Sernova Corp

Advancing cell therapeutics to provide 'functional cures'

TSX: SVA
OTCQB:SEOVF
FSE/XETRA:PSH

Sernova Annual General Meeting April 27, 2023

Forward looking statements

This presentation contains forward-looking statements within the meaning of applicable Canadian securities laws. Forward-looking statements in this presentation are statements that are not historical facts and are generally, but not always, identified by the words “expects”, “plans”, “anticipates”, “believes”, “intends”, “estimates”, “projects”, “potential” and similar expressions, or that events or conditions “will”, “would”, “may”, “could” or “should” occur. Forward-looking statements include statements about subsequent clinical activity, including enrolment of patients and continuing results therefrom, and the potential benefits, safety and efficacy of the Cell Pouch™, Cell Pouch System™ and related technologies for various indications, including type 1 diabetes (T1D).

While Sernova considers these assumptions to be reasonable, these assumptions are inherently subject to significant scientific, business, economic, competitive, market and social uncertainties and contingencies. Additionally, there are known and unknown risk factors that could cause Sernova’s actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements contained in this presentation. Results in early-stage clinical trials may not be indicative of full results or results from later stage or larger scale clinical trials and do not ensure regulatory approval. Readers should not place undue reliance on these statements, or the scientific data presented and should refer to the risk factors identified in the Company’s continuous disclosure filed on SEDAR.com. Sernova expressly disclaims any intention or obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise.

2023 AGM Presentation

Agenda

- Brief Update on Sernova's type 1 diabetes (T1D) clinical program
  - Cohort 1 update
  - Cohort 2 enrolment update
- Sernova rationale using islets as a 'functional cure' for TID as opposed to insulin injections
- Sernova's iPSC islet cluster technology being developed with Evotec: a commercially viable product
- Update from this week's IPITA conference with Sernova/Evotec's presentation
- Future milestones

Sernova: Innovator and Leader

Cell Therapeutics: Paradigm Shift for Superior Treatment of High-Maintenance, Lifelong Conditions

- Sernova's integrated **Cell Pouch System™** provides the potential for a **'functional cure'** for chronic medical conditions with **multi-billion dollar market potential**
- **Cell Pouch** implantable device forms organ like environment for immune protected therapeutic cells to **naturally produce missing proteins or hormones**, overcoming barriers associated with cell survival and function – **no fibrosis**
- **Type 1 Diabetes (T1D) lead program**, additional programs for **hypothyroidism and hemophilia A**
- Current **US Phase 1/2 clinical study** interim data **demonstrating insulin independence in multiple long-term T1D patients with hypoglycemia**; longest patient > 3.0 years
- **Partnership with Evotec** (NASDAQ: EVO) will provide **ethically derived best in class, commercially viable iPSC islet clusters** with potential to treat all insulin dependent patients
- **Strong cash position** through key milestones

Phase 1/2 Study – Cohort 1 Informed / Guided to Cohort 2

Advancing With A Higher Capacity Cell Pouch Product

- Cohort 1 (6 patients)
  - Patients demonstrated a **clear safety profile** for **Cell Pouch System**
  - Established threshold for islet dose and density optimization
  - Cohort 1 update coming at American Diabetes Association Meeting (podium presentation)
- Cohort 2 (up to 7 patients) – Provides optimized dosing regimen and shorter dosing timelines
  - Implementation **of 10 channel Cell Pouch** with **>50% more islet capacity**
    - released to trial site for implantation commencing **November 2022**
    - first 4 patients enrolled **including Cell Pouch implantation**
    - **first 2 patients transplanted with the first dose of islets – next transplants pending**
    - intra-implantation cell dosing interval **reduced from 6 to 3 months**
    - engaged new patient recruitment agency for rapid enrollment of remaining study patients
  - Initial interim data with 10 channel Cell Pouch and islet transplants anticipated **H2 2023**
- Results from this study will inform the Phase 3 program and **support anticipated Biologic License Agreement (BLA) submission to FDA**

The Advantages Of Pancreatic Islets Over Insulin Injection

Insulin: A Single Component of Glucose Regulation

Insulin is only one way the body controls glucose. **Using solely insulin** to treat type 1 diabetes can **only lower blood glucose**, which can be dangerous and potentially life threatening.

