



matrixcellf
Regenerating the future of medicine

Autologous 3D Engineered Tissues

(TASE:MTLF)

Corporate Presentation

February 2023

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Company Vision

Curing the Incurable

Innovative regenerative medicine company,
helping millions of patients worldwide



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Matricelf Introduction

- Regenerative Medicine company
- Developing 3D engineered tissue implants
- Spin-out company from Tel Aviv University (Dvir Lab, Nanotechnology Center: more than 10 years of academic research & USD ~12M in research grants)
- Established April 2019



Proprietary Technologies

Autologous 3D implants:

- Integration of autologous matrix and cells
 - Matrix - Thermo-responsive autologous hydrogel
 - Cells - In-gel differentiation of autologous induced Pluripotent Stem Cells (iPSC)
- Engineered tissues for numerous medical indications

3D bioprinting of tissues and organs:

- Proprietary medium for 3D printing of biomaterials
- Enables biocompatible structuring of volumetric tissues and organs



Spinal Cord Injury (SCI)

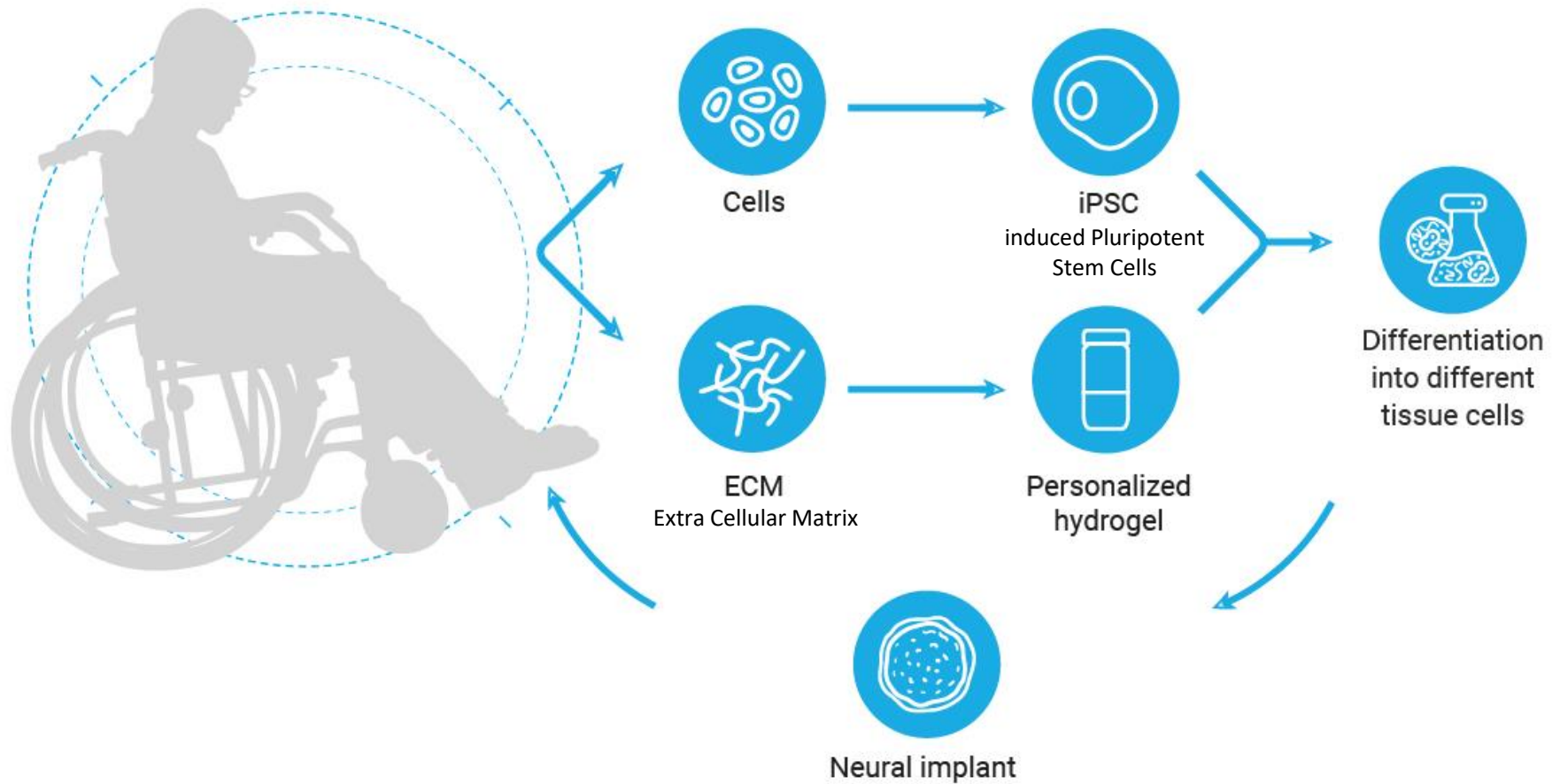


