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 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.
Regenerative Medicine (RM) is a rapidly evolving field of science developing new therapeutic solutions to treat disease:

- with the repair or growth of new tissues & organs, i.e. organ regeneration
- repairing cells at the gene level to prevent disease, i.e. gene therapy
- with therapeutic cells (islets / stem cells) producing proteins or other factors, i.e. cell therapy

Why is RM important? .... Paradigm shift in chronic disease treatment & outcomes

- RM provides the potential of a functional cure vs. mask disease & long-term treatment of symptoms with prescription medicines

Sernova .... Well positioned for RM cell therapy success

- intentional stepwise strategic development approach has led to success & leadership
- RM companies assuming cell therapy technical barriers can be overcome with 'home run' approaches have experienced failures in the clinic to date
Sernova: Innovator & Leader

Publicly traded, clinical-stage RM therapeutics solution innovator & leader:

- Cell therapy therapeutics solution **platform** treating chronic diseases & enhancing daily QOL
- **Integrated RM therapeutic solution** (implantable Cell Pouch™ device + immune-protected therapeutic cells or tissue)
- Broad platform application potential: **multiple large market indications**
- **Cell Pouch** overcomes current barriers associated with therapeutic cells survival & function by forming **organ-like environment** for the cells to **produce missing proteins, hormones**, etc.
- **Diabetes lead program** & 1st company with RM therapeutic product showing insulin production & early clinical efficacy indicators for type 1 diabetes (T1D). **Active US Phase I/II clinical trial.**
- **Pre-Clinical proof-of-concept** demonstrated for **hemophilia A & thyroid disease**
Sernova's Platform Approach

Integrated RM
Therapeutic Solution for Treatment of Chronic Diseases

Cell Pouch™
Implantable proprietary medical device that provides vascularized environment for therapeutic cells

Therapeutic Cells
Human cells (donor / stem) & tissues that produce & release missing proteins or hormones into the bloodstream

Immune Protection
Technologies to protect therapeutic cells from immune system attack
Worldwide IP / Patent Portfolio

International patents & patent applications portfolio in multiple patent families with broad application & continued expansion:

- Composition & use of medical devices for delivery & cell transplantation
- Glucose responsive insulin secreting stem cell technologies
- Local immune protection technologies

Broad geographic coverage:

- North America
- South America
- Europe
- Asia
Diabetes ... Finally Hope for a Functional Cure

**The Reality:** Diabetes is one of the most prevalent diseases & pervasive medical problems impacting society & everyday quality of life (QOL) today

- 463 million affected worldwide and nearly 10% of these individuals have T1D(1)
- T1D represents a potential commercial opportunity of $30B+ for Sernova

**The Hope:** A functional cure for everyone suffering from diabetes

**The Problem:** Lack of integrated RM therapeutic solution

**The Future:** Blockbuster potential for Sernova’s platform which could establish a new standard of care for diabetes treatment & management. Potential to be the biggest therapeutic advancement in diabetes treatment since insulin discovery 100 years ago.

(1) source: International Diabetes Federation
### Sernova Pipeline

**CELL POUCH CANDIDATE**

<table>
<thead>
<tr>
<th>Pre-Clinical</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Development Stage</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Donor Islets, Systemic Immune Protection</td>
<td></td>
<td></td>
<td></td>
<td>Phase I/II Initiated Dec 2018</td>
<td>Hypoglycemia unawareness</td>
</tr>
<tr>
<td>Locally Immune-Protected Stem Cell Derived Cells</td>
<td></td>
<td></td>
<td></td>
<td>Anticipated 2\textsuperscript{nd} Approval for Diabetes</td>
<td>All Insulin dependent Diabetic Patients</td>
</tr>
<tr>
<td>Corrected Patient Cells</td>
<td></td>
<td></td>
<td></td>
<td>Pre-Clinical</td>
<td>Severe Hemophilia A Patients</td>
</tr>
<tr>
<td>Allograft Immune-Protected Cells</td>
<td></td>
<td></td>
<td></td>
<td>Early Development</td>
<td>Broader Hemophilia A Patients</td>
</tr>
<tr>
<td>Thyroid Cells</td>
<td></td>
<td></td>
<td></td>
<td>Pre-Clinical</td>
<td>Thyroidectomy Patients Following Hyperthyroidism</td>
</tr>
</tbody>
</table>