Alpha Cells

Alpha cells secrete the hormone **glucagon** in response to **low blood glucose**.

The effect of glucagon is to raise blood glucose.

Beta Cells

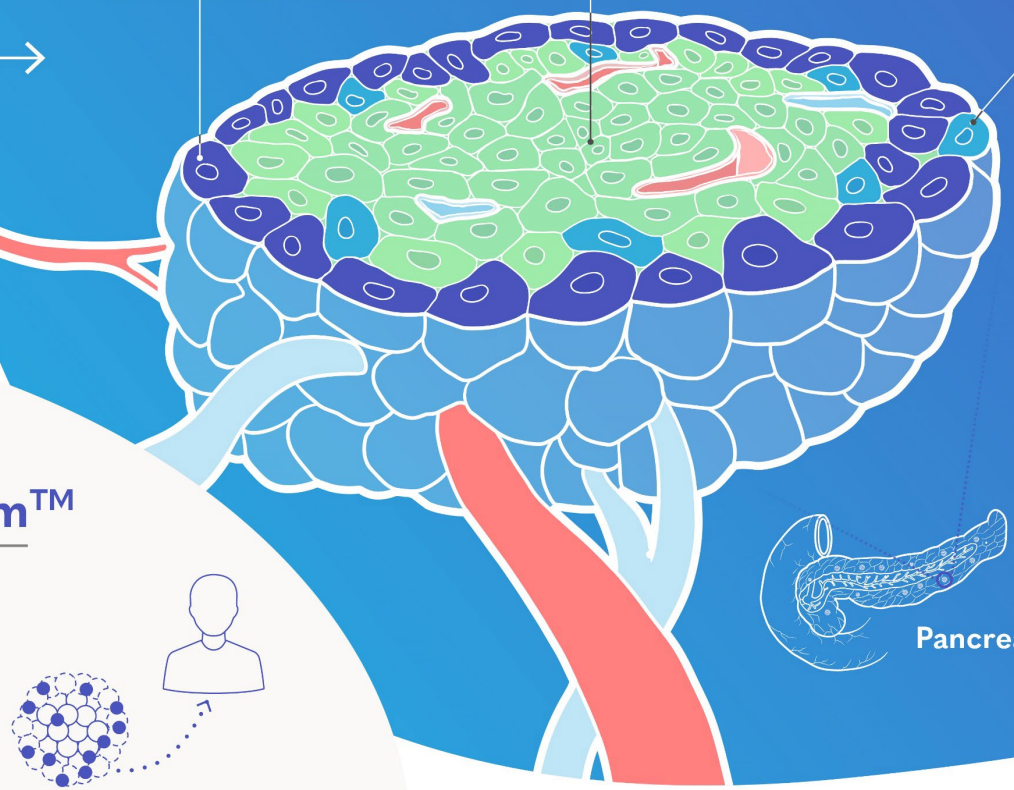
Beta cells secrete the hormone **insulin** in response to **high blood glucose**.

The effect of insulin is to lower blood glucose.

Delta Cells

Delta cells secrete the hormone **somatostatin** in response to **high levels of insulin or glucagon**.

The effect of somatostatin is to keep blood glucose from dropping too low or elevating too high by inhibiting the secretion of both hormones if they reach too high a level.



Pancreas

Pancreatic Islets: The Complete Approach

Pancreatic islets are the primary mechanism behind the **global regulation** of blood glucose. Islets are organized groups of cells that have the full compliment of glucose-regulating functions and hormones in normal pancreatic tissue. The contents of islets maintain glucose within a healthy range, not too high and not too low, and can regulate blood glucose constantly. Tight control of blood glucose, with a normal HbA1c, can decrease the risk of side effects from diabetes and improve quality of life.

Sernova's Cell Pouch System™

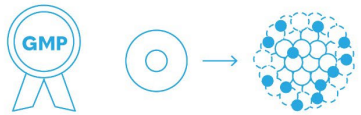
Evotec is manufacturing pancreatic islet-like clusters (ILCs) that mimic the function of human islets. Sernova's Cell Pouch, in combination with Evotec's ILCs, operates similarly to native pancreatic tissue that globally controls blood glucose, resulting in a commercial-scale potential 'functional cure' for insulin-dependent diabetes.