SCI Program Highlights

- | | |
|-------------------------------|--|
| Unmet need | <ul style="list-style-type: none">• No available treatment for SCI - irreversible loss of motor/sensory/autonomic functions• Most potential therapies are synthetic/allogeneic which may lead to immune rejection |
| Our solution | <ul style="list-style-type: none">• 100% autologous tissue engineered product• Personalized treatment, reduced potential immune response |
| Market and opportunity | <ul style="list-style-type: none">• Approximately 17,000 new SCI cases per year in the US• ~300,000 SCI patients in the US today• Huge economic impact on society and healthcare systems |
| Regulation | <ul style="list-style-type: none">• Classification: Advanced Therapy Medicinal Product (ATMP)• Pre-IND meeting with FDA, March 2021 |
| Status and timelines | <ul style="list-style-type: none">• Current status – R&D, preclinical studies, feasibility trials in mice - completed• First in Human (FIH) clinical trial – 2025, Israel |

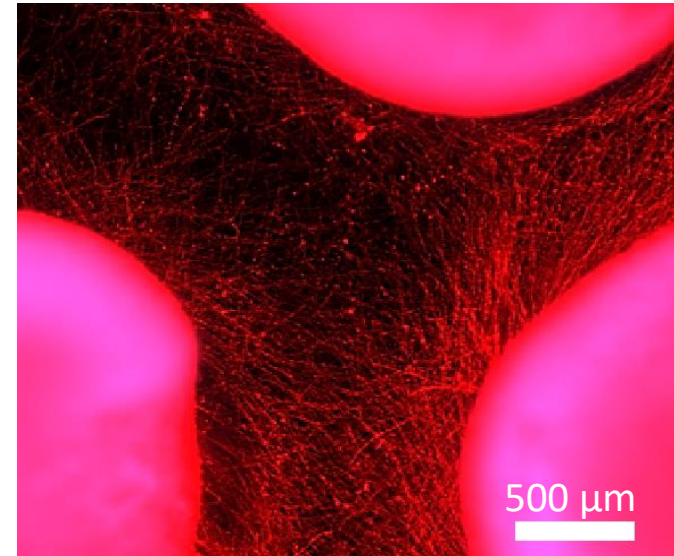
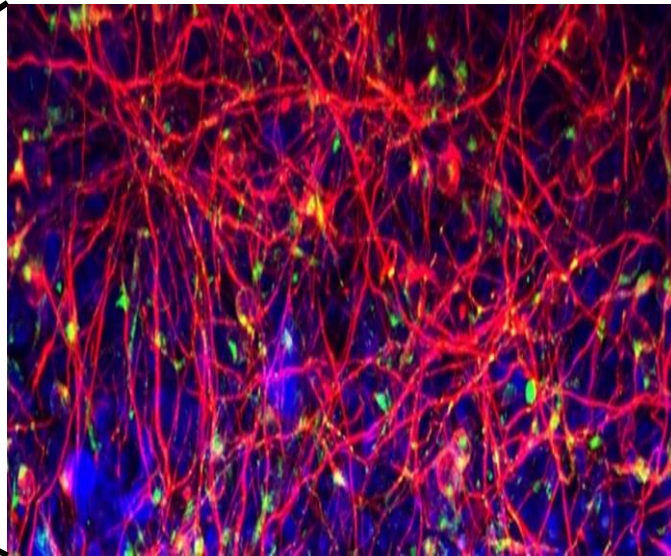
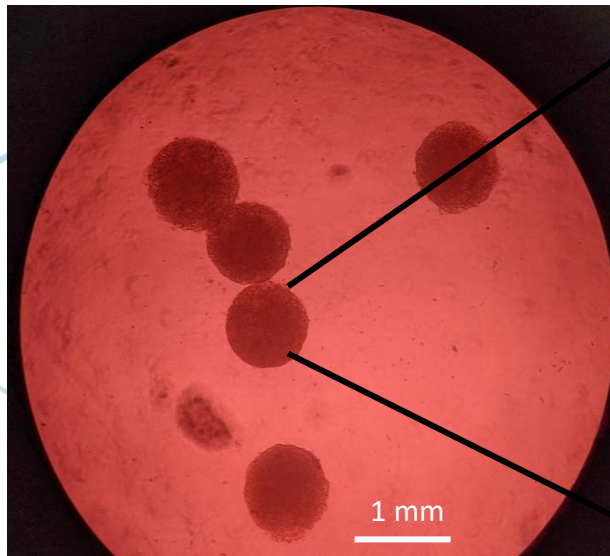


