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Regenerating the future of medicine

Autologous 3D Tissue and Organ Production Platform

(TASE:MTLF)

Corporate Presentation

March 2022

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Company Vision

To become a global leader in the area of Regenerative Medicine and Tissue Engineering, offering innovative implants for a variety of medical conditions affecting millions of patients worldwide

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Matricelf Introduction

- Biotechnology company in the field of tissue engineering and regenerative medicine
- Spin-out company from Tel Aviv University, based on years of academic research at Prof Tal Dvir's laboratory, Head of the Nanotechnology center
- Established April 2019
- Completed IPO at TASE in June 2021 (TASE:MTLF)

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Matricelf: Overview and Highlights

Innovative approach	• Complete autologous 3D tissue implants for a variety of medical conditions
Unique advantages	• Autologous treatment • Complete 3D tissue implant (cells and matrix) • Cell differentiation within a 3D structure • Thermo-responsive hydrogel enables 3D bioprinting
Main programs	• Spinal Cord Injury (SCI) • 3D bioprinting medium production
IP status	• 1 granted patent, 3 pending patents, deep knowhow
Market opportunity	• Addresses unmet need in a multibillion-dollar market
Financial position	• 22 million NIS in cash and cash equivalents as of December 31, 2021
Market capitalization	• 107 million NIS as of March 15, 2022

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Proprietary Technologies

Autologous 3D implants:

- Integration of autologous matrix and cells
- Proprietary decellularization of omentum tissue
- Thermo-responsive hydrogel
- In-gel differentiation of induced Pluripotent Stem Cells (iPSC)
- Engineered tissues for several medical indications

3D bioprinting medium:

- Support medium for 3D printing of biomaterials
- Enables 3D printing of volumetric tissues and organs

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Spinal Cord Injury (SCI)

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SCI Program Highlights

Unmet need	• No available treatment for SCI - irreversible loss of motor/sensory/autonomic functions • Most developed therapies are synthetic/allogeneic which may lead to an immune response
Our solution	• **100% autologous tissue engineered product may serve as an ideal solution for SCI patients** • **Personalized treatment, reduced potential immune response**
Market and opportunity	• ~300,000 SCI patients in the US today • Approximately 17,000 new SCI cases per year in the US • Huge economic impact on society and healthcare systems
Regulation	• Classification: Advanced Therapy Medicinal Product (ATMP) • PreIND meeting with FDA – March 2021
Status and timelines	• Current status – R&D, preclinical studies • First in Human (FIH) clinical trial – end 2024-beginning 2025, Israel