Sernova Corp

Sernova and Evotec's Cell Therapy Commercial Approach for the Treatment of Type 1 Diabetes

The Evotec iPSC-Based Manufacturing Process

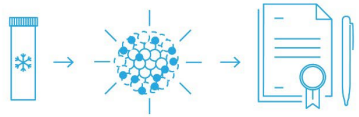
The Evotec induced pluripotent stem cell (iPSC)-based manufacturing process allows for the commercial-scale production of best-in-class pancreatic islet-like cell clusters (ILCs). These ILCs can be cryopreserved, and as a result, can be shipped around the world, differentiating them from others in the industry. In combination with Sernova's Cell Pouch System™, these technologies offer a potential 'functional cure' for patients suffering from insulin-dependent diabetes.



1 Using Good Manufacturing Practices, the iPSCs are differentiated (developed) into the target pancreatic islet-like clusters.

2 Controlled freezing (cryopreservation), essential for making cells commercially viable on a large scale. Extensive quality control.

3 Storage or shipment of islet clusters (frozen).



4 Thawing of cells to patient-ready form. Additional assurance that cells meet the rigorous standards set forth for cells to be transplanted into patient.

5 Temperature-controlled shipping for patient transplant.

The Patient Experience

Patients with insulin-dependent diabetes face an extreme burden of constant blood glucose checks, multiple daily insulin injections, and the risk of a potentially life-threatening complication of the inability to recognize the symptoms of low blood sugar. Sernova has developed the Cell Pouch System as a cutting-edge solution that allows for natural vascularization and free exchange of nutrients, oxygen, and hormones. In combination with Evotec's pancreatic islet-like clusters, operating similarly to native pancreatic tissue that controls blood glucose, the result is a commercial-scale potential 'functional cure' for insulin-dependent diabetes.

4 Blood sugar controlled by new transplant islets. Patient tapers off insulin and potentially becomes insulin free.

3 Islet clusters are then transplanted into the Cell Pouch by surgeon in a short procedure.

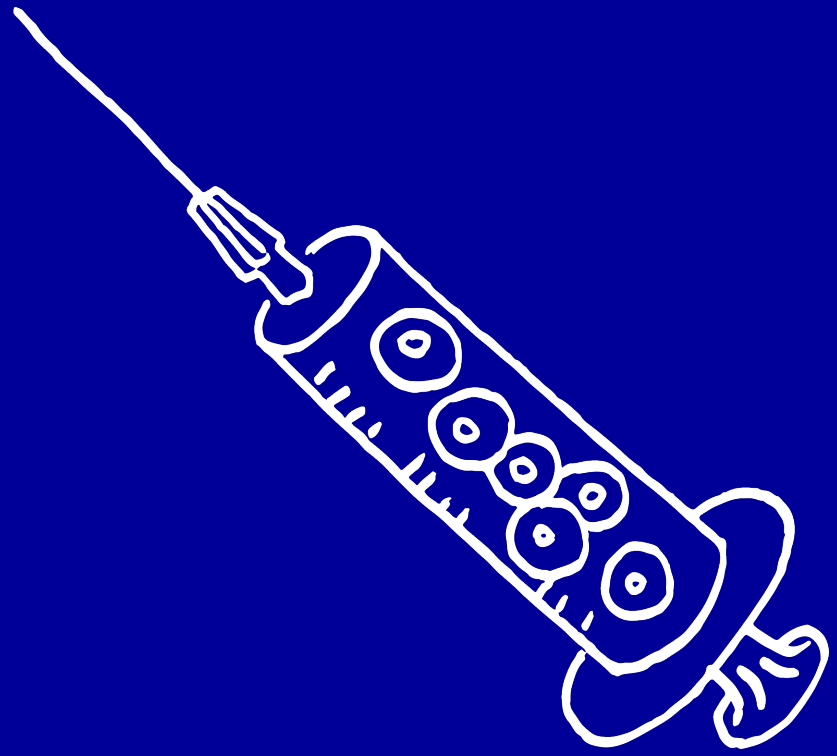
2 General surgeon implants the Cell Pouch and patient goes home the next day to allow approximately 6 weeks for the body to develop an ideal environment for the islets.

