our clinical trials if patients are affected by the virus or are unable to travel to our clinical trial site;
- interruption of key clinical trial activities, such as clinical trial site data monitoring, due to limitations on travel imposed or recommended by federal, provincial or state governments, employers and others or interruption of clinical trial subject visits and study procedures, which may impact the integrity of subject data and clinical study endpoints;
- limitations on employee resources focused on the conduct of our preclinical studies and clinical trials, due to sickness of employees or their families or the desire of employees to avoid contact with large groups of people;
- delays or difficulties in clinical site initiation for new studies, including difficulties in recruiting clinical site investigators, clinical site staff and study subjects; and

- limited access to third-party laboratory facilities to conduct preclinical activities or progress our research collaborations.

To the extent the ongoing COVID-19 pandemic, or other health epidemic or outbreak, adversely affects our business and financial results, it may also have the effect of heightening many of the other risks described in this Risk Factors section. Because of the highly uncertain and dynamic nature of events relating to the continuing COVID-19 pandemic, it is not currently possible to estimate its impact on our business, results of operations and financial condition beyond that discussed above. However, these effects could have a material impact and we will continue to monitor the ongoing COVID-19 pandemic situation.

***Early-stage development and scientific uncertainty.*** Our products are at an early stage of development. Significant additional investment in R&D, product validation, technology transfer to manufacturing, production scale-up, manufacturing, clinical testing, and regulatory submissions of such product candidates will be required prior to commercialization. There can be no assurance that any such products will be developed. The development and regulatory processes may require access to raw materials and inputs which may not be available to us in sufficient amounts or in a timely fashion to allow us to complete the development or receive regulatory approval of any product or process. A commitment of substantial time and resources is required to conduct research and clinical trials if we are to complete the development of any product. It is not known whether any of these product candidates will meet applicable health regulatory standards and obtain required regulatory approvals, or whether such products can be produced in commercial quantities at reasonable costs and be successfully marketed, or if our investment in any such products will be recovered through sales or royalties.

***We depend heavily on the success of our Cell Pouch System platform.*** All of our current product candidates involve the use of our Cell Pouch System platform and are still in preclinical or clinical development. If we are unable to commercialize our product or experience significant delays in doing so, the business may be materially harmed.

We have committed significant resources to the development of our Cell Pouch System platform. Our ability to generate product revenues, which is not expected to occur for at least the next several years, if ever, will depend heavily on the successful development and eventual commercialization of our Cell Pouch System platform and related therapeutic cells.

We are dependent on successful safety and efficacy of our Cell Pouch and therapeutic cells for our lead programs, including the use of human or xenogeneic islets and stem cell-derived cells in combination with the Cell Pouch System platform, including cell immune protection to treat insulin-dependent diabetes, the use of thyroid tissue in combination with the Cell Pouch System and the use of FVIII releasing cells in combination with the Cell Pouch System platform to treat severe hemophilia A. If we are unable to achieve safety and efficacy in one or more of these disease indications in preclinical and/or clinical studies the business may be materially harmed.

***We will need to raise substantial additional funding, which may not be available on acceptable terms, if at all. Failure to obtain this necessary capital when needed may force us to delay, limit, or terminate our R&D efforts or other operations.*** We will require substantial additional funds for further R&D, planned clinical testing, regulatory approvals, establishment of manufacturing capabilities, and, if necessary, the marketing and sale of our products. Management is of the opinion that sufficient working capital will be obtained from external financing to meet the Corporation's liabilities and commitments as they become due, although there is a risk that additional financing will not be available on a timely

basis or on terms acceptable to the Corporation. These factors indicate the potential existence of a future material uncertainty that may cast significant doubt on the ability of the Corporation to continue as a going concern. We expect that our existing combined cash and marketable securities as at October 31, 2022 of $49,776,054 will enable us to fund our current operating plan requirements for at least the next twelve months. We may attempt to raise additional funds through public or private equity or debt financing, collaborations with other biopharmaceutical companies and / or from other sources, including non-governmental grants and loans and various government incentive programs. There can be no assurance that additional funding, however sourced, will be available on terms acceptable to us and which would allow the successful commercialization of our products.

