
matricelf
REGENERATING THE FUTURE OF MEDICINE

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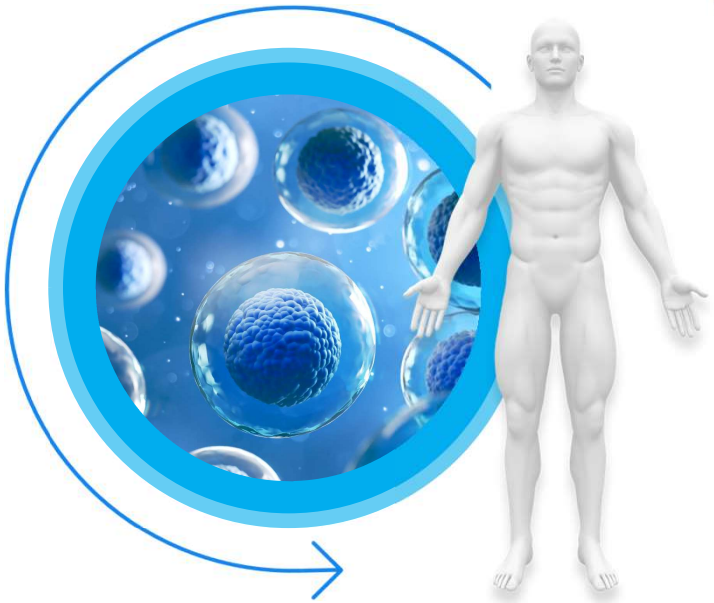


Unique regenerative medicine company specializing in **tissue engineering** **utilizing autologous cells & tissues**

Two platform technologies

- ✓ Generation of autologous engineered tissues
- ✓ Volumetric 3D bioprinting

First product in development

- ✓ **Autologous engineered neural tissue to repair paralysis**
- ✓ Unique solution for spinal cord injury, a major unmet medical need

Extensive IP - 6 patent families

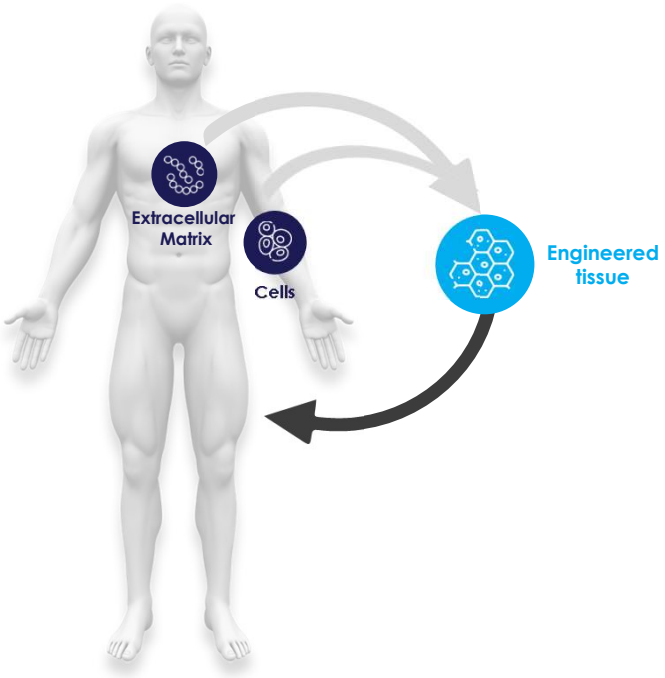
- ✓ Two issued patents*
- ✓ Active prosecution of the portfolio

* (1) Omentum-based scaffold and delivery system (EU) Publ. #: 3013380, (2) Particles comprising decellularized omentum (USA&EU), Publ. #: 2018-0361023-A1 & Publ. #: 3389678

Vision

Revolutionizing the future of personalized therapies to solve **critical unmet medical conditions** and to improve patient's **quality of life**

Technology Platform



Generation of autologous 3D-engineered tissues

utilizing the patient's **own** induced Pluripotent Stem Cells and Extracellular Matrix