1 Patient with insulin-dependent diabetes meets with endocrinologist and decide together that the Cell Pouch System/ILC combination is a good option for the patient. The Cell Pouch System is ordered for type 1 diabetes.

Sernova Corp + evotec

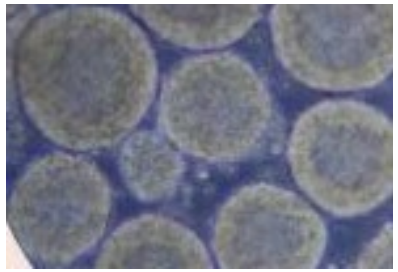
#RESEARCHNEVERSTOPS

In vivo-testing of Evotec iPSC-derived islet-like clusters in the Sernova Cell Pouch™



iPSC-derived islet-like clusters (ILCs) with long-term antidiabetic efficacy

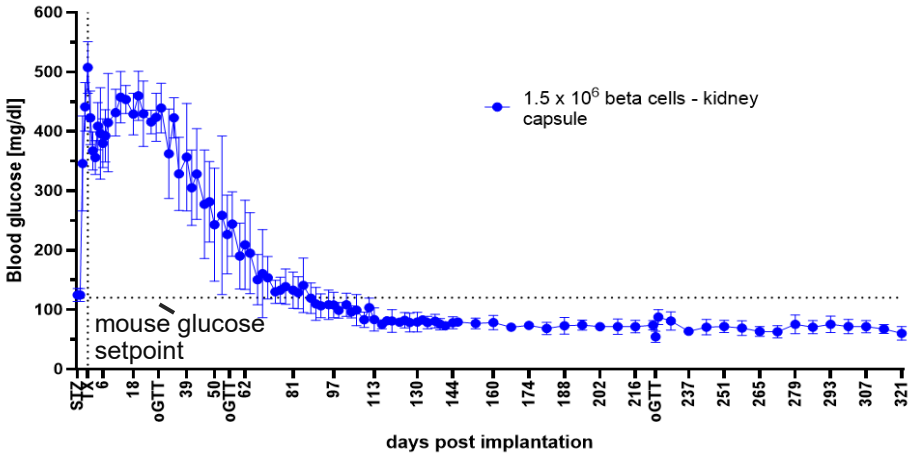
Robust, durable normalization of glycemic control in diabetic mice



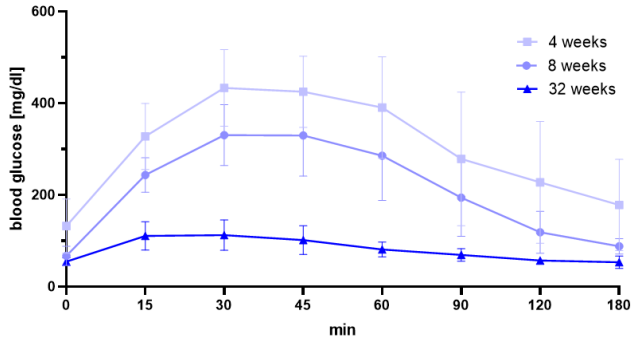
Evotec GMP manufacturing site near Modena/Italy

- We have developed a scalable, GMP-compatible process for ILC manufacturing from a GMP iPSC line
- Drug product with completed endocrine differentiation and optimized beta cell fraction
- We target an immature (KCl responsive) beta cell state for a short manufacturing process and high product resilience
- Manufacturing involves a cryopreservation step, and is currently implemented at Evotec's GMP manufacturing site