**T1D**

**Hemophilia A**

**Thyroid**
# Diabetes Market Opportunities for Sernova

## 2020 Potential Patient Population (before market access considerations)

<table>
<thead>
<tr>
<th>Device / Method Patent</th>
<th>T1D Severe HU with Human Donor Islets</th>
<th>T1D Severe HU with iPSC</th>
<th>All T1D with iPSC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>U.S.</strong></td>
<td>~0.65 K</td>
<td>~240 K</td>
<td>~1.6 M</td>
</tr>
<tr>
<td></td>
<td>Total Transplants</td>
<td>Patients</td>
<td>Patients</td>
</tr>
<tr>
<td><strong>EU5</strong></td>
<td>~0.5 K</td>
<td>~195 K</td>
<td>~1.3 M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>APAC</strong></td>
<td>~3.0 K</td>
<td>~1.0 M</td>
<td>~7.3 M</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>~4.2 K</td>
<td>~1.4 M</td>
<td>~10.2 M</td>
</tr>
</tbody>
</table>

## Potential Commercial Opportunity

<table>
<thead>
<tr>
<th></th>
<th>T1D Severe HU with Human Donor Islets</th>
<th>T1D Severe HU with iPSC</th>
<th>All T1D with iPSC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>U.S.</strong></td>
<td>$65 – 130 M (per year)</td>
<td>$5 – 9.5 B (in total)</td>
<td></td>
</tr>
<tr>
<td><strong>EU5</strong></td>
<td>$40 – 75 M</td>
<td>$3 – 6 B</td>
<td></td>
</tr>
<tr>
<td><strong>APAC</strong></td>
<td>~$225 M</td>
<td>~$15 B</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$340 – 450 M (per year)</td>
<td>$24 – 31 B (in total)</td>
<td></td>
</tr>
</tbody>
</table>

- **Device / Method Patent**
- **IP Status**
  - ✔ Granted
- **HU** = Hypoglycemia Unawareness
- **Hypogly.** = Hypoglycemia

Sernova has a global IP portfolio across all key markets.
## RM Diabetes Competitive Landscape

### Clinical Efficacy Data: Therapeutic C-peptide Levels Measured in Bloodstream
- **Phase I/II initiated late 2018 in T1D patients with HU:** initial data demonstrates bloodstream C-peptide in T1D patient after 90-days post implant & other efficacy indicators.

### Device Vascularization Islet Engraftment Demonstrated in Humans
- Interim data demonstrated highly vascularized tissue chambers in human patients & abundant surviving islets robustly producing insulin.

### Local Immune Protection Technology
- Immuno-suppression is needed under current clinical trial regimen. Local immune protection technologies secured.

### Financial Metrics (USD Millions)
- As of June 5, 2020 Sernova’s market cap: $43 M
- November 2018, ViaCyte raised $80 M Series D financing at an undisclosed valuation; in total ViaCyte has raised ~$240 M to date.
- August 2019, Vertex acquired Semma for a $950 M cash payment.
- March 2020, Sigilon announced $80.3 M Series B financing at an undisclosed valuation; in total Sigilon has raised ~$195 M to date.

### Pre-Clinical PoC data in pigs demonstrated the vascularization capability of stem cell encapsulating device – to date human vascularization data has not been generated.

### Semma’s proprietary delivery system is designed to protect cells from the immune system; though human validation is lacking to date.

### Financial Metrics

<table>
<thead>
<tr>
<th>Company</th>
<th>Event</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sernova Corp</td>
<td>As of June 5, 2020</td>
<td>$43 M</td>
</tr>
<tr>
<td>ViaCyte</td>
<td>November 2018, Series D financing</td>
<td>$80 M</td>
</tr>
<tr>
<td>Sigilon</td>
<td>August 2019, Series B financing</td>
<td>$80.3 M</td>
</tr>
</tbody>
</table>

### Notes:
- HU: Hypoglycemia Unawareness; T1D: Type 1 Diabetes.

Cell Pouch Solves Device Conundrum

The Device Conundrum

“We thought the cells would be the hard part and focused our efforts there. It’s obvious now having a functional device will be the limiting factor and there are few current options.”

