RepliCel™

Using Cells for Healing

Today's Innovation. Tomorrow's Products.

Rejuvenation | Regeneration | Regrowth

Hair regrowth.

Skin rejuvenation.

Tendon regeneration.

RepliCel

Innovative cell therapies.

Unparalleled dermal injection technology.

A revolution in sports medicine and aesthetics

RepliCel

Today's Innovation.

Tomorrow's Products

RepliCel Financial

TSV: RP | OTCPK: REPCF | FRA: P6P2 (as of 10 Feb 2021) ($CAD)

Current market cap:	~$14M
Total capital raised by private placement:	~$34M (+ 3.5M pending to MainPointe)
Total transactional revenue to-date:	~$4M (upfront licensing payments from Shiseido) ~$5M (upfront licensing payment & investment from YOFOTO) ~$2.7M (upfront fee & investment from MainPointe)
Target for initial product sales:	2021
Money spent to-date (accumulated deficit):	~$39M
Average monthly burn for next 12 months:	~$300,000
Equity outstanding:	~34M common shares issued ~ 1.5M options outstanding (@ $0.43 & $0.60) ~ 1.1M pref shares (convertible @ $0.33) 3.5M share issuance pending to MainPointe ~ 1.8M warrants outstanding (@ $0.36) ~ 42M fully diluted

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RepliCel Ownership *

TSV: RP | OTCPK: REPCF | FRA: P6P2

(as of 10 Feb 2021) ($CAD)

Management Ownership:	~6.4M (~17%)
Strategic Partnership Ownership	~$9.4M (25%) YOFOTO: 5.3M @ $0.95 / share (2018) MainPointe: 4.0M @ $0.675 / share (2021)
Retail investor base (Canadian, US, European)	~21.2M (~58%)
No institutional investor ownership	

* of issued equity (including full MainPointe allotment but excluding warrants & options)

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RepliCel Strategic Partnerships

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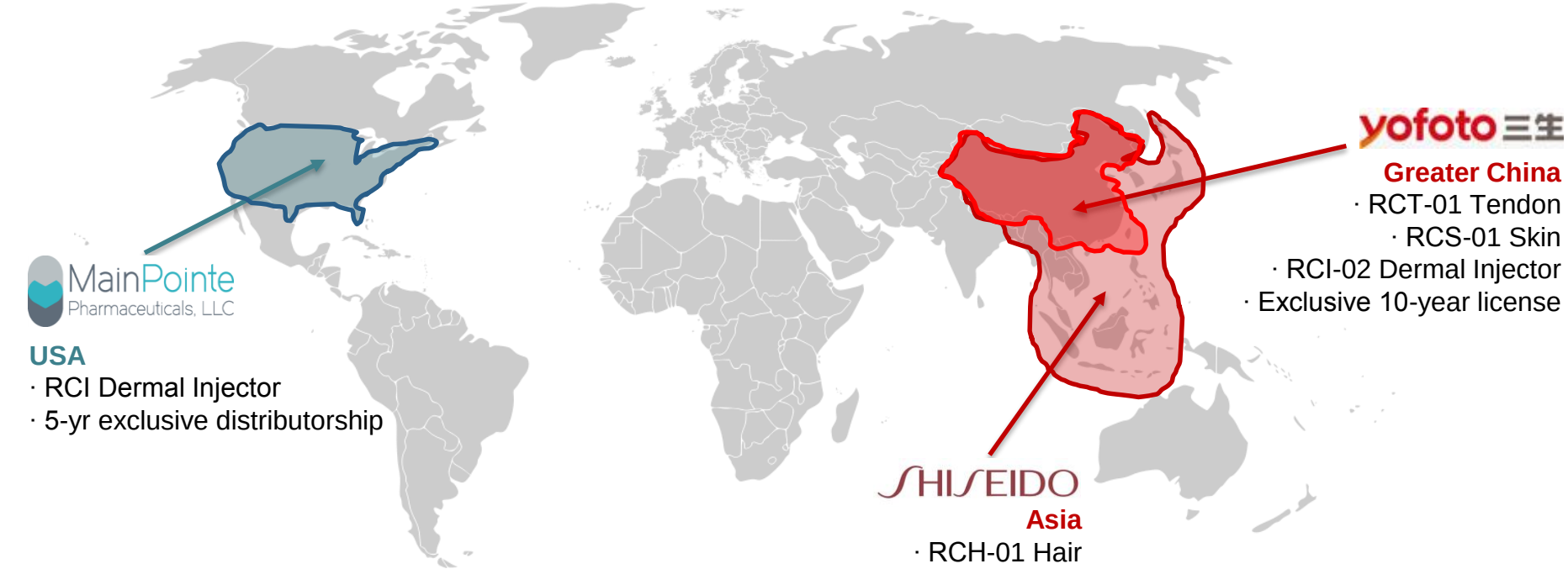

MainPointe Pharmaceuticals, LLC

USA
· RCI Dermal Injector
· 5-yr exclusive distributorship

yofoto 三生

Greater China
· RCT-01 Tendon
· RCS-01 Skin
· RCI-02 Dermal Injector
· Exclusive 10-year license

SHISEIDO

Asia
· RCH-01 Hair
· Exclusive permanent license
· Royalties for 10-yrs post launch in each country

1 company.