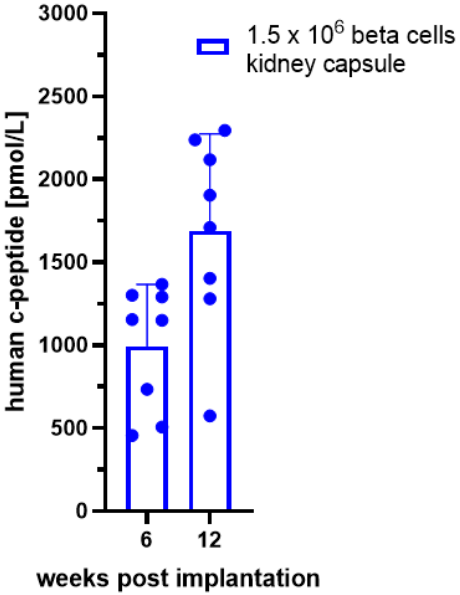
Efficient normalization of random fed glucose by kidney capsule-implanted ILCs



oGTT at weeks 4, 8 and 32 post ILC implantation



Circulating hC-peptide



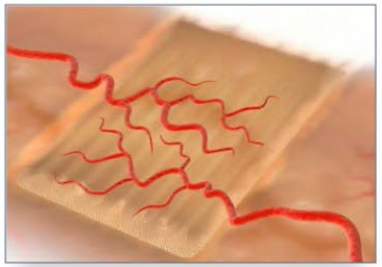
Combining high quality iPSC-derived ILCs with a clinically proven device

Evotec ILCs with Sernova Cell Pouch™

- The Sernova Cell Pouch™ is a pre-implanted, vascularized device providing an optimal environment for therapeutic cell function[1]
  - Accessible/retrievable implantation site
- Sernova has promising clinical data with isolated human islets in the Cell Pouch™
- Evotec and Sernova collaborate to develop a combination of ILCs in the Cell Pouch™ for diabetes cell therapy
- Initial patient population will be immunosuppressed patients with T1D

Cell Pouch Containing Therapeutic Cells

Biologically compatible delivery process – allows natural vascularization



Proprietary Cell Pouch is placed deep under the skin, allowing for vascularization & creating a natural environment for long-term function of therapeutic cells

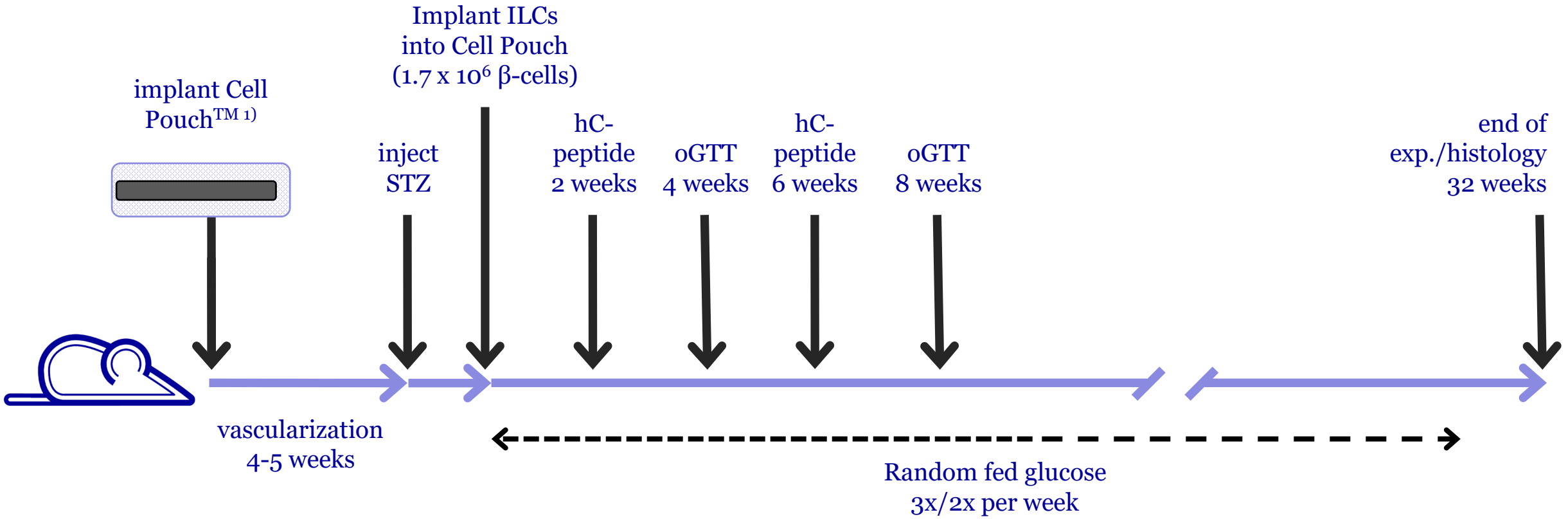
Therapeutics cells are transplanted directly into the vascularized tissue chambers of the proprietary Cell Pouch