***We heavily rely on the capabilities and experience of our key executives and scientists, and the loss of any of them could affect our ability to develop our products.*** The loss of key members of our staff could harm us. We have employment agreements with our key staff members, although such employment agreements do not guarantee their retention. We also depend on our scientific and clinical collaborators and advisors, all of whom have outside commitments that may limit their availability to us. In addition, we believe that our future success will depend in large part upon our ability to attract and retain highly skilled scientific, managerial, medical, clinical, and regulatory personnel, particularly as we expand our activities and seek regulatory approvals for clinical trials. We enter into agreements with our scientific and clinical collaborators and advisors, key opinion leaders, and academic partners in the ordinary course of our business. We also enter into agreements with physicians and institutions who will recruit patients into our clinical trials on our behalf in the ordinary course of our business.

Notwithstanding these arrangements, we face significant competition for these types of personnel from other companies, research and academic institutions, government entities, and other organizations. We cannot predict our success in hiring or retaining the personnel we require for continued growth. The loss of the services ofany of our executive officers or other key personnel could potentially harm our business, operating results, or financial condition.

***The regulatory approval processes of the USFDA, Health Canada, the European Medicines Agency ("EMA"), and regulators in other jurisdictions are lengthy, time-consuming, and inherently unpredictable. If we, or our collaborators, are unable to obtain regulatory approval for our product candidates in a timely manner, or at all, our business will be substantially harmed.*** The regulatory approval process is expensive, and the time required to obtain approval from the USFDA, Health Canada, EMA, or other regulatory authorities in other jurisdictions to sell any product or combination therapy is uncertain and may take years. Whether regulatory approval will be granted is unpredictable and depends upon numerous factors, including the substantial discretion of the regulatory authorities. Approval policies, regulations, or the type and amount of preclinical and clinical data necessary to gain approval may change during the course of our products' clinical development and may vary among jurisdictions. Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses, and even if the preclinical studies show promising results and clinical trials are successfully completed, we cannot guarantee that the USFDA, Health Canada, EMA, or other regulatory authorities in other jurisdictions will interpret the results as we do, and more trials, manufacturing-related studies or non-clinical studies could be required before we submit a product for approval. Many companies that have believed their product candidates or products performed satisfactorily in preclinical studies, and clinical trials have nonetheless failed to obtain marketing approval of their products. To the extent that the results of our studies and clinical trials are not satisfactory to the USFDA, Health Canada, EMA, or other regulatory authorities in other jurisdictions for support of a marketing application, approval of any product(s) we develop may be significantly delayed, or we may be required to expend significant additional resources, which may not be available to us, to conduct additional trials in support of potential

approval of our product(s). It is also possible that neither our existing Cell Pouch System nor any of our future products will ever obtain regulatory approval, even if we expend substantial time and resources seeking such approval. Our products candidates could fail to receive regulatory approval for many reasons, including the following:

- the USFDA, Health Canada, EMA or other regulatory authorities may disagree with the design or implementation of our or our collaborators' clinical trials;
- we or our collaborators may be unable to demonstrate to the satisfaction of the USFDA, Health Canada, EMA or other regulatory authorities that a product is safe and effective for its proposed indication;
- the results of clinical trials may not meet the level of significance required by the USFDA, Health Canada, EMA or other regulatory authorities for approval;
- we, or our collaborators, may be unable to demonstrate that a product's clinical and other benefits outweigh its safety risks;
- the USFDA, Health Canada, EMA or other regulatory authorities may disagree with our or our collaborators' interpretation of data from preclinical studies or clinical trials;
- the data collected from clinical trials of our products may not be sufficient to support the submission of a Market Authorization Application or other submission to obtain regulatory approval in the United States or elsewhere;
- the USFDA, Health Canada, EMA or other regulatory authorities may fail to approve the manufacturing processes, controls or facilities of third-party manufacturers with which we or our collaborators contract for clinical and commercial supplies; and
- the approval policies or regulations of the USFDA, Health Canada, EMA, or other regulatory authorities may significantly change in a manner rendering our or our collaborators' clinical data insufficient for approval.