2 clinical segments.

3 technologies.

4 products.

1.2.3.4

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SPORTS MEDICINE

AESTHETICS

Two cell therapies

NBDSCs

DSCCs

One medical device

RepliCel™

Using Cells for Healing

1 . 2 . 3 . 4 .

Two Clinical Segments

Orthopedics. Aesthetics

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Total Available Market:

One in three people

It is estimated

one in three people in industrialized nations

are affected by conditions RepliCel is targeting:

Aging and sun-damaged skin

Hair loss

Chronic tendon degeneration..

Achilles Tendon – Market Metrics

656,211

Annual incidence rate of mid-portion Achilles tendinopathy in **North America alone**[1]

232,000

Estimated annual number of Achilles tendon sports injuries in the US (2002)[2]

5-9% of recreational runners develop Achilles tendinopathy[3]

4% of all patients seen in sports clinics have Achilles tendinopathy

1 British Journal of Sports Medicine – Incidence of mid-portion Achilles tendinopathy in the General population = 1.85 per 1,000 registered persons

2 Achillestendon.com

3 Journal of Science and Medicine in Sport, vol. 23, Issee 5, May 2020, Pages 448-452; Mulvad B,Nielsen RO,Lind M,Ramskov D, Diagnoses and time to recovery among injured recreational runners in the RUN CLEVER trial. PloS one. 2018; [PubMed PMID: 30312310]

Market Metrics - Global Aesthetics Market (RCS-01 & RCI-02)

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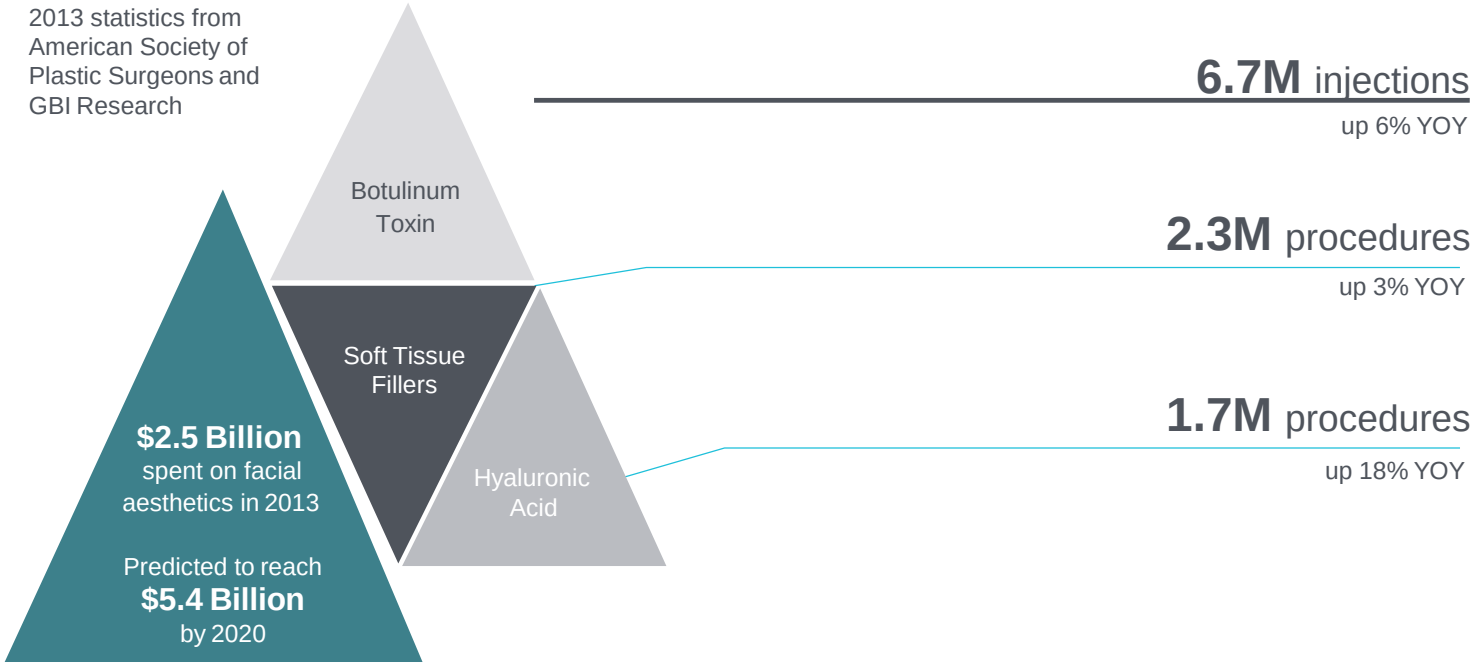
2013 statistics from American Society of Plastic Surgeons and GBI Research



6.7M injections

up 6% YOY

2.3M procedures

up 3% YOY

1.7M procedures

up 18% YOY

Hair Loss – Market Metrics

Androgenetic Alopecia affects an estimated

50M men

30M women

in the United States alone.