Big Pharma executive 2020 JPM comment

The challenging device issues and hurdles conquered by Sernova:

- Scalability
- Vascularization
- Natural cell environment
- Fibrosis
- Cell engraftment
- Biocompatibility
- Versatility: human cells & tissue, stem cell derived islet cells
Therapeutic Cells

Therapeutic Cell Options

- **Human donor cells** enable early safety / efficacy testing in the clinic for indications & patients with unmet needs & advanced disease (i.e. diabetes HU patients). Supply is limited; however, they enable **Cell Pouch validation** in preparation for stem cell technologies.

- **Stem cell derived cells** enable expanded availability to an **unlimited supply of cells** for large market opportunities (i.e. all T1D patients & other indications).

Stem Cell Derived Technologies

- **Exclusive worldwide license** to a diabetes stem cell derived technology unlocking potential access to all T1D subjects & 30% of TD2 who convert to insulin use

- **Big Pharma collaboration** on other best in class stem cell derived technologies to advance **partnering opportunities**
Immune Protection

- Transplanted therapeutic cells must be protected from a natural immune system attack response.
- While established systemic transplantation immuno-suppression (anti-rejection) drugs can be effective, local immune protection (LIP) is optimal. LIP alternatives present different opportunities & challenges.
- Multiple approaches under consideration to optimize indication match, therapeutic solution delivery & benefit, & eliminate the need for drugs & their associated side effects.

<table>
<thead>
<tr>
<th>IMMUNE PROTECTION APPROACH</th>
<th>SYSTEMIC (S) or LOCAL (L)</th>
<th>DEVELOPMENT PROFILE</th>
<th>SERNOVA ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immuno-suppression drugs</td>
<td>S</td>
<td>Proven</td>
<td>Achieved</td>
</tr>
<tr>
<td>Immuno-protected macro device</td>
<td>L</td>
<td>Failed</td>
<td>Achieved</td>
</tr>
<tr>
<td>Cell encapsulation (conformal coating)</td>
<td>L</td>
<td>Proven</td>
<td>Near term</td>
</tr>
<tr>
<td>Cell tolerance (gene editing)</td>
<td>L</td>
<td>TBD</td>
<td>Mid term</td>
</tr>
</tbody>
</table>
Biologically Compatible Delivery Process

Cell Pouch Implantation & Therapeutic Cells Delivery Process

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 release missing proteins or hormones in the bloodstream to correct biological dysfunction.
Strategic Development Approach

Systematic stepwise “building-block” process deployed to:
- minimize unknown variable interdependencies
- de-risk development outcomes

vs. “all-in-one” failures by other RM cell therapy companies
Diabetes Clinical Progress Summary

Pre 2018
- Completion of first-in-human proof-of-concept study for diabetic condition HU
- Clinical protocol & regulatory package development for US Ph I / II clinical trial for diabetic HU condition (T1D Study)
- FDA IND clearance to commence T1D Study
- T1D Study funding grant awarded by JDRF
- Prominent diabetes clinical investigator Dr. Witkowski joins T1D Study
- UChicago IRB approval obtained
- Clinical Trial & Consulting Services (CTI) engaged as T1D Study CRO
- Medtronic contracted for T1D Study CGM
- T1D Study patient screening & recruitment initiated, 1st patient enrolled

2018
- Cell Pouch implantation into first T1D Study patient
- Human islet cells transplantation into Cell Pouch in first T1D Study patient
- T1D Study positive early safety & efficacy indicators observed
- Enduring level of fasting C-peptide in bloodstream observed
- Positive DSMB Review & Recommendation for Continuation of Ph I/II clinical trial
- Positive Efficacy Endpoint – Survival of Endocrine Tissue
- Ongoing T1D Study patient enrollment, treatment & follow-up

2019

2020
Hypoglycemia unawareness (HU), the most critical unmet need in diabetes, affects 15% of T1D patients (~240K patients in the US alone)

- Clinically defined as a complication of diabetes in which the patient is unaware of a deep drop in blood sugar
- Patients do not experience hypoglycemia warning symptoms (palpitations, anxiety, excessive sweating, light headedness)
- Harmful effects: diabetic ketoacidosis (DKA), coma & death

1st study population for Sernova's integrated RM therapeutic solution for lead indication of insulin-dependent diabetes
**US Ph I/II Study Design**

**Study Design:** Company-sponsored IND. Open-label, single-arm study. Human donor islets are transplanted into the Cell Pouch after implantation & stable anti-rejection medication activity has been established.

**Primary Objective:** To demonstrate the safety & tolerability of islet transplantation into the Cell Pouch for the treatment of HU in T1D subjects with a history of severe hypoglycemic episodes.