If we, and or potential partners, pursued Orphan Drug, Fast Track, Breakthrough Technology, RMAT, Accelerated Approval or Priority Review in the US, or similar preferential regulatory designation(s) in any other jurisdiction abroad, that could be beneficial to expedite the conduct, completion or review of a clinical study, marketing approval for a product and or restrict post-approval market competition, there is no assurance that any such designation could be successfully secured. If unsuccessful in obtaining, development and clinical timelines, cost estimates, market opportunities and or commercialization / go-to-market strategies for a product under development or a product to be developed in the future could be significantly and unfavourably impacted where such preferential regulatory designations may have been factored into approval timelines and projections.

Even if we, or our collaborators, obtain approval for a particular product, regulatory authorities may grant approval contingent on the performance of costly post-approval clinical trials or may approve a product with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product.

In addition, because there may be approved treatments for some of the diseases for which we may seek approval, in order to receive regulatory approval, we may need to demonstrate in clinical trials that the product(s) we develop to treat those diseases are not only safe and effective but may need to be compared to existing products, which may make it more difficult for our product candidates to receive regulatory approval or adequate reimbursement.

***Product development and associated clinical trials involve lengthy and expensive processes with uncertain timelines and uncertain outcomes. If clinical trials are prolonged, delayed, or not completed, we, or our collaborators, may be unable to develop any commercial applications or products that generate revenues on a timely basis, if at all.*** Clinical trials are long, expensive, and uncertain processes. Clinical trials may not be commenced or completed on schedule, and the USFDA, Health Canada, or any other regulatory body may not ultimately approve our Cell Pouch System or other products developed for commercial sale. Clinical trial outcomes are inherently uncertain, and failure can occur at any time during the clinical development process. The clinical trials for existing and or future products could be unsuccessful, which would prevent us from advancing, commercializing, or partnering the product.

Even if the results of our preclinical studies or clinical trials are initially positive, it is possible that we will obtain different results in the later stages of product development or that results seen in clinical trials will not continue with longer-term treatment. Positive results in early clinical trials may not be repeated in larger clinical trials. We cannot be assured that our preclinical studies and clinical trials will generate positive results that allow us to move towards the commercial use and sale of our product candidates. Furthermore, negative results may cause our business, financial condition, or results of operations to be materially adversely affected.

For example, our Cell Pouch System is in earlier clinical trials, and there is a long development path ahead, which will take years to complete and is prone to the risks of failure inherent in the development process.

Preparing, submitting and advancing applications for regulatory approval is complex, expensive, and time-intensive and entails significant uncertainty. A commitment of substantial resources to conduct time-consuming research, preclinical, and clinical trials will be required if we are to complete the development of our products.

Clinical trials of our products require that we identify and enroll patients with the illness under investigation. We may not be able to enroll a sufficient number of appropriate patients to complete our clinical trials in a timely manner, particularly in smaller indications and indications where there is significant competition for patients. If we experience difficulty in enrolling patients to conduct our clinical trials, we may need to delay or terminate on-going clinical trials and will not accomplish objectives material to our success that could impact the price of our common shares. For example, delays in planned patient enrolment and other factors in our clinical trials or future trials may result in longer trials, increased costs, or both.

In addition, unacceptable adverse side effects may occur at any time in the course of preclinical studies or human clinical trials or, if any product candidates are successfully developed and approved for marketing, during commercial use of any approved products. The appearance of any such unacceptable adverse side effects could interrupt, limit, delay, or abort the development of any of our product candidates, or if previously approved, necessitate their withdrawal from the market. Furthermore, disease resistance or other unforeseen factors may limit the effectiveness of our potential products.