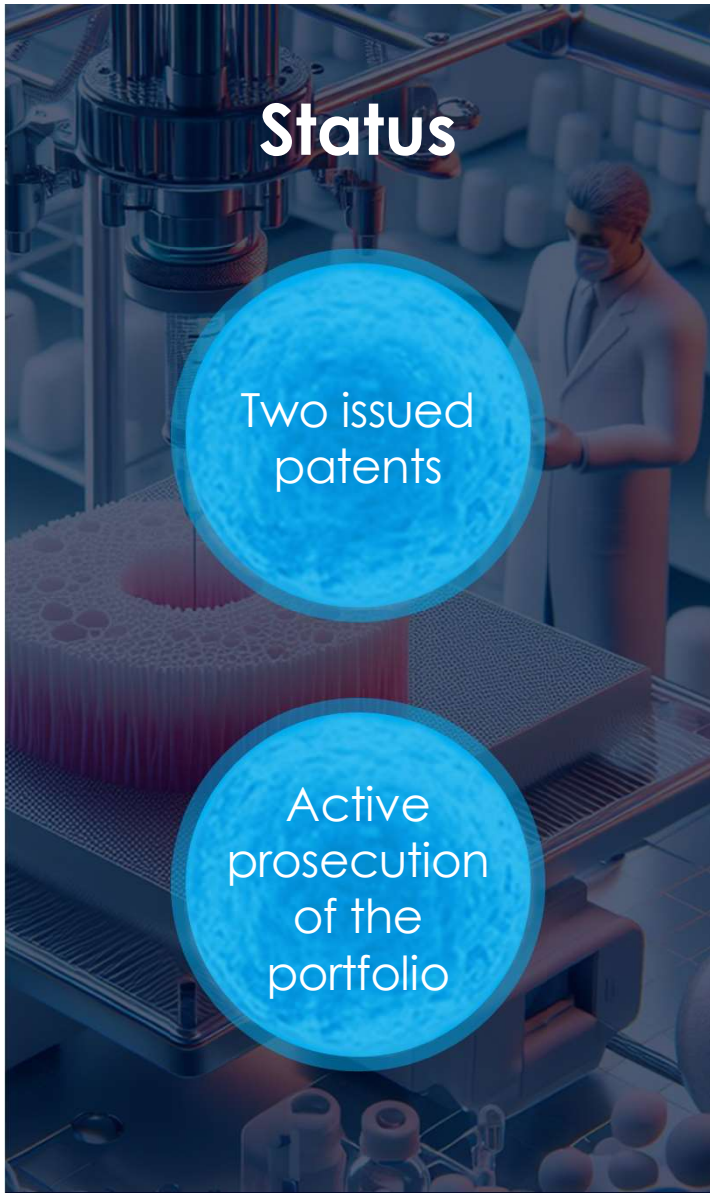
Generation of complex and volumetric tissues

utilizing 3D bioprinting techniques*

* Early development stage

Intellectual property

Extensive IP, comprising 6 patent families, which cover the compositions and methods of manufacture relevant to the company's therapeutic modality and the **use of the modality in specific indications.**



First Indication:
Traumatic spinal cord injury

Every day, **~700* individuals** worldwide **injure** their **spinal cords**, resulting in varying levels of paralysis.

> "Humanity has succeeded in reaching space, but we still haven't managed to bridge the two centimeters of an injured spinal cord"

Yariv Bash,
Co-founder, SpaceIL

Matricelf aspires to rectify this devastating condition by restoring the "missing piece" in the damaged spinal cord.

* World Health Organization (WHO): https://www.who.int/news-room/fact-sheets/detail/spinal-cord-injury

Spinal Cord Injury – the metrics

USA*

~300,000
patients living with spinal cord injury

~18,000
new cases per annum

Worldwide** more than

250,000
new cases per annum

$4.8M
lifetime costs
for a 25-year-old quadriplegic patient (US)***

NO AVAILABLE THERAPEUTIC SOLUTION

* Jain NB, Ayers GD, Peterson EN, et al. Traumatic spinal cord injury in the United States, 1993-2012. JAMA. 2015;313(22):2236-2243
** World Health Organization (WHO): https://www.who.int/news-room/fact-sheets/detail/spinal-cord-injury
*** Each year ~650 individuals at the age of ~25 become quadriplegic due to spinal cord injury; The Miami Project to Cure Paralysis & SCIMS 2022 Annual Report - Complete Public Version