$3.5B spent on hair loss treatments

$2.5 Billion
spent on all surgical procedures

99%
of all products being marketed are completely ineffective.*

Hair restoration Patients

697,372 non-surgical patients

358,109 surgical patients

1 There is currently only one FDA-approved treatment for female androgenetic alopecia. This has an average success rate of **1 in 5** and all efficacy reverses upon cessation of use.

2015 Practice Census Results – International Society of Hair Restoration Surgery

All figures in USD

* Source: Dinh, Q. Q., & Sinclair, R. (2007). Female pattern hair loss: Current treatment concepts. Clinical Interventions in Aging, 2(2), 189–199.

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Three Technologies

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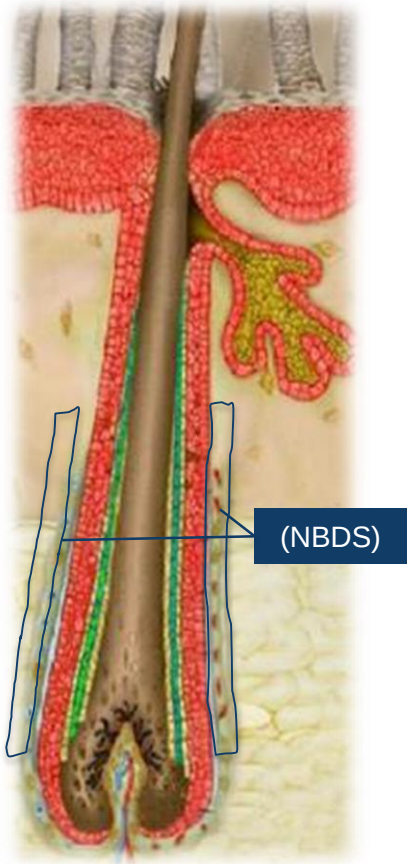
NBDS cells

The NBDS technology treats two indications both caused by collagen deficiencies – skin aging and tendinopathy.

NBDS Technology



RCT-01 Tendon Regeneration

RCS-01 Skin Rejuvenation

Non-bulbar dermal sheath (NBDS) cells are prolific producers of tissue building proteins especially type I collagen (5x that of dermal fibroblasts)

NDBS cells have been shown to promote *in vivo* tissue collagen regeneration

Developed as a treatment for tissue degeneration caused by a deficit of collagen-producing cells. The RCT and RCS cell therapy products are designed to regenerate tissue by injecting a new population of these collagen-generating, protein-expressing cells.

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DSC cells

The DSC technology treats hair loss caused by a deficit of dermal sheath cup cells.

DSC Technology

RCH-01 Hair Regrowth

The dermal sheath cup (DSC) cells manufactured by RepliCel are resistant to the effects of androgenetic alopecia.

DSC cells have been shown to engraft and regrow hair fibers in follicles which have become dormant for lack of a viable dermal sheath cup cell population

Developed as a treatment for androgenetic alopecia (the primary cause for hair loss in men & women) caused by a deficiency of dermal sheath cup cells critical to hair growth. RCH-01 is a cell therapy product designed to inject a new population of these cells which are immune to the condition and act as a functional cure for the treated area.

RepliCel's Innovative Cell Manufacturing

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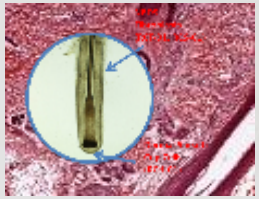
1 Condition Diagnosed

2 Biopsy taken from scalp



3 Cells isolated from tissue

4 Cells grown 4-6 weeks)

5 Cells frozen in vials

6 Cells injected

Ensuring controlled delivery

- More consistent dermal injections; more consistent outcomes
- Less local anesthetic; better patient experience
- Shorter procedure time
- Increased control over injection depth, dose, and dispersion

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Four Products

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Chronic Tendinopathy (Achilles Tendon, Golfer's Elbow, Tennis Elbow, Jumper's Knee, Rotator Cuff)	Aging and Sun-Damaged Skin	Androgenetic Alopecia (male and female pattern hair loss)	Improved delivery of cells, toxins, fillers, fat transfers, steroids, drugs, genes, biologics, enzymes, compounds

√ open-label data (Achilles, Tennis Elbow, Jumper's Knee)

√ phase 1 data (randomized, placebo-controlled, double-blind)