Our failure to develop safe, commercially viable products would substantially impair our ability to generate revenues and sustain our operations and would materially harm our business and adversely affect our share price. We may never achieve profitability.

***Patents and proprietary technology.*** Our success will depend in part on our ability to obtain, maintain, and enforce patent rights, maintain trade secret protection, and operate without infringing the proprietary rights of third parties. There can be no assurance that pending patent applications will be allowed, that we will develop additional proprietary products that are patentable, that issued patents will provide us

with any competitive advantage or will not be challenged by any third parties, or that patents of others will not have an adverse effect on our ability to conduct our business.

Furthermore, there can be no assurance that others will not independently develop similar products, duplicate any of our products, or design around the products patented by us. In addition, we may be required to obtain licenses under patents or other proprietary rights of third parties. No assurance can be given that any licenses required under such patents or proprietary rights will be available on terms acceptable to us, if at all. If we do not obtain such licenses, we could encounter delays in introducing one or more of our products to the market while we attempt to design around such patents, or we could find that our development, manufacturing, or sale of products requiring such licenses could be foreclosed. In addition, we could incur substantial costs in defending ourselves in suits brought against us on such patents or in suits where we attempt to enforce our patents against other parties.

Our ability to maintain the confidentiality of our technology may be crucial to our ultimate potential for commercial success. While we have adopted procedures designed to protect the confidentiality of our technology, no assurance can be given that such arrangements will be effective, that third parties will not gain access to our trade secrets or disclose our technology, or that we can meaningfully protect the rights to our trade secrets.

The pharmaceutical industry is characterized by extensive patent litigation. Other parties may have, or obtain in the future, patents and allege that the use of our technologies infringes these patent claims or that we are employing their proprietary technology without authorization.

In addition, third parties may challenge or infringe upon our existing or future patents. Proceedings involving our patents or patent applications or those of others could result in adverse decisions affecting the patentability of our inventions relating to our key products and the enforceability, validity, or scope of protection offered by our patents relating to our key products and may result in substantial monetary damages or result in significant delays in bringing our key products to market and / or preclude us from participating in the manufacture, use or sale of our key products or methods of treatment requiring licenses. Even if we are successful in these proceedings, we may incur substantial costs and divert management time and attention in pursuing these proceedings, which could have a material adverse effect on us.

***We may expend our limited resources to pursue particular R&D opportunities and fail to capitalize on others that may be more profitable or for which there is a greater likelihood of success.*** Because we have limited resources, we focus our R&D programs on therapeutic cell candidates for specific indications. As a result, we may forego or delay the pursuit of opportunities for other therapeutic cell candidates or for other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future R&D programs and therapeutic cell candidates may not yield any commercially viable products.

We have based our R&D efforts on assessing various therapeutic cells within our Cell Pouch System platform. As a result of pursuing the development of certain therapeutic cells within the Cell Pouch System platform, the Corporation may fail to develop other therapeutic cells or address alternate scientific approaches that could offer greater commercial potential or for which there is a greater likelihood of success.

***Dependence on collaborative partners, licensors, and others.*** We currently utilize technology that we have licensed, have an option to license or that has been developed internally by our own researchers.

In particular, we are dependent upon our license to use certain technology provided under sublicense agreement with UHN, dated September 9, 2015, for the development of stem-cell product candidates. In addition, we are dependent on access to the iPSC technology being developed under the Evotec Collaboration. We are also dependent upon our license to use certain local immune protection technology provided under sublicense agreement with UMiami, dated July 28, 2020, for expanded protection of therapeutic cells placed inside our Cell Pouch. While the Corporation's licenses are in good standing, they may be terminated by the licensor if there is a breach of the license agreement.