Therapeutic cells are responsive to endogenous regulation and release missing proteins or hormones into the bloodstream to correct biological dysfunction

1 https://sernova.com/

Testing the ILC + Cell Pouch™ combination in diabetic mice

Sentinel-size Cell Pouch™ in STZ-diabetic NSG mice with ILCs containing 1.7 x 10^6 beta cells

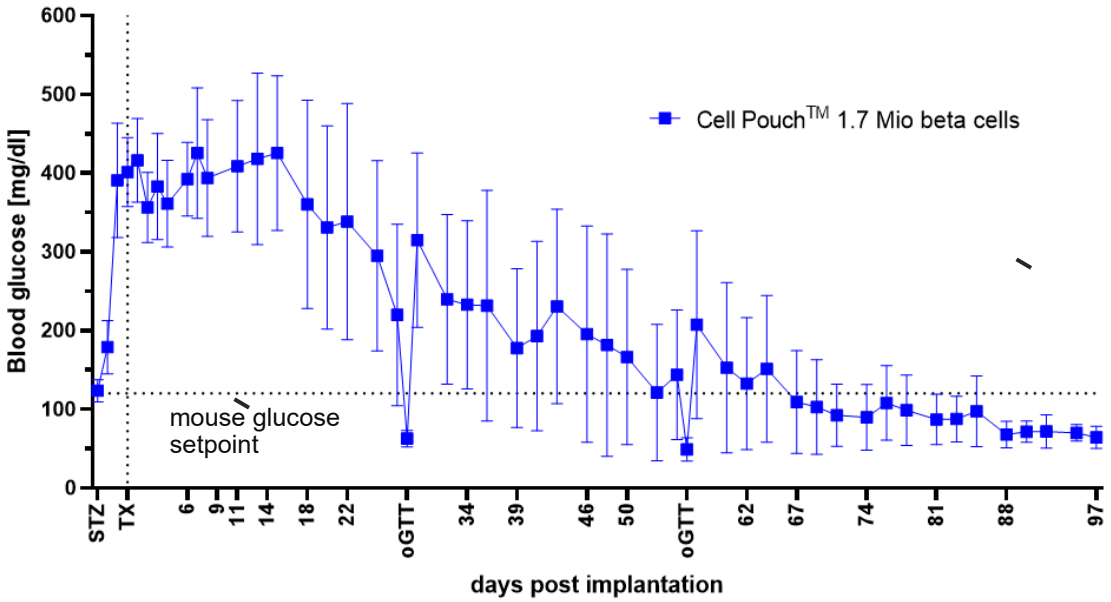


1 https://sernova.com/

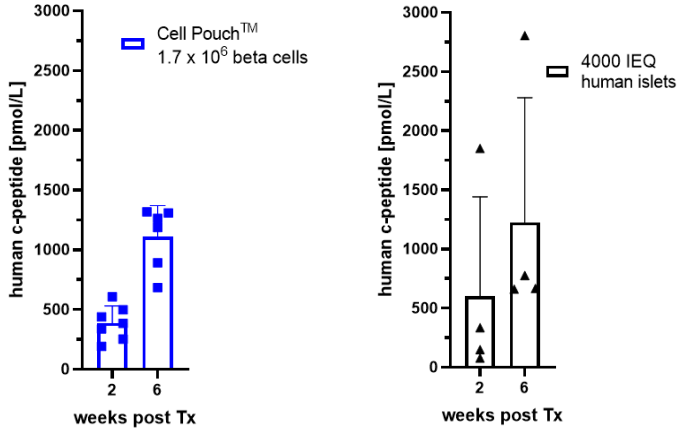
Excellent anti-diabetic activity of ILCs in the Cell Pouch™