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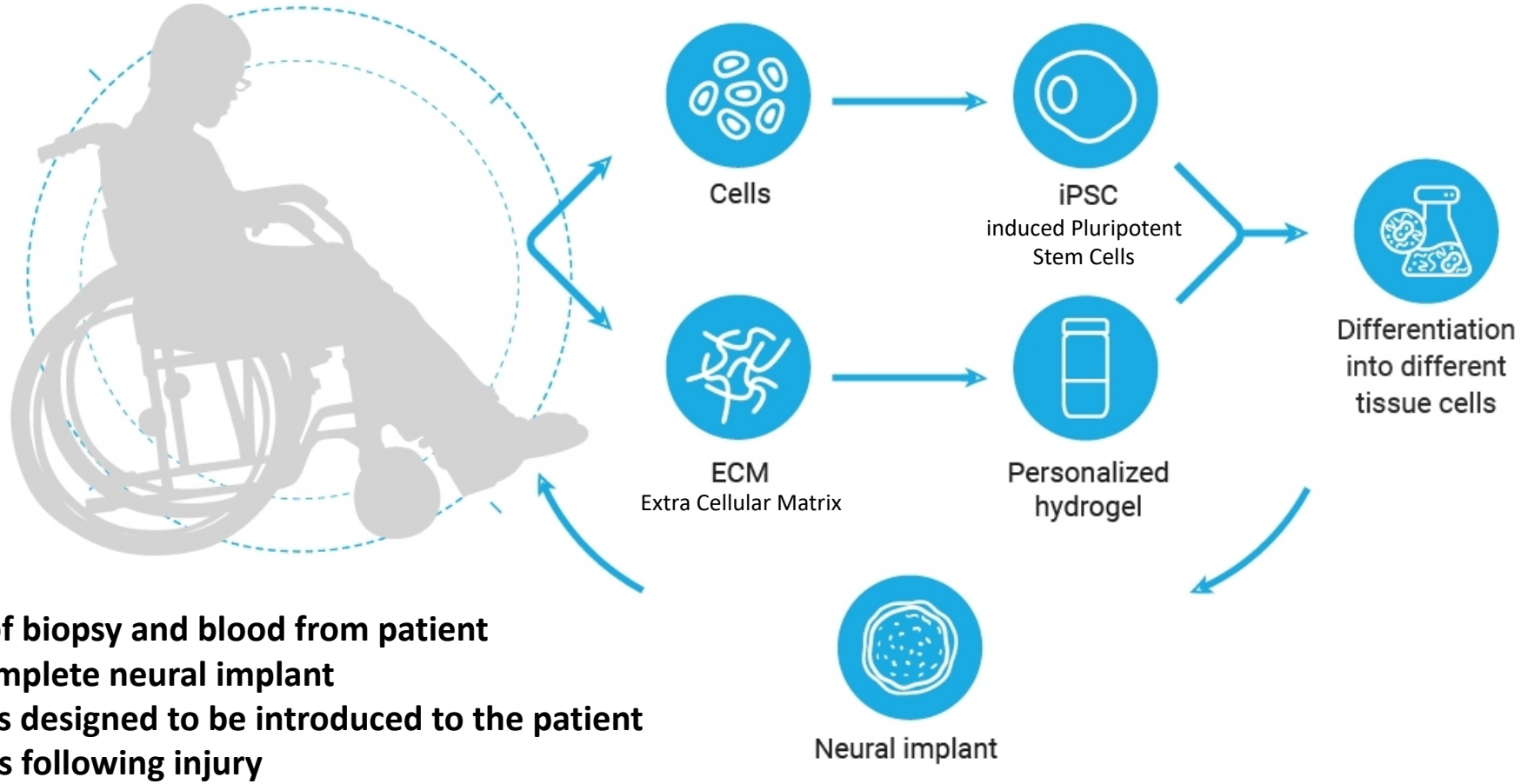
Matricelf Platform Genetares Autologous Functioning 3D Neural Implants for SCI



- **Collection of biopsy and blood from patient**
- **Creating complete neural implant**
- **Treatment is designed to be introduced to the patient 6-12 months following injury**

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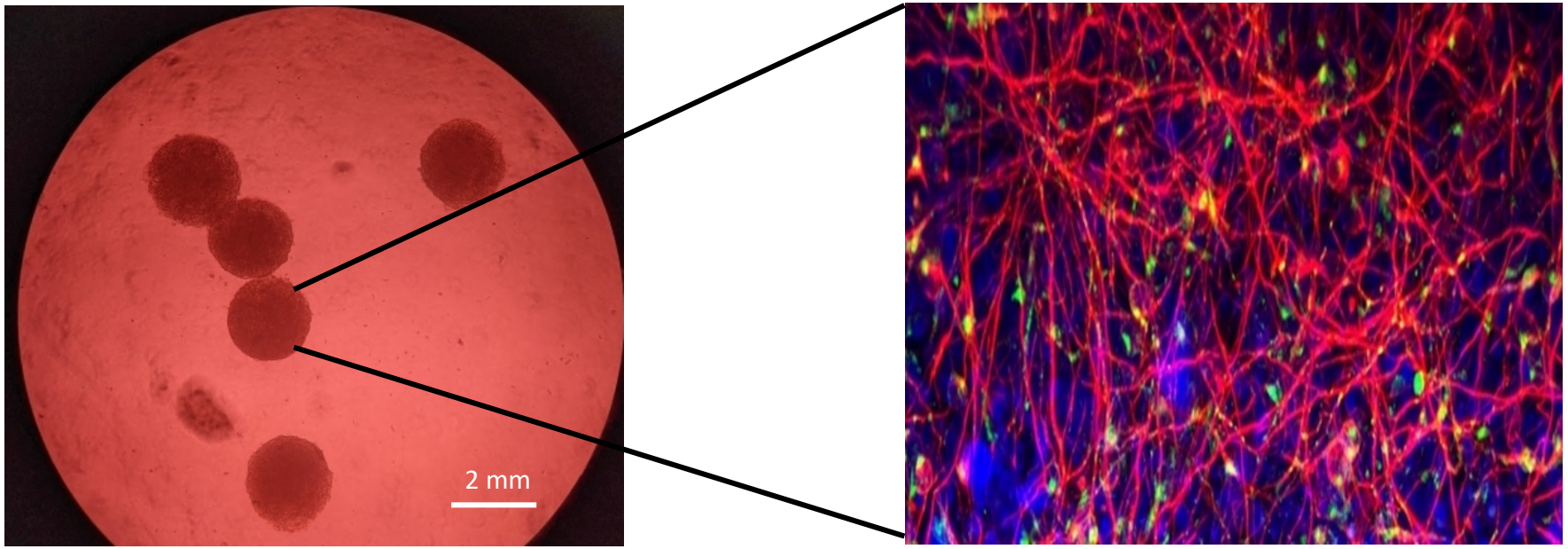
Functional Neural Implant