NBDS cell therapy product

√ phase 1 data (randomized, placebo-controlled, double-blind)

√ phase 1 data

√ phase 2 data (randomized, placebo-controlled, double-blind, dose-finding)

DSC cell therapy product

√ 1st commercial-grade units in pre-approval testing

Dermal Injector

RCT-01 Tendon Regeneration


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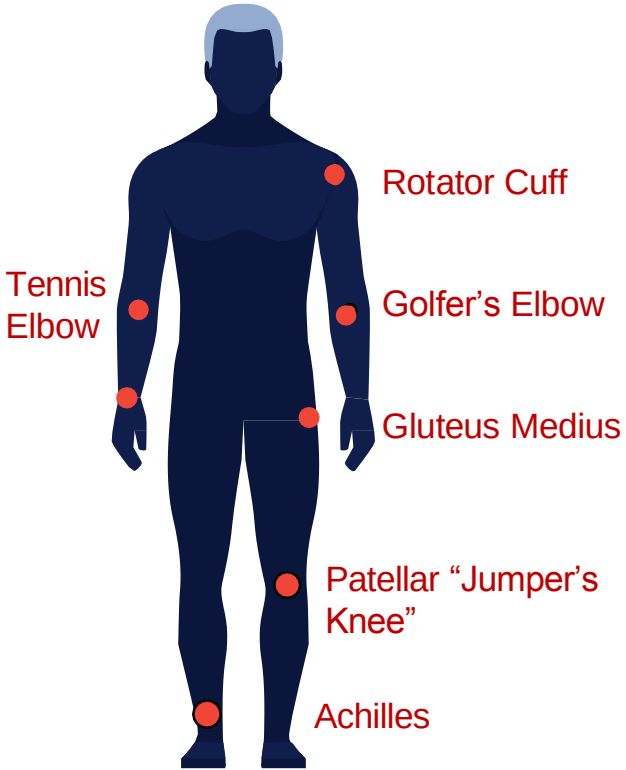
Tendinopathy - Numerous Applications



Strong safety profile and indicative efficacy data suggests a potential for RepliCel's RCT-01 therapy to treat multiple types of tendon degeneration, clinically diagnosed as "tendinopathy" or "tendinosis".

RCT-01 Tendon Regeneration. Clinical Data

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PHASE 1/2a CLINICAL TRIAL

Randomized (3:1) double-blind, placebo-controlled trial at UBC Sports Medicine Clinic (8 participants)

Primary Endpoint: Safety

Secondary Endpoint: Efficacy at 6 months

Final Results: Trial met its goal to prove safety. No serious adverse events. Most clinically material improvements seen 6 months after receipt of injections include:

VISA-A Scale of Tendon Function

- Overall 15.3% improvement in total function score compared to baseline.
- Two patients showed select measures of near-complete recovery in function (by VISA-A scoring).

VAS Scale of Tendon Pain Severity

- 80% of treated patients had an average 62.9% improvement over baseline in pain on loading (running/jumping) score
- 60% of treated patients had an average **55.2% improvement over baseline score in pain on palpation** score
- 40% of treated patients showed select measures of **near-complete elimination of pain**

Sample Tendon Regeneration

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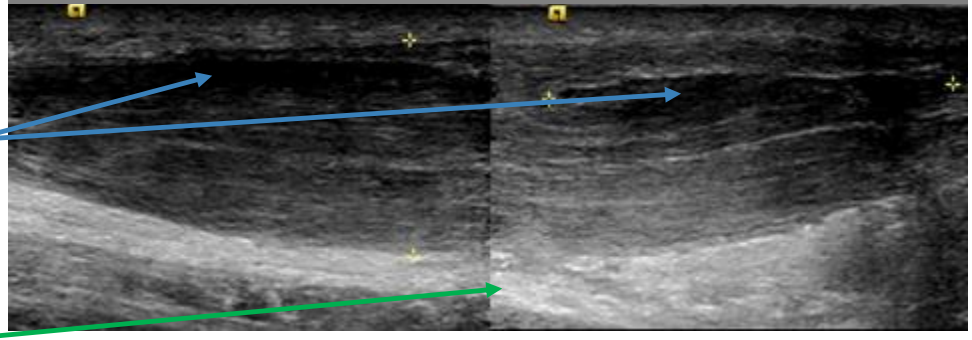
Sample Patient Image Demonstrating Potential for Tendon Regeneration