Rapid normalization of glycemic control with human islet-like potency

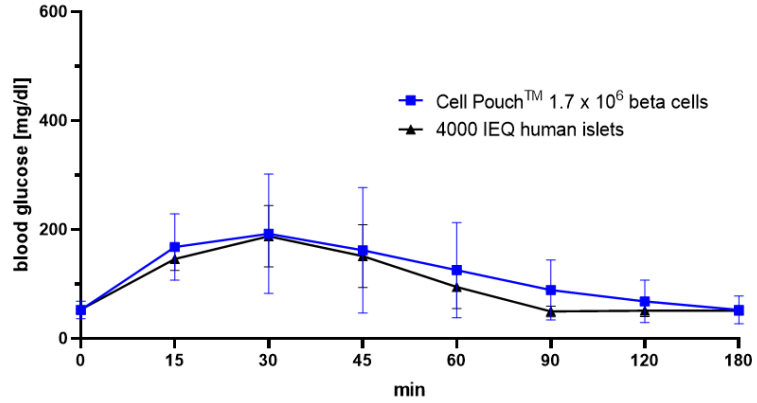
Efficient normalization of random fed glucose



Robust circulating hC-peptide levels



Efficient glucose clearance and no hypoglycemias in oGTT (8 week timepoint)

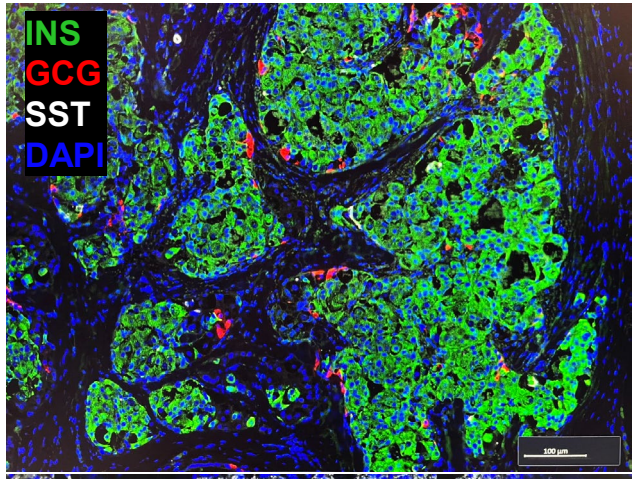


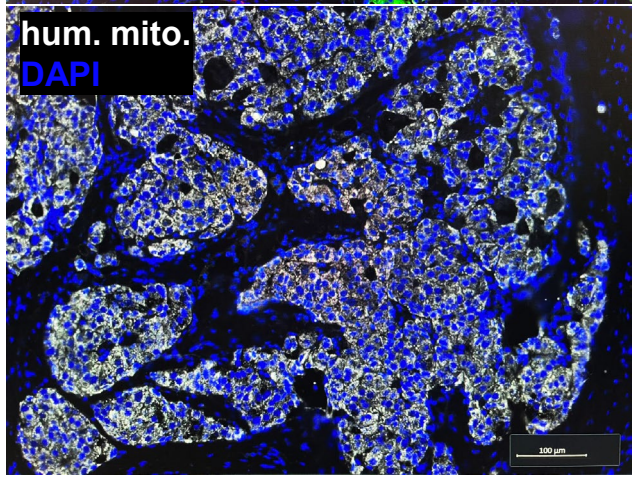
1 https://sernova.com/

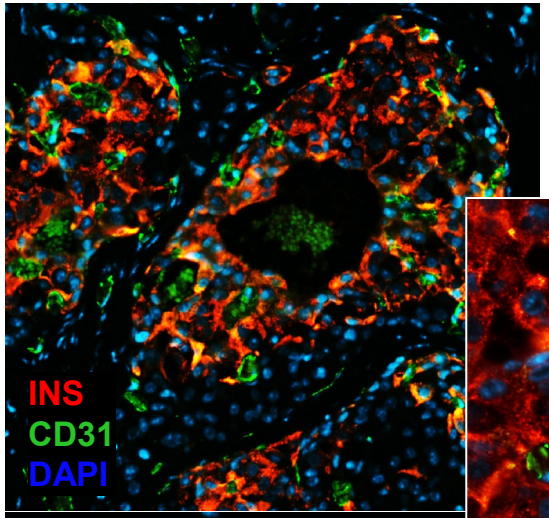
High β-cell fraction and dense vascularization of ILCs in the Cell Pouch™