- ✓ Incorporation of iPSCs within extracellular matrix followed by controlled differentiation
- ✓ New synapses and neurons creating a neural network
- ✓ Matured 3D tissue



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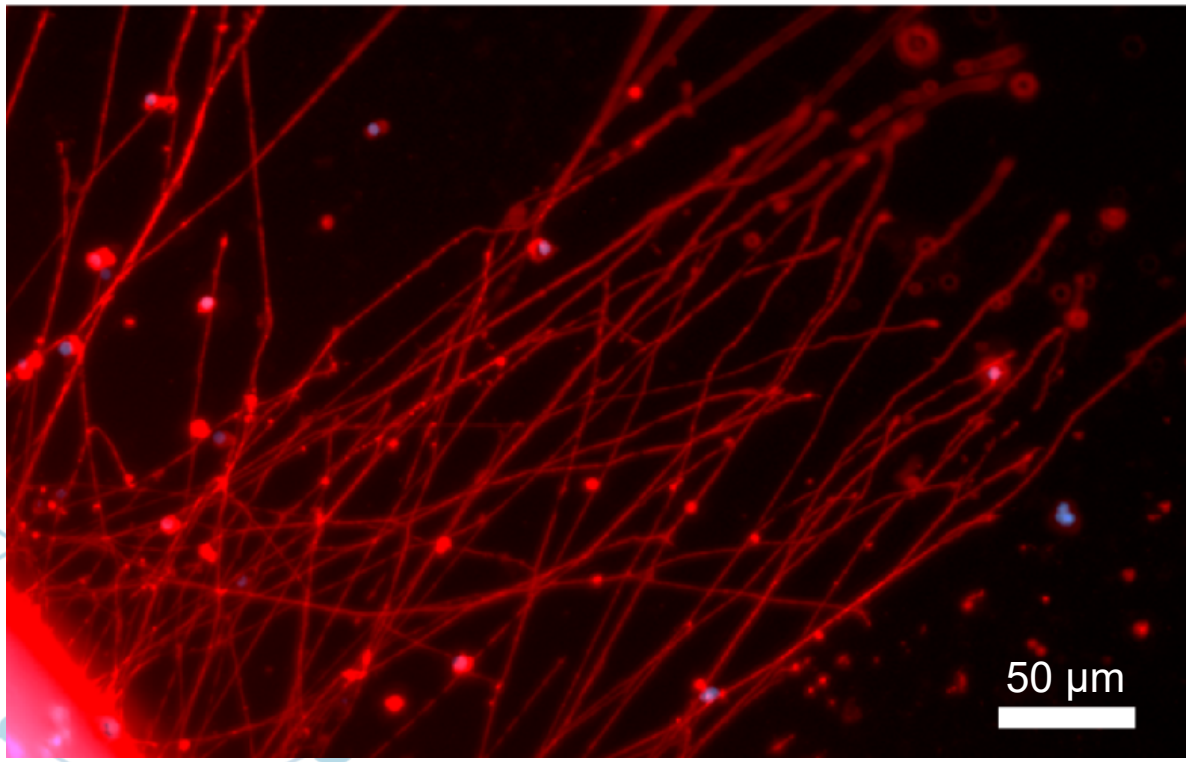
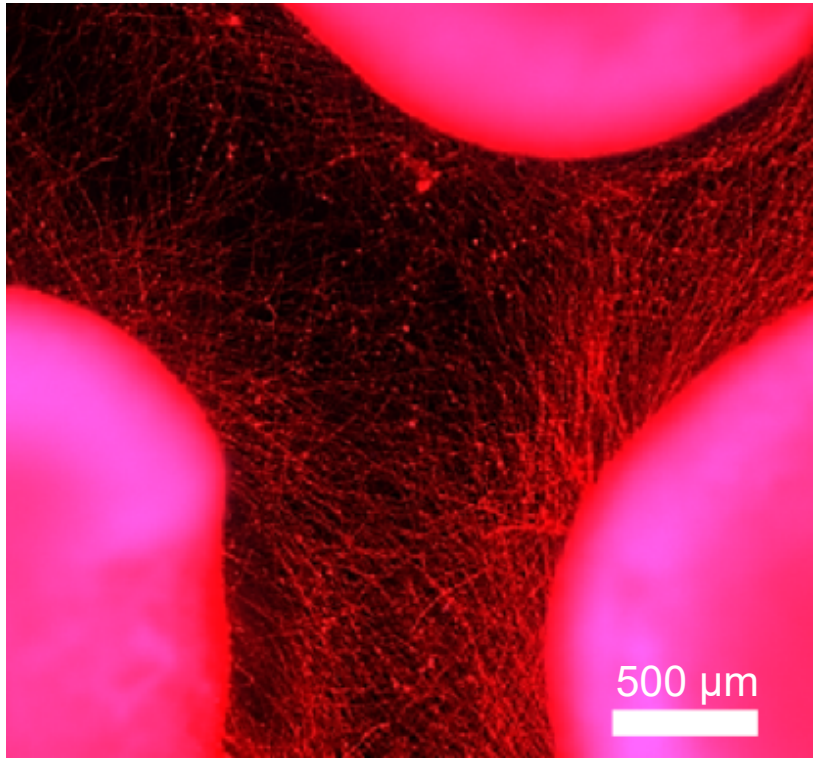
Cell Function within Neural Implants