**Secondary Objectives:** To establish islet release criteria that accurately characterize the islet product & are predictive of clinical transplant outcomes into the Cell Pouch, demonstrated through defined efficacy measures:

- Survival of endocrine tissue in the Cell Pouch
- Proportion of subjects with a reduction in severe hypoglycemic events
- Proportion of subjects with a reduction in HbA1c >1mg%
- Over 20 additional endpoint analyses will occur

**Status:** Study Active & Ongoing

- IND allowance by FDA & protocol approved by IRB
- Multiple subjects implanted & transplanted
- Positive early findings announced
- Patient enrolment & recruitment ongoing
US Ph I/II Study Design

US Ph I/II Safety, Tolerability, Efficacy Study

**Primary Endpoint:**
Initial Topline Safety Readout

**Secondary Endpoints:**
- Survival of Endocrine Tissue & Identification of Hormones
- Reduction in hypoglycemic events
- Reduction in HbA1c

**Key:**
- Safety
- Efficacy

- Immuno Suppression Introduced
- Cell Pouch™ Implantation
- 1st Islet Dose Transplant

Day 0

Day 180

Day 365

Day 180

Day 365

Day 0

1st Islet Dose Transplant

Small (sentinel) Pouches Removed

2nd Islet Transplant (increase dose)

19
Incidence & severity of adverse events associated with Cell Pouch were monitored:

- **No incidences of AEs** determined to be probable or highly probable to the Cell Pouch
- **Cell Pouch well-tolerated & safe** during the implant & the time of transplant
- **No reactions** to the Cell Pouch implant
- **Cell Pouch well-incorporated with vascularized tissue** & deemed suitable to receive the islet transplant

**Why is this important?**
Demonstrated Cell Pouch safety is a prerequisite for its use in multiple therapeutic indications.

**Conclusion:** Safety findings met the first measure of the primary endpoint
US Ph I/II: Case Study Early Findings

90-day post-transplant glucose tolerance test (i.e. patient given a high sugar drink) was administered over several hours:

- showed increase in blood levels of C-peptide
- showed increase in blood levels of insulin

**US Ph I/II Safety, Tolerability, Efficacy Study**

**First Patient Observed Data Presented by Clinical Investigator***

**Early Efficacy Findings**

<table>
<thead>
<tr>
<th>Islet Transplant Status:</th>
<th>Before</th>
<th>3 Mo. After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodyweight</td>
<td>83kg</td>
<td>73kg</td>
</tr>
<tr>
<td>Hemoglobin A1C</td>
<td>6.5</td>
<td>5.6</td>
</tr>
<tr>
<td>Daily Use Of Long Acting Insulin Tresiba</td>
<td>14U</td>
<td>8U</td>
</tr>
<tr>
<td>Daily Use Of Short Acting Insulin</td>
<td>15 – 16</td>
<td>14 – 15</td>
</tr>
<tr>
<td>Severe Hypoglycem. Events</td>
<td>4 per week</td>
<td>1 per week</td>
</tr>
</tbody>
</table>

*presented at IPITA Q3 2019 in Lyon, France

**WHY IS THIS IMPORTANT?**

C-peptide is a biomarker confirming insulin production by cells

**SUBSEQUENT FINDING:** Enduring blood levels of fasting C-peptide & ongoing evidence of islet engraftment & durable therapeutic effect detected post-second Cell Pouch islet dose
US Ph I/II: Case Study Early Findings

Improvement in ALL CGM Parameters

**Blood Glucose Over Time (mg/dL)**

Baseline: More excursions seen pre-transplant

Post-transplant: Stable glycemic profile with less excursions

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline (90 days)</th>
<th>Post-transplant (90 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Glucose Value (mg/dL)</td>
<td>285</td>
<td>231</td>
</tr>
<tr>
<td>Low Glucose Value (mg/dL)</td>
<td>50</td>
<td>66*</td>
</tr>
<tr>
<td># Glucose Excursions</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td># High Excursions</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td># Low Excursions</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>37</td>
<td>31</td>
</tr>
</tbody>
</table>

* Lowest excursion was 66mg/dL and this occurred only once.
US Ph I/II: 90-Days Post Transplant

"Survival of endocrine tissue in the Cell Pouch™ (defined by positive staining of islets during histological analysis) [Time Frame: 90±5 days post-transplant for sentinel Cell Pouch™ ]"