Market size & business model

Serviceable Available Market (SAM)*

10,000

patients/year

Estimated treatment price**

$1.5M

Potential market value

$15B

annually

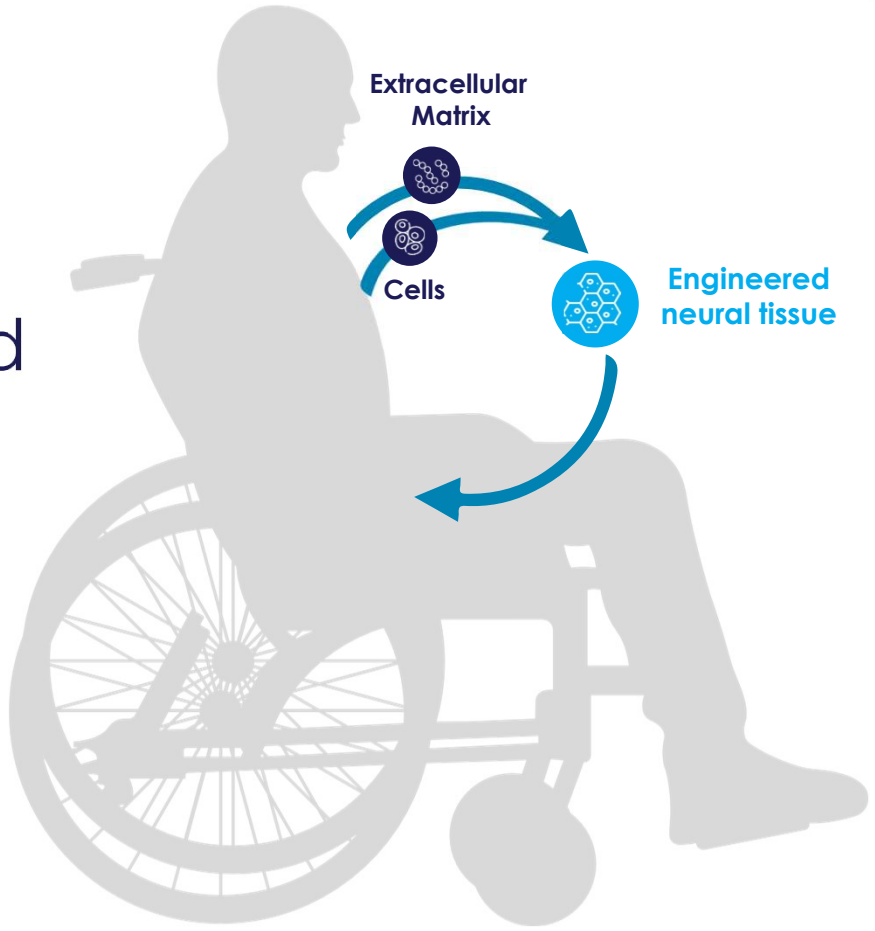
Matricelf's **business model** is an **end-to-end** product and service, covering all steps up to transplantation and rehabilitation, with centers in **strategic locations**

Matricelf's **go-to-market strategy**, mirrors other personalized treatments and assumes ability to obtain comprehensive **reimbursement** coverage

* **18-60 year-old new patients** (69%, NDIS Sep 2022), suffering from complete thoracic (13%) or cervical (20%) spinal cord injuries, NSCISC 2023. US, CA, EU, JP.

** As lifetime treatment cost may reach $4.8M and approved advanced therapies are available on the market for $3.1M, Matricelf estimates that a price of $1.5M would be supported by reimbursement systems.

Autologous engineered neural tissue for **spinal cord injury**



Roadmap to clinical trials in spinal cord injury patients

Value creating milestones/potential strategic events*

- Definitive **efficacy & safety** animal studies
- GMP runs
- **Submission** for clinical trial regulatory approval

FDA EUROPEAN MEDICINES AGENCY

- Analytical methods development
- Pilot safety animal study

- Pilot efficacy animal study
- Process freeze

Pre-IND FDA

Neural tissue development

Interim results

Final results

Phase I/IIa clinical trial

2021 **2022** **2023** **2024** **2025** **2026** **2027** **2028**

* Milestones specify estimated task completion, subject to successful results and financial resources availability

Competitive landscape

current technologies in development for spinal cord injury

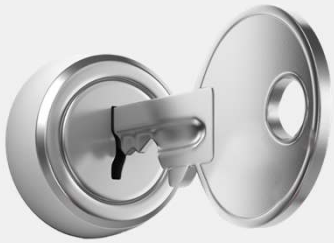
Attribute	matricelf	MAYO CLINIC	LINEAGE CELL THERAPEUTICS (AMEX: LCTX)	中國科學院 CHINESE ACADEMY OF SCIENCES	慶應義塾大学 Keio University	UC San Diego STEM CELL PROGRAM
	Autologous iPSCs based engineered neural tissue	Adipose derived autologous MSCs	Oligodendrocyte progenitor cells	Collagen scaffold + hUCB-MSCs	iPSCs-derived neural progenitor cells	ESCs derived-neural stem cells
Cells	✓	✓	✓	✓	✓	✓
Matrix	✓			✓		✓
Autologous	✓	✓				
3D Functioning tissue	✓					

Matricelf offers one-of-a-kind functioning, autologous, 3D engineered neural tissue