Neurite outgrowth of neural implant



Neurite network between neural implants

Lior Wertheim, Adv. Sci. 2022

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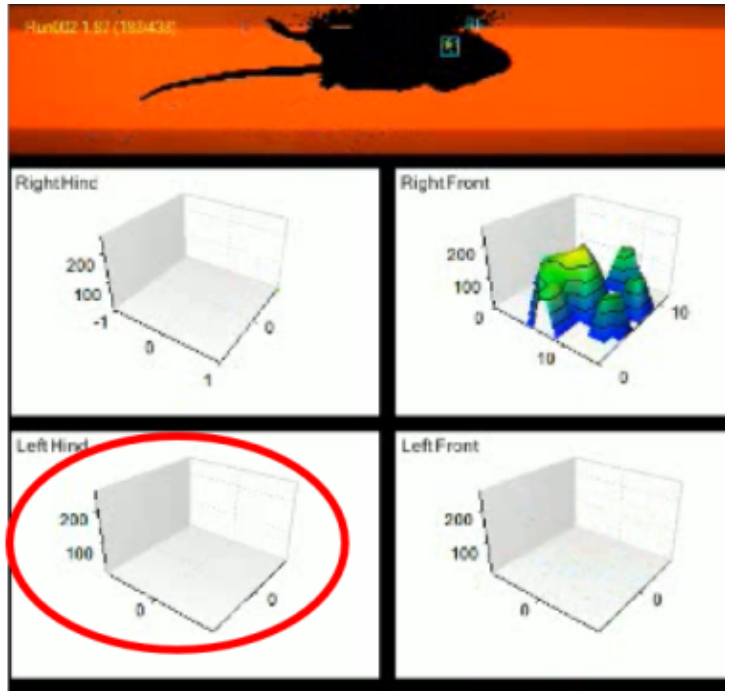
Mice Treated with Neural Implants Regained Their Walking Abilities