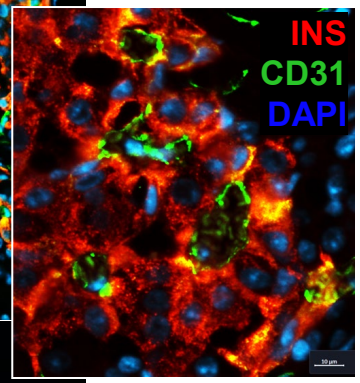
Histological graft analysis – 32 weeks post-implantation

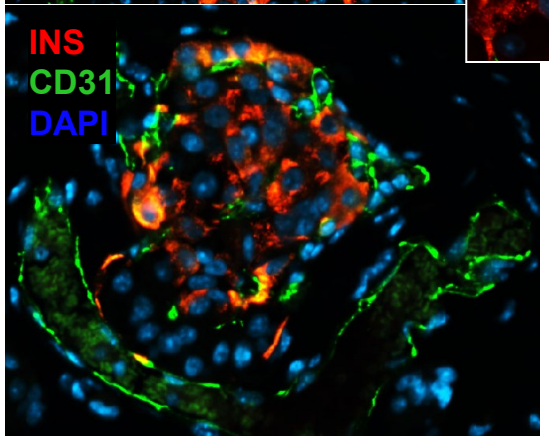
- Abundant endocrine cells with high beta cell fraction detectable
  - Alpha and delta cells are observed at lower frequencies
- ILC cells are embedded in host-derived connective tissue
- Excellent intra-graft vascularization, likely contributing to strong graft functionality[1)]











1 Vascularization staining data: Arash Memanejadian, Sernova Inc.

Excellent anti-diabetic activity of an ILC/Cell PouchTM combination

Summary

- We have set up a scalable GMP manufacturing workflow from GMP iPS cells to ILCs, yielding a high beta cell fraction drug product
  - ILCs are cryopreserved at a late intermediate stage
  - Endocrine differentiation is complete – no post-implantation variability of cell composition
  - Immature beta cells to ensure a cost-effective manufacturing process, improved cell shipping and post-implantation survival
  - ILCs deliver rapid onset of physiological function, and human islet-like potency on a per-beta-cell basis after maturation is complete

- The Evotec ILC/Sernova Cell Pouch™ combination delivers excellent graft integration, vascularization and potent anti-diabetic function
  - Cell implantation in the Cell Pouch™ also ensures retrievability

- The project is at GMP manufacturing stage and on track for clinical testing in humans in 2024

Sernova Corp

Upcoming Catalysts

Upcoming Catalysts

Anticipated Milestones and Data

2023	• Immune protection update	**H1 2023**
	• US Phase 1/2 T1D second cohort patient enrollment update	**H1 2023**
	• US Phase 1/2 T1D first cohort clinical update	**Q2 2023**
	• US Phase 1/2 T1D second cohort clinical update	**Q4 2023**
	• FDA interactions regarding potential US Phase 3 design for donor islets / Cell Pouch	**Q4 2023**
2024	• IND filing with Cell Pouch and Evotec islet clusters	**H1 2024**
	• Phase 1/2 initiation of Cell Pouch with Evotec islet clusters	**H2 2024**

Note – dates above are based on calendar year

Sernova Corp

TSX: SVA
OTCQB: SEOVF
FSE / XETRA: PSH

Head Office

700 Collip Circle, Ste 114
London, ON, Canada N6G 4X8
Tel: 1.877.299.4603
Tel: 1.519.858.5184
Fax: 1.519.858.5099
investor.relations@sernova.com

Investor Relations

Christopher Barnes
VP, Investor Relations
1.519.902.7923
christopher.barnes@sernova.com

Corey Davis, Ph.D.
LifeSci Advisors, LLC
1.212.915.2577
cdavis@lifesciadvisors.com

Business Development

Dr. Philip Toleikis
1.519.858.5184
philip.toleikis@sernova.com

Media

Elizabeth Miller, MD

1-646-791-9705
LifeSci Communications
emiller@lifescicomms.com