Competitive advantage

Immune compatibility

The utilization of autologous tissue **minimizes the risk of immune response** and **rejection** compared to synthetic or allogeneic alternatives

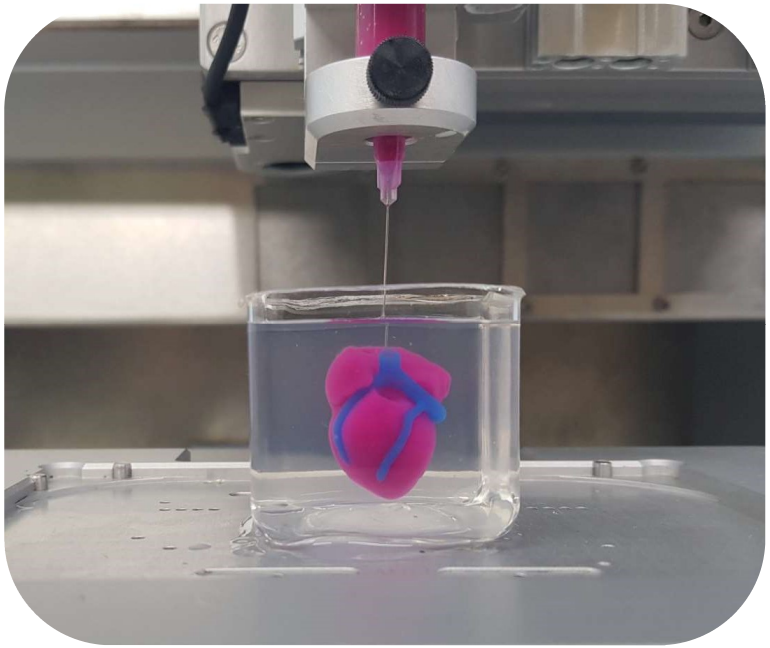


Functionality

Transplantation of a functional tissue has the potential **to unlock a fuller range of capabilities**, that individual-cell-based therapies may not achieve

Second platform - early development stage

3D BIOPRINTING



Imagine a world with zero patients in line for organ transplantation

Matricelf's technology can make it happen

- ✓ Matricelf is developing technology to 3D-bioprint complex tissues and organs
- ✓ Based on this technology, a structured human heart was printed in 2019, for the first time, as POC for printing volumetric organs (Noor et al. Adv. Science, 2019)
- ✓ Multiple potential indications
- ✓ Potential for JV development program

Corporate & financial details Jan 2024

Shares

16M

issued/outstanding (TASE:MTLF)

Market cap

$22M

AS of March 25th, 2024

Capital raised

$16M

Since inception

Cash on hand

$6.6M

On Dec. 31, 2023

Management stake

28.05%

Including co-founders: CEO and CSO who hold 23.29% and 3.89% , and on a fully diluted basis - 14.21% and 8.43%, respectively.

Additional major stake holder

14.11%

15.32% on fully diluted basis

Runway

Q2 2025

Management team

ALON SINAI
CEO & Co-Founder,
board member

SIGAL RUSSO, CPA
CFO

TAMAR HAREL ADAR, PhD
VP R&D

TAL BEN NERIAH, MSc
VP Operations

DORON BIRGER
Chairman

TAL DVIR, PhD
CSO & Co-Founder,
board member

Scientific advisory board

ECKHARD VON KEUTZ,
PhD, Germany
Former senior VP and head of translational sciences at Bayer Pharmaceuticals

BROCK REEVE,
Mphil, USA
Former Executive Director of the Harvard Stem Cell Institute

ADAM WOLLOWICK,
MD, USA
Orthopedic surgeon; senior director of business development at Stryker Spine

RUCHI SHARMA,
PhD, USA
Scientist and stem cell expert at the Ophthalmic Genetics and Visual Function Branch, at NIH

NICHOLAS THEODORE,
MD, USA
Professor of neurosurgery and the director of the Johns Hopkins Neurosurgical Spine Center

MARK TUSZYNSKI,
MD PhD, USA
Director of the Center for Neural Repair, University of California, San Diego

Why Matricelf?

Pioneering, innovative developer of **PERSONALIZED REGENERATIVE THERAPIES**, based on proprietary tissue engineering technologies utilizing patients' own tissues and cells

Game-changing platforms
for the generation of **autologous,** complex and volumetric 3D tissues and organs

Life-changing solutions
for large patient groups worldwide

Significant market potential
Initial therapeutic target group - paralyzed patients with irreversible **spinal cord injury**

Value creation events in the short run
Interim readouts during clinical development could provide significant value inflection points or generate strategic events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Thank you
www.matricelf.com