Independent Pathologist reported:

- abundant viable, organized islet cells
- intimately associated with blood vessels
- within a collagen matrix
- islet cells strongly express insulin

- Indicator of transplanted islet health in the therapeutic Cell Pouches remaining in the subject
- Ability to produce insulin and deliver to the bloodstream
- Previously demonstrated by reported findings of blood levels of both glucose-stimulated & fasting C-peptide plus other efficacy indicators
Earlier First-in-Human Study

**Study Design**
- T1D subjects with HU & a history of severe hypoglycemic episodes
- Open-label, single-arm
- Donor islet transplantation 2 – 24 weeks post Cell Pouch implantation
- **Primary Endpoint:** Safety post Cell Pouch implantation & 1-month post islet transplantation

**Cell Pouch and Islet Safety Endpoints Met**
- Safety successfully met for the Cell Pouch
- Cell Pouch histology assessed by independent pathologists blinded to the treatment:
  - Islets housed within a natural tissue matrix
  - Islets were well-vascularized
  - Islet safety successfully met
  - Islets show evidence of insulin, somatostatin & glucagon
  - Cell Pouch & islet biocompatibility met
  - Proof of islet protection from immune system attack

**Cell Pouch™ Clinical Histology**
Insulin staining islets with microvessels
T1D Data: Pre-Clinical Studies

**Clinical Studies**

Study #1: First-in-Human Proof-of-Concept (Health Canada)
- Conducted in conjunction with Health Canada
- Diabetes subjects with hypoglycemia unawareness
- Open-label; single-arm
- Donor islet transplant 2-24 weeks post Cell Pouch implantation
- Primary endpoint: Safety post Cell Pouch implantation & 1-month post islet transplant

Study #2: US Ph I/II Safety, Tolerability, Efficacy Study (UChicago)
- Conducted in conjunction with the University of Chicago Medical Center (UChicago)
- Diabetes subjects with hypoglycemia unawareness
- Open-label; single-arm
- Donor islet transplant ~6 weeks post Cell Pouch implantation
- Primary endpoint: Safety & tolerability of islet transplantation into the Cell Pouch
- Secondary endpoint: Efficacy measures

**Pre-Clinical Studies**

Mouse Study
- 2010

Large Animal Studies
- 2012
- Islet survival in large animals (i.e., porcine, cynomolgus monkey models)
- Control of blood sugar levels
- **First to show** efficacy in two different large animal models of diabetes (autograft & allograft models)

**Large Animal Studies**

- Islet survival in large animals (i.e., porcine, cynomolgus monkey models)
- Control of blood sugar levels
- **First to show** efficacy in two different large animal models of diabetes (autograft & allograft models)

**Proof-of-Concept Study in Mice**

- Showed islets survived
- Animals became insulin independent
- Cell Pouch removed & animals became diabetic again
- Can be applied to other indications, such as hemophilia, thyroid disease, & other rare diseases
Cell Pouch – A Durable Cell Environment

Long-Term Vascularized Tissue Chamber Development Proven Across All Pre-Clinical
1) Animal Models, 2) Implant Sites & 3) Disease Models

1. Mouse Model
2. Porcine Model
3. Cynomolgus Monkey Model (NHP)

Non-Transplanted Cell Pouch Hemophilia A mouse model
Non-Transplanted Cell Pouch immuno-suppression & STZ (diabetes)
Transplanted Cell Pouch immuno-suppression & STZ

H&E 1.7x

1 2 3
Pre-Clinical Diabetes Model Efficacy

Pre-Clinical Porcine Large Animal Cell Pouch Study

- **Cell Pouch Implant**: 4-8 weeks
- **Pancreatectomy**: 1 day
- **Diabetes Induction (STZ)**: 4-7 days
- **Islet Transplant**: 8-12 weeks
- **Cell Pouch Removal**: 1 week

**12 Weeks Post Cell Pouch and Islet Transplant**

- **Healthy Islets in the Cell Pouch**
- **Micro-vessels**

**WHY IS THIS IMPORTANT?**

- Indicates sustained islet survival; production of required proteins & hormones; & efficacy.
Hemophilia A Program

Benefits of Sernova's Cell Pouch with factor VIII releasing cells:
- Reduce / eliminate factor VIII infusions
- Maintain constant blood levels of factor VIII
- Reduce joint bleeds
- Improve long-term efficacy
- Improve QOL