Control



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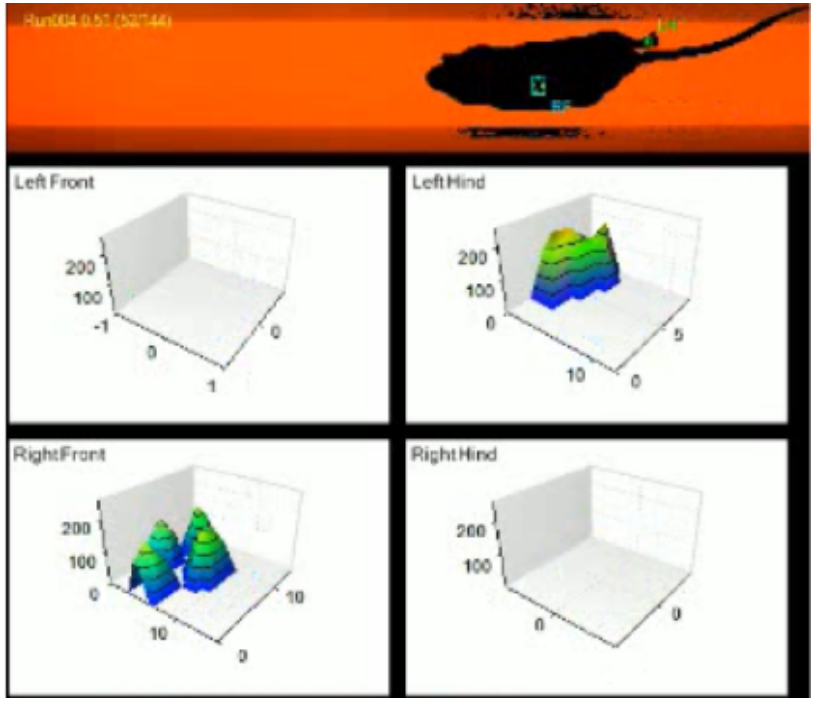

- Two months follow up post spinal hemi-section in mice
- “Cat walk” – four limbs motor function and gait analysis
- Control group – hemiparesis (circled in red)
- **Mice treated with neural implants regained their walking abilities**

Lior Wertheim, Adv. Sci. 2022

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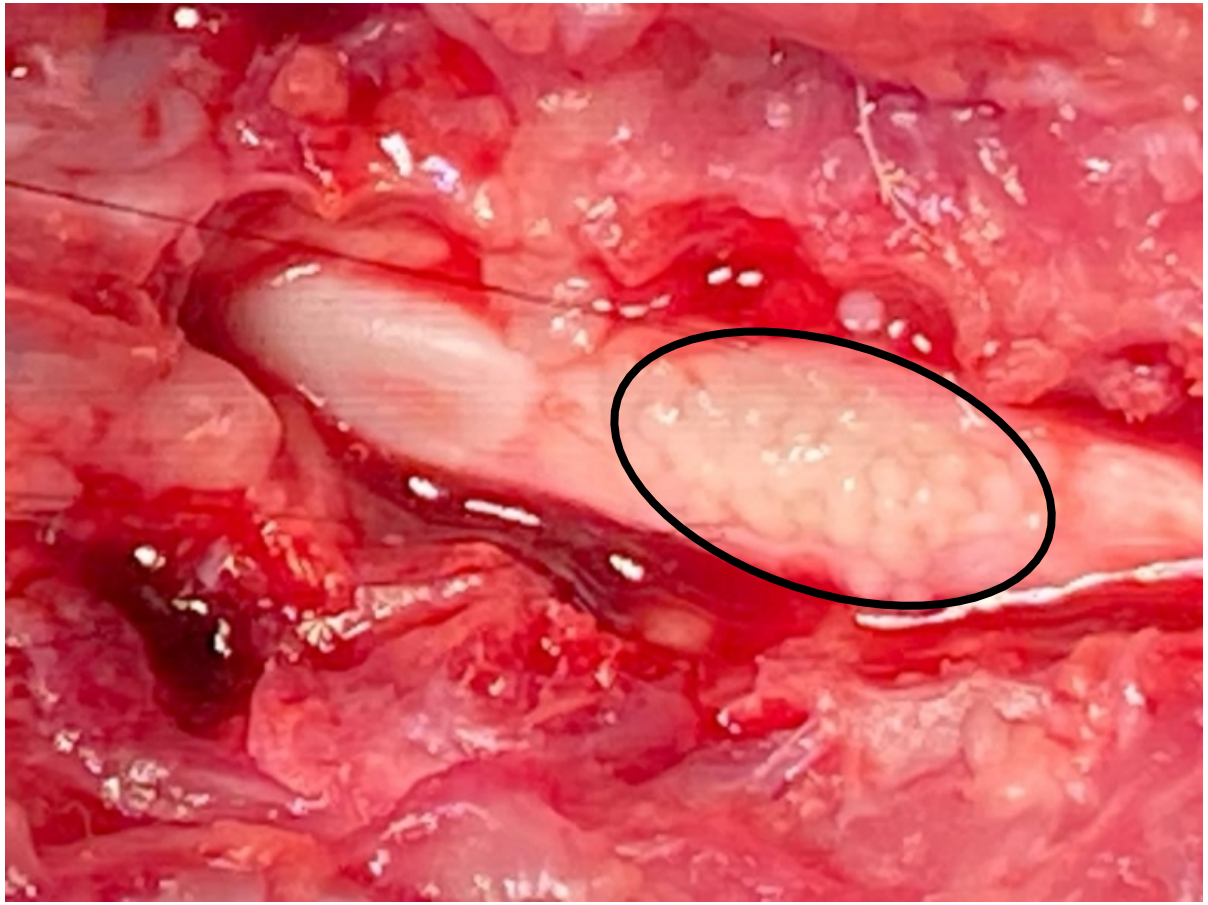
Usability Studies with Neural Implants in Porcine