Our activities will require us to enter into various arrangements with corporate and academic collaborators, licensors, licensees, and others for the research, development, clinical testing, manufacturing, marketing, and commercialization of our products. We intend to attract corporate partners and enter into additional research collaborations. There can be no assurance, however, that we will be able to establish such additional collaborations on favorable terms, if at all, or that our current or future collaborations will be successful. Failure to attract commercial partners for our products may cause us to incur substantial clinical testing, manufacturing, and commercialization costs prior to realizing any revenue from product sales or result in delays or program discontinuance if funds are not available in sufficient quantities.

Should any collaborative partner fail to develop, manufacture, or successfully commercialize any product to which it has rights, or any partner's product to which we will have rights, our business may be adversely affected. Failure of a collaborative partner to continue to participate in any particular program could delay or halt the development or commercialization of products generated from such program. In addition, there can be no assurance that the collaborative partners will not pursue other technologies or develop alternative products either alone or in collaboration with others, including our competitors, as a means for developing treatments for the diseases targeted by our programs.

Furthermore, we may require licenses for certain technologies, and there can be no assurance that these licenses will be granted or, if granted, will not be terminated, or that they will be renewed on conditions acceptable to us. We intend to negotiate additional licenses in respect of technologies developed by other companies and academic institutions. Terms of license agreements to be negotiated may include, inter alia, a requirement to make milestone payments, which may be substantial. We will also be obligated to make royalty payments on the sales, if any, of products and payments on any sublicensing revenue derived from the licensed technology and, in some instances, may be responsible for the costs of filing and prosecuting patent applications.

We rely and will continue to rely on third parties to conduct some portions of our preclinical and clinical development activities. Preclinical activities include proof-of-concept and safety studies. Clinical development activities include trial design, regulatory submissions, clinical patient recruitment, clinical trial monitoring, clinical data management and analysis, safety monitoring, and project management. If there is any dispute or disruption in our relationship with third parties, or if they are unable to provide quality services in a timely manner and at a reasonable cost, our active development programs will face delays. Further, if any of these third parties fail to perform as we expect or if their work fails to meet regulatory requirements, our testing could be delayed, canceled, or rendered ineffective.

***We rely on a third-party contract manufacturer to manufacture our products.*** Health Canada and the USFDA ensure the quality of products by carefully monitoring manufacturers' compliance with Good Manufacturing Practices regulations. Any manufacturing failures or delays or compliance issues could cause delays in the completion of our preclinical and clinical activities. There can be no assurances that our contract manufacturer will be able to meet our timetable and requirements. We have currently not contracted with alternate suppliers, in the event our contract manufacturer is unable to scale up

production, or if they otherwise experience any other significant problems. If we are unable to arrange for alternative third-party manufacturing sources on commercially reasonable terms or in a timely manner, we may be delayed in the manufacture of our product. Further, contract manufacturers must operate in compliance with GMP, and failure to do so could result in, among other things, the disruption of our product supplies. Our dependence upon third parties for the manufacture of our products may adversely affect our profit margins and our ability to develop and deliver products on a timely and competitive basis.

***Acquisitions, joint ventures, or other strategic transactions could disrupt our business, cause dilution to our shareholders and otherwise harm our business.*** We actively evaluate various strategic transactions on an ongoing basis, including the acquisition of other businesses, products, or technologies as well as pursuing strategic alliances, joint ventures, licensing transactions, or investments in complementary businesses. Any of these transactions could be material to our financial condition and operating results and expose us to many risks, including:

- disruption in our relationships with collaborators or suppliers as a result of such a transaction;
- unanticipated liabilities related to acquired companies;
- difficulties integrating acquired personnel, technologies and operations into our existing business;
- retention of key employees;
- diversion of management time and focus from operating our business to pursuing strategic transactions and managing any such strategic alliances, joint ventures or acquisition integration challenges;
- dilution to our shareholders if we issue equity in connection with such transactions;
- increases in our expenses and reductions in our cash available for operations and other uses; and
- possible write-offs or impairment charges relating to acquired businesses, products or technologies.