Darkened areas show damaged tendon

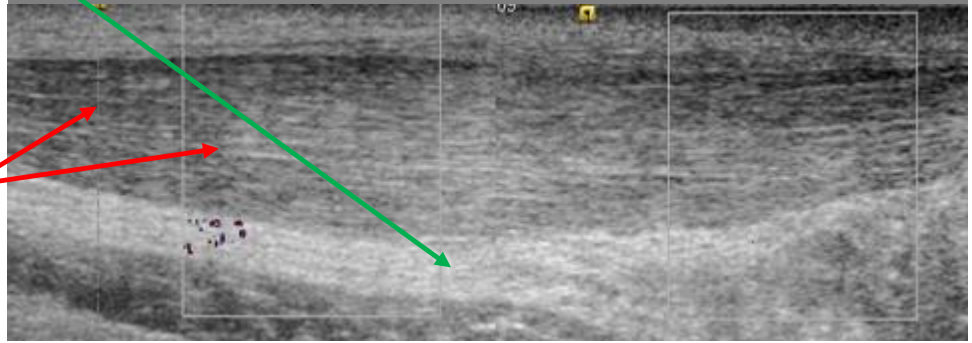
White areas show Ankle bone

Long white striations show new tendon growth after single injection of cells

Ultrasound Image of 65 Yr. Old Before Treatment – Day 1



Ultrasound Image of 65 Yr. Old After Treatment – 6 Months



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RCT-01

RCT-01 Program Status and Plan

Completed: Successful randomized, double-blind, placebo-controlled phase 1 clinical trial completed (Canada)

(chronic Achilles tendinopathy)

2021: Phase 2 clinical trial expected to commence in 2021 in Republic of China

with RepliCel's Chinese partner yofoto 三生

2021: Clinical research study under ASRM expected to commence late 2021 in Japan

Final clinical consult with PMDA for clinical trial expected to be held in 2021.

2023: First product launch expected in Japan

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RCS-01 Skin Rejuvenation

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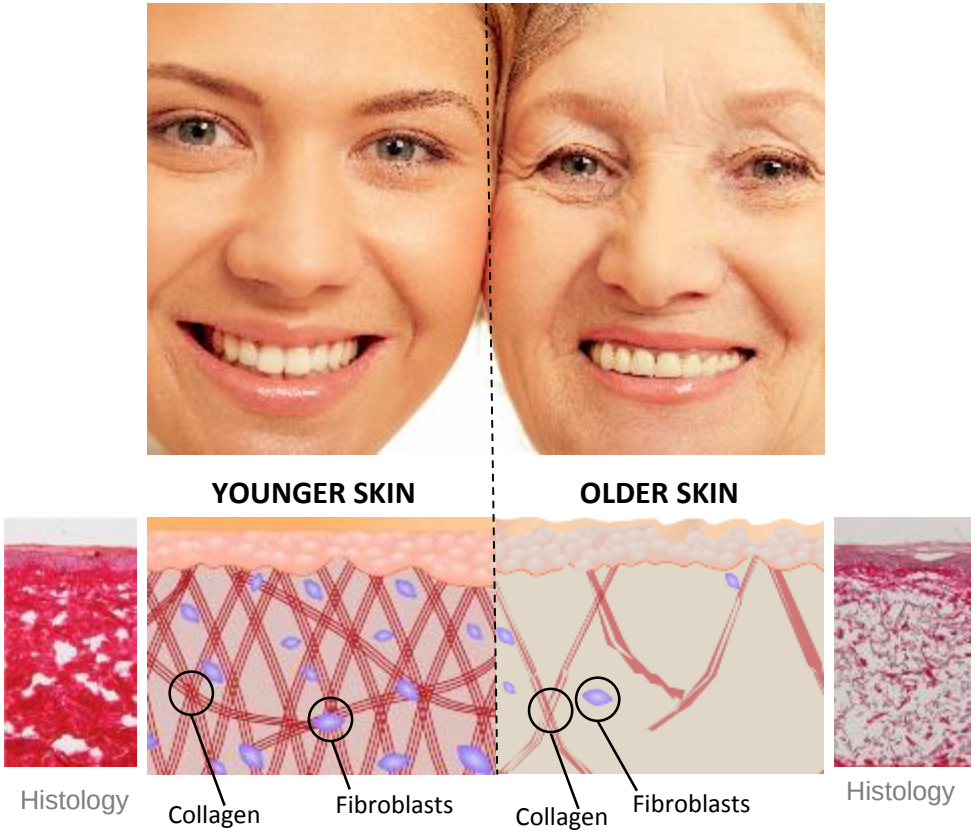
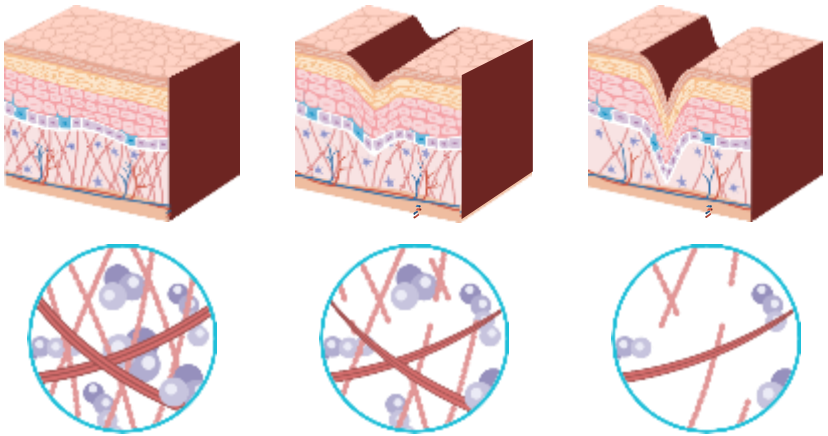
Aging and Sun-Damaged Skin (fine wrinkles)