Neural implants placed in a porcine spinal cord cavity

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Competitive landscape

Analysis of alternative technologies							
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Autologous cells	✓	✓	✗	✗	✗	✗	✗
Pluripotent cells	✓	✗	✓	✗	✗	✓	✓
Autologous scaffold	✓	✗	✗	✗	✗	✗	✗
3D structure	✓	✗	✗	✓	✓	✗	✓

Matricelf develops a one-of-a-kind technology that produces functioning, completely autologous, 3D neural implants

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2021 Key Achievements

- Completed tech-transfer from Tel Aviv University
- FDA Pre-IND meeting
- TASE IPO (MTLF) ~ USD 7.5M
- New lab opening
- National Ethics committee approval (Animal trials)
- Completed development of human hydrogel
- Successfully completed usability studies
- Institutional Review Board (IRB) approval at Herzliya Medical Center (Omentum biopsies)
- New license agreement with Tel Aviv University (“Ramot”)-Support medium for 3D printing of biomaterials

During the upcoming year the company plans to complete the development work of neural human implants including QC methods and full QC release of the implants and implants raw materials: hydrogel and induced Pluripotent Stem Cells (iPSCs).

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Management Team

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Founder, CSO

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TAMAR HAREL ADAR, PhD

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TAL BEN NERIAH, MSc.

Director of Operations

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Executive Director of the Harvard Stem Cell Institut

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Financial Figures

- TASE IPO (MTLF) ~ USD 7.5M - 24 million NIS
- 22 million NIS in cash and cash equivalents as of December 31, 2021
- Market cap of 107 million NIS as of March 15, 2022

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Investment Summary

Significant market potential	• ~300,000 SCI patients in the US today • Approximately 17,000 new SCI cases per year in the US • Huge economic impact on society and healthcare systems • Addresses unmet need in a multibillion-dollar market • Estimated cost for care for first year post -SCI $350K-$1M • Lifetime medical costs for a quadriplegic patient injured at the age of 25 is estimated at $4.8M
Value proposition	• **100% autologous neural tissue** • **Personalized treatment, reduced potential immune response**
Regulatory pathway	• Classification: Advanced Therapy Medicinal Product (ATMP) • PreIND meeting with FDA – March 2021
Strong IP	• **1 granted patent, 3 pending patents, deep knowhow**
Experienced team	• 10 employees • highly experienced board and scientific advisory board

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Watch our corporate video at:

https://youtu.be/fEqK2N97VJ0

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Thank you

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