Estimated Market
- ~20 K patients across North America & EU
- ~$10 B orphan indication

Standard of Care
- Patients receive regular infusions of missing clotting factors (i.e. factor VIII)
  - Infusions are highly expensive & burdensome
  - Select patients develop inhibitors, reducing the effectiveness of infusions

Therapeutic Goals
- Improved efficacy with prophylactic treatment; reduced cost; improved patient QOL; reduction of side effects

Sernova Approach
- Gene corrected own patient cells into the Cell Pouch (EU5.6M Horizon 2020 Consortium Grant)
- Potential treatment for all patients
  - Stem cell releasing factor VIII product

Status
- Completed pre-clinical proof-of-concept
  - Cell manufacturing process developed
  - Corrected patient cells survive & produce factor VIII in preclinical hemophilia model
- Further development being scoped

Therapeutic Benefits
Human factor VIII corrected blood outgrowth endothelial cells (BOECs) were implanted within the Cell Pouch in a hemophilia A murine model.

Human corrected BOECs transplanted into the Cell Pouch improved clotting in hemophilia A, providing scientific rational for next step development.

Factor VIII corrected human BOECs arranged into blood vessels within the vascularized Cell Pouch at 4 months post-transplant (mouse model).
Thyroid Disease Program

Benefits of Sernova’s Cell Pouch with Thyroid releasing cells:

- Reduce / eliminate daily lifelong thyroid medications
- Recover natural feedback loop of thyroid hormones
- Reduce side effects from low thyroid hormone levels
- Improve long-term efficacy
- Improve QOL

Therapeutic Benefits

Estimated Market
- 150,000 thyroidectomies performed annually in US
- ~$2.2 B market opportunity

Standard of Care
- Patients require lifelong thyroid hormone replacement therapy
- Various oral / IV / other therapies may also be needed depending on underlying condition

Therapeutic Goals
- Improved efficacy with prophylactic treatment; improved patient QOL; reduction of side effects

Sernova Approach
- Thyroidectomy patient healthy tissue isolated & transplanted into the Cell Pouch
- Patient cells survive within the Cell Pouch & produce thyroid hormone

Status
- Completed pre-clinical proof-of-concept
- Clinical program under development
Thyroid Program: Pre-Clinical Success

Pre-Clinical Safety & Efficacy of the Thyroid Tissue Therapy in the Cell Pouch

Human Thyroid Tissue

Cell Pouch Transplanted with Healthy Human Thyroid Tissue

Human Thyroid Tissue Surviving in Cell Pouch in mouse model (3 months post-transplant)

Human Tissue producing Human Thyroid Hormones Thyroglobulin (TG) & Thyroglobulin Peroxidase (TPO)
NEXT STEPS - 2020 Action Plan

- Develop licensed/acquired local immune-protection technologies for therapeutic cells
- Advance local immune-protected diabetes stem cell technology in preparation for First-in-Man (FIM) study
- Expand existing strong worldwide multi-family patent portfolio
- Complete T1D Study patient enrolment
- Continue T1D Study patient treatment & follow up
- Ongoing T1D Study safety & efficacy data evaluation
- Strategic pharma / medtech collaboration(s) expansion
- HemAcure study results conference presentation & publication
- Market & product positioning assessment
- Regulatory & Clinical plan development
- Complete Pre-Clinical studies
- Prepare & submit FIM regulatory package
Management Team

**Dr. Philip Toleikis**

**PRESIDENT & CEO**
- 20+ years experience in biotech management & product development in pharmaceutical & combination products.
- Previous Angiotech VP R&D (achieved $2 B market cap; product revenue $200 M per year).

**David Swetlow**

**CFO**
- 20+ years experience in life sciences (biopharma, combination products & devices) & high-tech industries, including Ondine, Protox, QLT, Xillix.
- Various senior management, board & advisory roles. Nasdaq & TSX experience.

**Delfina M. Mazzuca-Siroen**

**SR. DIRECTOR & HEAD OF R&D / CLINICAL**
- 20+ years senior management roles in R&D, clinical, regulatory, product development.
- Biochemistry, translational cell biology, device & transplantation expertise.
- Publications & patents author / co-author.

**Board of Directors**
- Frank Holler, Chair
- Jeffrey Bacha
- James Parsons, CPA, CA
- Deborah Brown
- Dr. Philip Toleikis