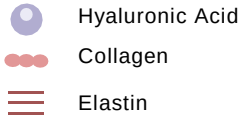


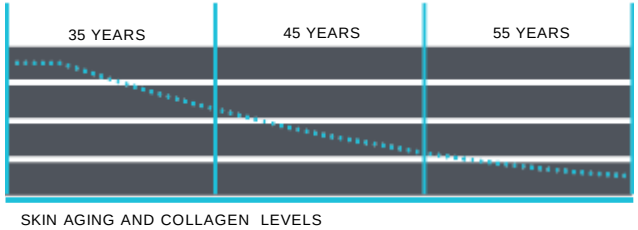
Strong safety profile and statistically significant post-injection *in vivo* biological data showing impact on established biomarkers highly correlated with collagen production, suggest potential for RepliCel's RCS-01 to regenerate the extra-cellular matrix under aging skin and impact the skin's topical aesthetic.

Biology of Aging and UV-Damaged Skin



UV exposure appears to be responsible for **80%** of visible facial aging signs*





*Source: Flament, F., Bazin, R., Laquieze, S., Rubert, V., Simonpietri, E., & Piot, B. (2013). Effect of the sun on visible clinical signs of aging in Caucasian skin. Clinical, Cosmetic and Investigational Dermatology

RCS - 01 Dermal Rejuvenation. Clinical Data

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PHASE 1 CLINICAL TRIAL

Phase 1 randomized, double-blinded, placebo-controlled trial at IUF Leibniz-Institut für umweltmedizinische Forschung (completed)

(Germany) (17 Participants)

Primary Endpoint: Safety (successfully met)

Secondary Endpoint: Efficacy at 6 months

Publication: S. Grether-Beck, A. Marinia, T. Jaenicke, P. Goessens-Rück, K. John McElwee, R. Hoffmann, J. Krutmann. *Autologous Cell Therapy for Aged Human Skin: A Randomized, Placebo-Controlled, Phase-I Study.* Skin Pharmacology and Physiology (Skin Pharmacol Physiol)

http://dx.doi.org/10.1159/000502240)

Results:

- No serious adverse events at the interim point of the trial were reported.
- A nearly two-fold increase in gene expression of collagen-related biomarkers was measured in participants' skin after a single injection of RCS-01. These results are statistically significant despite the small trial size.
- This increase in collagen-related biomarkers is a signal that the injected cells have increased collagen production and reduced collagen degradation resulting in healthier, younger-looking skin.

RCS-01 Program Status and Plan

RepliCel

RCS-01

Completed: Successful randomized, double-blind, placebo-controlled phase 1 clinical trial completed (Germany).

2021: Phase 2 clinical trial expected to commence in 1H 2021 in Republic of China

with RepliCel's partner yofoto 三生

2021: Clinical research study under ASRM expected to commence late 2021 in Japan

2023: First product launch expected in Japan

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RCH-01 Hair Regrowth

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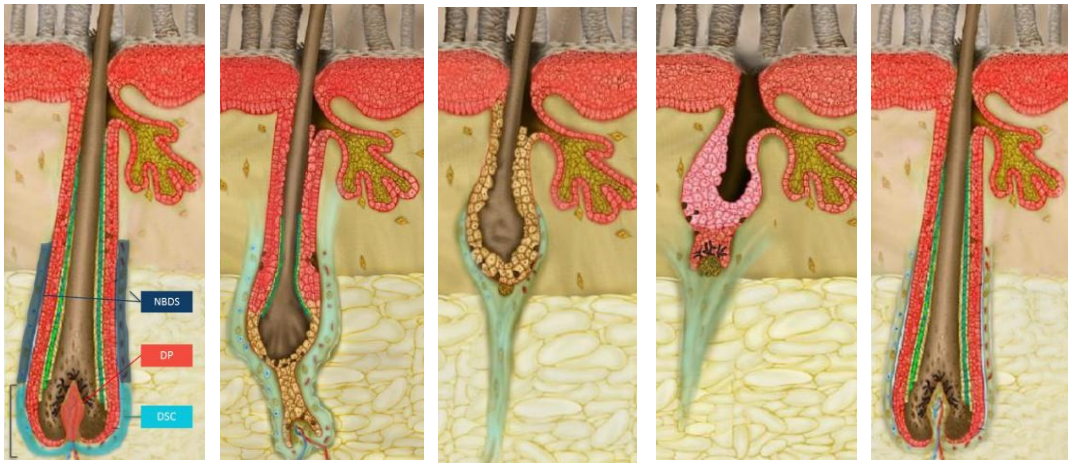
Androgenetic Alopecia

The Hair Cycle: From growth phase to resting phase

Cellular structure of a hair follicle bulb disaggregates during the regression to resting phase.