Foreign acquisitions involve unique risks in addition to those mentioned above, including those related to integration of operations across different cultures and languages, currency risks, and the particular economic, political, and regulatory risks associated with specific countries. Also, the anticipated benefit of any strategic alliance, joint venture, or acquisition may not materialize. Future acquisitions or dispositions could result in potentially dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities, or amortization expenses or write-offs of goodwill, any of which could harm our financial condition. We cannot predict the number, timing, or size of future joint ventures or acquisitions, or the effect that any such transactions might have on our operating results.

***Product liability claims are an inherent risk of the Corporation's business, and if the Corporation's clinical trial and product liability insurance prove inadequate, product liability claims may harm its business.*** Human therapeutic products involve an inherent risk of product liability claims and associated adverse publicity. Although the Corporation currently carries what it believes to be adequate product liability and clinical trial insurance, there can be no assurance that the Corporation will be able to maintain its current insurance, or obtain other insurance as required, on acceptable terms, with adequate coverage in the future against potential liabilities or at all. Insurance covering product liability claims becomes increasingly expensive as a product candidate moves through the development pipeline to commercialization. An inability to obtain sufficient insurance coverage on reasonable terms or to otherwise protect against potential product liability claims could have a material adverse effect on the Corporation's business. If a product is withdrawn or a product liability claim was brought against the

Corporation, it could significantly damage the Corporation's reputation and prevent or inhibit the commercialization of its products currently under development or product candidates in the future (licensed or owned) or negatively impact existing or future collaborations.

***Employee misconduct or other improper activities.*** We are exposed to the risk of employee fraud or other misconduct. Misconduct by employees could include failures to comply with Health Canada or USFDA regulations, provide accurate information to those agencies, comply with manufacturing standards we have established, comply with federal and state health-care fraud and abuse laws and regulations, report financial information or data accurately or disclose unauthorized activities to us. Employee misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a substantial impact on our business and results of operations, including the imposition of substantial fines or other sanctions.

***Lack of product revenues and history of losses.*** To date, we have not recorded any revenues from the sale of cell therapy products. We expect to incur additional losses during the periods of R&D, clinical testing, and application for regulatory approval of our product candidates. For the year ended October 31, 2021, we incurred losses of $24,420,536 (2021 - $6,965,539) and had an accumulated deficit as of October 31, 2022 of $79,169,487. We expect to incur further losses unless and until such time as payments from corporate collaborations, product sales, and or royalty payments generate sufficient revenues to fund our continuing operations.

***Conflict of interest.*** Certain of our directors and senior officers may, from time to time, be employed by or affiliated with organizations that have entered into agreements with us. As disputes may arise between these organizations and us, or certain of these organizations may undertake or have undertaken research with our competitors, there exists the possibility for such persons to be in a position of conflict. Any decision or recommendation made by these persons involving us will be made in accordance with his or her duties and obligations to deal fairly and in good faith with us and such other organizations. In addition, as applicable, such directors and officers will refrain from voting on any matter in which they have a conflict of interest.

***Unstable market and economic conditions may have serious adverse consequences on our business and financial condition.*** Global credit and financial markets experienced extreme disruptions at various points over the last decade, characterized by diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates, and uncertainty about economic stability. If another such disruption in credit and financial markets and deterioration of confidence in economic conditions occurs, our business may be adversely affected. If the equity and credit markets were to deteriorate significantly in the future, it might make any necessary equity or debt financing more difficult to complete, more costly, and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on our growth strategy, financial performance and the market price of our common shares could require us to delay or abandon development or commercialization plans. In addition, there is a risk that one or more of our current collaborators, service providers, manufacturers, and other partners would not survive or be able to meet their commitments to us under such circumstances, which could directly affect our ability to attain our operating goals on schedule and on budget.