GROWTH PHASE	DISASSEMBLY PHASE	FOLLICLE QUIESCENCE	FOLLICLE REASSEMBLY	GROWTH PHASE
Anagen = up to 3 years	Catagen= 3 weeks	Telogen = 2-3 months	Early Anagen = 2-3 wks	Anagen = up to 3 yrs

Strong safety profile and efficacy data in two clinical studies suggest the potential for RepliCel's RCH-01 cell therapy to restore hair fiber growth in areas of pattern hair loss in men and women with androgenetic alopecia (the primary cause for human hair loss).

RCH-01 Hair Regrowth. Clinical Data

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PHASE 1 CLINICAL TRIAL

Randomized, double-blind, placebo-controlled, phase 1 clinical trial of a single injection of RCH-01 in men and women with androgenetic alopecia hair loss (completed)

(Georgia) (19 participants)

Primary Endpoint: Safety (successfully met)

Secondary Endpoint: Efficacy at 12 months

Publication: McElwee K, Panich D., Hall D., Hoffmann R. *Toward a cell-based treatment for androgenetic alopecia in men and women: 12-month interim safety results of a phase 1/2a clinical trial using autologous dermal sheath cup cell injections.* J Invest Dermatol. 2013; 133: 1401

https://www.jidonline.org/article/S0022-202X(15)36211-4/fulltext

Results:

- First-in-human, five-year follow-up firmly establishes product safety
- Efficacy data collected from all 19 patients over 24 months produced provocative insights from treated area after only a single injection of RCH-01 :
  - The most significant patient response was an increase in hair density over baseline of 21% at 24 months
  - The top seven responders had an >10% increase in hair density over baseline at six months and an 8.3% increase after 24 months with three of these participants maintaining an >10% increase in density over baseline at 24 months.
  - While there was a high degree of variability in hair density changes between individual participants at 24 months post-injection compared to baseline, an overall stabilization of hair loss was observed among all the patients treated per protocol.

RCH-01 Hair Regrowth. Clinical Data

RepliCel

PHASE 2 CLINICAL STUDY

Randomized, placebo-controlled, double-blinded, clinical study on the efficacy and safety of cultured (human) autologous hair follicle dermal sheath cup cells (DSCC) on androgenetic alopecia.

(Japan) (65 male and female participants)

Primary Endpoints: Tolerance and Hair Density Changes (successfully met)

Secondary Endpoint: Dose-finding

Publication: Tsuboi, Niiyama, Irisawa, Harada, Nakazawa, Kishimoto. *Autologous Cell-based Therapy for Male and Female Pattern Hair Loss using Dermal Sheath Cup Cells: A Randomized Placebo-Controlled Double-Blinded Dose Finding Clinical Study*. Journal of the American Academy of Dermatology (JAAD).

https://doi.org/10.1016/j.jaad.2020.02.033

Design:

- Participants received single injections of 7.5×10^6, 1.5×10^6, or 3.0×10^5 DSC cells or a placebo in four randomized separate regions on the scalp, and hair densities and diameters were measured for 3, 6, 9, and 12 months. Fifty men and 15 women aged 33 to 64 years were injected with DSC cells.

Results:

- Best response was at the 3.0×0^5 DSC cells injection site at which total hair density and cumulative hair diameter was significantly increased compared with the placebo after 6 and 9 months.
- Best responders were those at stage Norwood III/IV (versus those at V/VI) who had a range of 5-13 more hairs per square centimeter at nine-months after treatment which is a statistically significant result produced from a one-time injection

RCH-01 Hair Regrowth. Clinical Data

RepliCel

PHASE 3 CLINICAL STUDY

Multicenter clinical study on the efficacy and safety with extensive and repeated injections of cultured (human) autologous hair follicle dermal sheath cup cells on male and female pattern hair loss

(actively recruiting)

(Japan) (36 participants)

Primary Endpoint: Hair Density

Clinical trial registry: https://jrct.niph.go.jp/en-latest-detail/jRCTb032200148

Design:

- Interventional, open label, uncontrolled, single-arm study studying effect of repeated injection treatments of DSC cells in male subjects with pattern hair loss characterized as type III vertex to type VI on the Norwood Scale, or equivalent type and female subjects with pattern hair loss characterized as type 3 to type 6 on the Shiseido Scale.

Results:

- TBD

RCH-01 Program Status and Plan

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RCH-01

Completed: Randomized, double-blind, placebo-controlled
phase 1 clinical trial

Completed: Randomized, placebo-controlled, double-blinded, dose-finding clinical study

2023: Pivotal multicenter clinical study testing the efficacy of “extensive and repeated” injections of RCH-01 on male and female pattern hair loss.

funded by RepliCel’s licensee SHISEIDO

Ongoing: research being conducted at the University of British Columbia and the University of Victoria. Directional data offering insights into pathways for improving efficacy and manufacturing.

2023: First product launch expected in Japan

Today’s Innovation. Tomorrow’s Products.

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Ensuring controlled delivery

- More consistent dermal injections; more consistent outcomes
- Less local anesthetic; better patient experience
- Shorter procedure time
- Increased control over injection depth, dose, and dispersion

Delivery matters

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To control the outcome, control the delivery.

Delivery of cells has been a highly under-valued aspect of the cell therapy product development continuum.

- injection (standard vs proprietary; system vs local)
- spray
- pill / capsule (encapsulated)
- cell-loaded matrix/scaffold
- engineered tissues (bioprinting, biospinning, biospraying, using artificial or decellularized constructs)

Patented Dermal Injection Device – A Catalyst for Innovation

The RCI-02 dermal injector is designed to deliver cells, dermal fillers, drugs and biologics

Electronic activator
(improves over manual plunger)

Disposable Cartridges

- Digital controls program for depth, volume, rate of dispersion
- Provides exact repeatable dispersion across 3 dimensions
- Removes human variability
- Built-in Peltier element reduces need for anesthetics
- Proprietary multi-needle heads
- Exclusive cartridge & components
- Near-term commercial launch

RCI-02 -Dermal Injector and Consumables. Program Status and Plan

RepliCel

Completed: First functional prototypes built and initially tested 2017 and optimized through 2020.

2021 Q1: Commercial-grade prototypes manufactured in first production run.

2021 2H: FDA 510(k) expected

2021 2H: Launch of initial series of clinical testing by multiple clinical KOLs and company-sponsored clinical evaluation

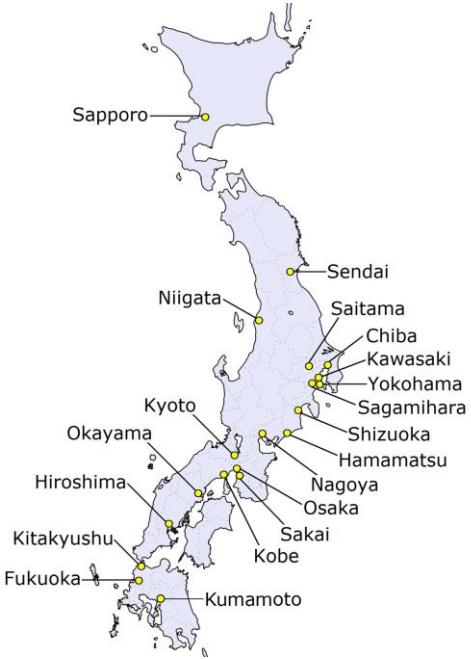
2021 Q4: First product launch in USA and Hong Kong expected in late 2021.

Commercialization partner* already in place in Hong Kong which accepts US or EU approvals for medical devices.

Commercialization partner ** already in place in USA.

* RepliCel's licensee YOFOTO
** Replicel distributor MainPointe Pharmaceuticals

Next Steps in Japan



RepliCel™

Using Cells for Healing

Cell Therapies Positioned for Success in Japan

RepliCel

- ✓ RepliCel's products have already been the subject of 4 well-controlled, clinical studies involving 100+ patients
- ✓ Successful completion of first 2 PMDA consults
- ✓ Both cell therapies being prepared for ASRM clinical research & commercialization
- ✓ Japanese-owned contract manufacturer preparing for PMDA-certification under MHLW guidelines
- ✓ Preparing for the 3rd (clinical) consult with PMDA for RCT-01 to position the product for a PMDA clinical trial and PMDA approval and MHLW reimbursement
- ✓ Experienced cell therapy CRO onboarding
- ✓ Key Japanese clinical advisors engaged; commencing study design and preparations
  - Well respected Japanese orthopedic sports medicine clinical advisor for RCT-01
  - Highly regarded Japanese clinical dermatology researcher advisor for RCS-01

Seeking co-development and commercialization partners in Japan

RepliCel

One Platform. Two innovative cell therapies.

- ❑ RCT-01 Tendon regeneration
  - Preparing to launch ASRM clinical study
  - Preparing for 3rd / final consult with PMDA for PMDA trial with potential to lead to conditional approval / reimbursement
- ❑ RCS-01 Skin rejuvenation

One unparalleled dermal injection technology

- ❑ RepliCel Dermal Injector Portfolio (RCI-02)

A REVOLUTION IN SPORTS MEDICINE and AESTHETICS

RepliCel™

Using Cells for Healing

www.replicel.com

TSXV: RP

OTCPK: REPCF

FRA:P6P2

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