***Reliance on Information Technology.*** Despite the implementation of security measures, our internal computer systems, and those of our third parties on which we rely, are vulnerable to damage from

computer viruses and unauthorized access, malware, natural disasters, fire, terrorism, war and telecommunication, electrical failures, cyber-attacks or cyber-intrusions over the Internet, attachments to emails, persons inside our organization, or persons with access to our systems inside our organization. The risk of a security breach or disruption, particularly through cyber-attacks or cyber intrusion, including by computer hackers, foreign governments, and cyber terrorism has generally increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased. Should a material system failure or security breach occur and cause interruptions in our operations, it could result in a material disruption of our development programs and our business operations. For example, the loss of clinical trial data from completed, ongoing or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. Likewise, we rely on third parties for the manufacture of our product candidates and to conduct clinical trials, and similar events relating to their computer systems could also have a material adverse effect on our business, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the further development and commercialization of our future product candidates could be delayed.

***We are likely a "passive foreign investment company" (PFIC) which may have adverse U.S. federal income tax consequences for shareholders in the United States (U.S.).*** U.S. investors should be aware that we believe we were classified as a passive foreign investment company, or PFIC, during the tax years ended October 31, 2022, and 2021, and based on current business plans and financial expectations, we believe that we may be a PFIC for the current tax year and the immediate future tax years. If we are a PFIC for any year during a U.S. shareholder's holding period of our common shares, then such U.S. shareholder generally will be required to treat any gain realized upon a disposition of our common shares, or any so-called "excess distribution" received on our common shares, as ordinary income, and to pay an interest charge on a portion of such gain or distributions, unless the shareholder makes a timely and effective "qualified electing fund" election (QEF Election) or a "mark-to-market" election with respect to our shares. A U.S. shareholder who makes a QEF Election generally must report on a current basis its share of our net capital gain and ordinary earnings for any year in which we are a PFIC, whether or not we distribute any amounts to our shareholders. A U.S. shareholder who makes the mark-to-market election generally must include as ordinary income each year the excess of the fair market value of the common shares over the shareholder's adjusted tax basis therein. Each U.S. shareholder should consult its own tax advisors regarding the PFIC rules and the U.S. federal income tax consequences of the acquisition, ownership, and disposition of our common shares.

***It may be difficult for non-Canadian investors to obtain and enforce judgments against us because of our Canadian incorporation and presence.*** We are a corporation governed by Canadian law. Several of our directors and officers, and several of the experts are residents of Canada, and all or a substantial portion of their assets, and all or a substantial portion of our assets are located outside the United States. Consequently, it may be difficult for holders of our securities who reside in the United States to effect service within the United States upon those directors and officers, and the experts who are not residents of the United States. It may also be difficult for holders of our securities who reside in the United States to realize in the United States upon judgments of courts of the United States predicated upon our civil liability and the civil liability of our directors, officers, and experts under the United States federal securities laws.

Investors should not assume that Canadian courts (i) would enforce judgments of United States courts obtained in actions against us or such directors, officers or experts predicated upon the civil liability provisions of the United States federal securities laws or the securities or "blue sky" laws of any state or jurisdiction of the United States or (ii) would enforce, in original actions, liabilities against us or such

directors, officers or experts predicated upon the United States federal securities laws or any securities or "blue sky" laws of any state or jurisdiction of the United States. In addition, the protections afforded by Canadian securities laws may not be available to investors in the United States.

***As a foreign private issuer, we are not subject to certain United States securities law disclosure requirements that apply to a domestic United States issuer, which may limit the information which would be publicly available to our shareholders.*** As a foreign private issuer, we are not required to comply with all the periodic disclosure requirements of the Exchange Act, and therefore, there may be less publicly available information about us than if we were a United States domestic issuer. For example, we are not subject to the proxy rules in the United States, and disclosure with respect to our annual meetings will be governed by Canadian requirements.

**Industry Risk**

***Rapid technological change.*** The biotechnology and pharmaceutical industries are characterized by rapid and substantial technological change. There can be no assurance that developments by others will not render our proposed products or technologies non-competitive, or that we will keep pace with technological developments. Competitors have developed or are developing technologies that could be the basis for competitive products. Some of these products have an entirely different approach or means of accomplishing the desired therapeutic effect as compared with products to be developed by us and could be more effective and less costly than the products to be developed by us. In addition, alternative forms of medical treatment may be competitive with our products.

***Competition.*** Technological competition from pharmaceutical companies, biopharmaceutical companies, and universities is intense and is expected to increase. Potential competitors for us have or may develop product development capabilities or financial, scientific, marketing, and human resources exceeding ours. Competitors may develop products before we can develop our products, obtain regulatory approval for such products more rapidly than us, or develop products which are more effective than those which we intend to develop. Research and development by others may render our proposed technology or products obsolete or non-competitive or produce treatments or cures superior to any therapy developed or to be developed by us, or otherwise preferred to any therapy developed by us.

***Government regulations.*** Biotechnology and pharmaceutical companies operate in a high-risk regulatory environment. The manufacture and sale of therapeutic products are governed by numerous statutes and regulations in the United States, Canada, and other countries where we intend to market our products. The subject matter of such legislation includes approval of manufacturing facilities, controlled research, and testing procedures, review, and approval of manufacturing, preclinical and clinical data prior to marketing approval, as well as regulation of marketing activities, notably advertising and labeling.

The process of completing clinical testing and obtaining required approvals is likely to take several years and require the expenditure of substantial resources. Furthermore, there can be no assurance that the regulators will not require modification to any submissions, which may result in delays or failure to obtain regulatory approvals. Any delay or failure to obtain regulatory approvals could adversely affect our ability to utilize our technology, thereby adversely affecting our operations. Further, there can be no assurance that our product candidates prove to be safe and effective in clinical trials or receive the requisite regulatory approval. There is no assurance that we will be able to timely and profitably produce its products while complying with all the applicable regulatory requirements. Foreign markets, other than the United States and Canada, impose similar restrictions.

***Hazardous materials and environmental matters.*** Certain of our R&D processes will involve the controlled use of hazardous materials. We are subject to federal, provincial, and local laws and regulations governing the use, manufacture, storage, handling, and disposal of such materials and certain waste products. Although our management believes that its procedures for handling and disposing of such materials comply with the standards prescribed, the risk of accidental contamination or injury from these materials cannot be completely eliminated. In the event of such an accident, we could be held liable for damages, and such liability could exceed our resources. We are not specifically insured with respect to this liability. Although our management believes that it currently complies in all material respects with applicable environmental laws and regulations, we may be required to incur significant costs to comply with environmental laws and regulations in the future. Furthermore, there can be no assurance that our operations, business, or assets will not be materially adversely affected by current or future environmental laws or regulations.

***Status of healthcare reimbursement.*** Our ability to successfully market certain therapeutic products may depend in part on the extent to which reimbursement for the cost of such products and related treatments 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. 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 us to realize an acceptable return on our investment in product development.

***Potential product liability.*** Pharmaceutical products involve an inherent risk of product liability claims and associated adverse publicity. Product liability insurance is costly, and availability is limited and may not be available on terms that would be acceptable to us, if at all. An inability to maintain sufficient insurance coverage on reasonable terms or to otherwise protect against potential product liability claims could prevent or inhibit the commercialization of our products. A product liability claim brought against us, or withdrawal of a product from the market, could have a material adverse effect upon us and our financial condition.

## DIRECTORS AND OFFICERS

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| Frank Holler | Director and Executive Chair of the Board |
| Jeffrey Bacha | Director and Compensation Committee Chair |
| James Parsons, CPA, CA | Director and Audit Committee Chair |
| Deborah Brown | Director and Nomination and Governance Committee Chair |
| Dr. Mohammad Azab | Director |
| Dr. Dan Mahony | Director |
| Dr. Philip Toleikis | President, Chief Executive Officer, and Director |
| Gary Floyd | Corporate Secretary |
| David Swetlow, CPA, CA | Chief Financial Officer |

## ADDITIONAL INFORMATION

Additional information relating to the Company can be found on SEDAR at www.sedar.com.