Matricelf Platform Generates Autologous Functioning 3D Neural Implants for SCI



Functional Neural Implant

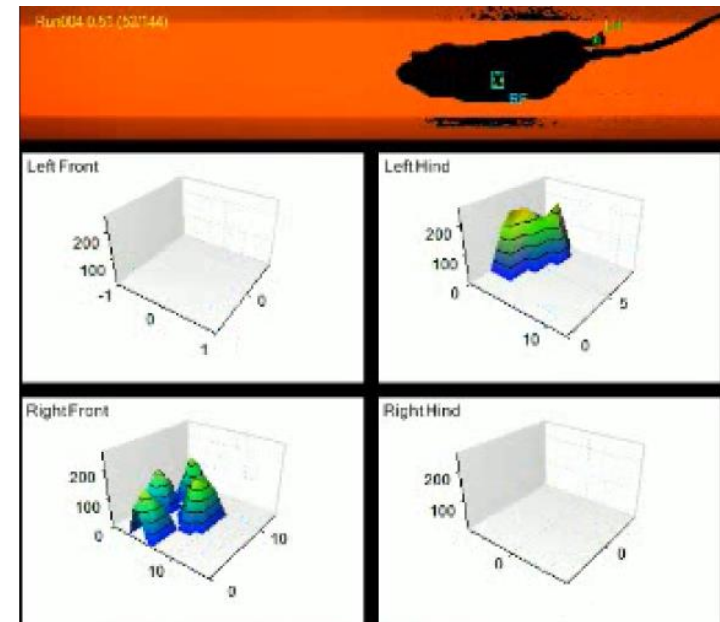
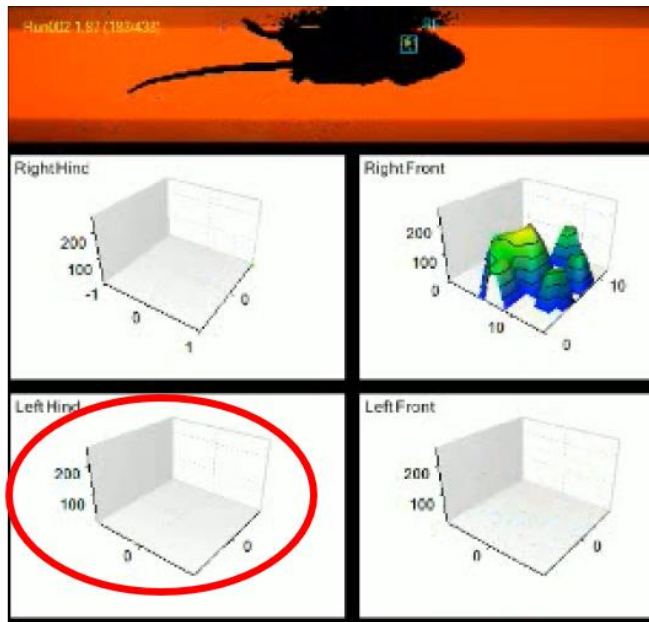
- ✓ Incorporation of iPSCs within extracellular matrix followed by controlled differentiation
- ✓ New synapses and neurons generate a neural network
- ✓ Matured 3D tissue formed





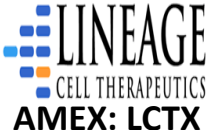
































Neural Implants Restore Function

- Follow up: 2 months post spinal hemisection 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**

Control



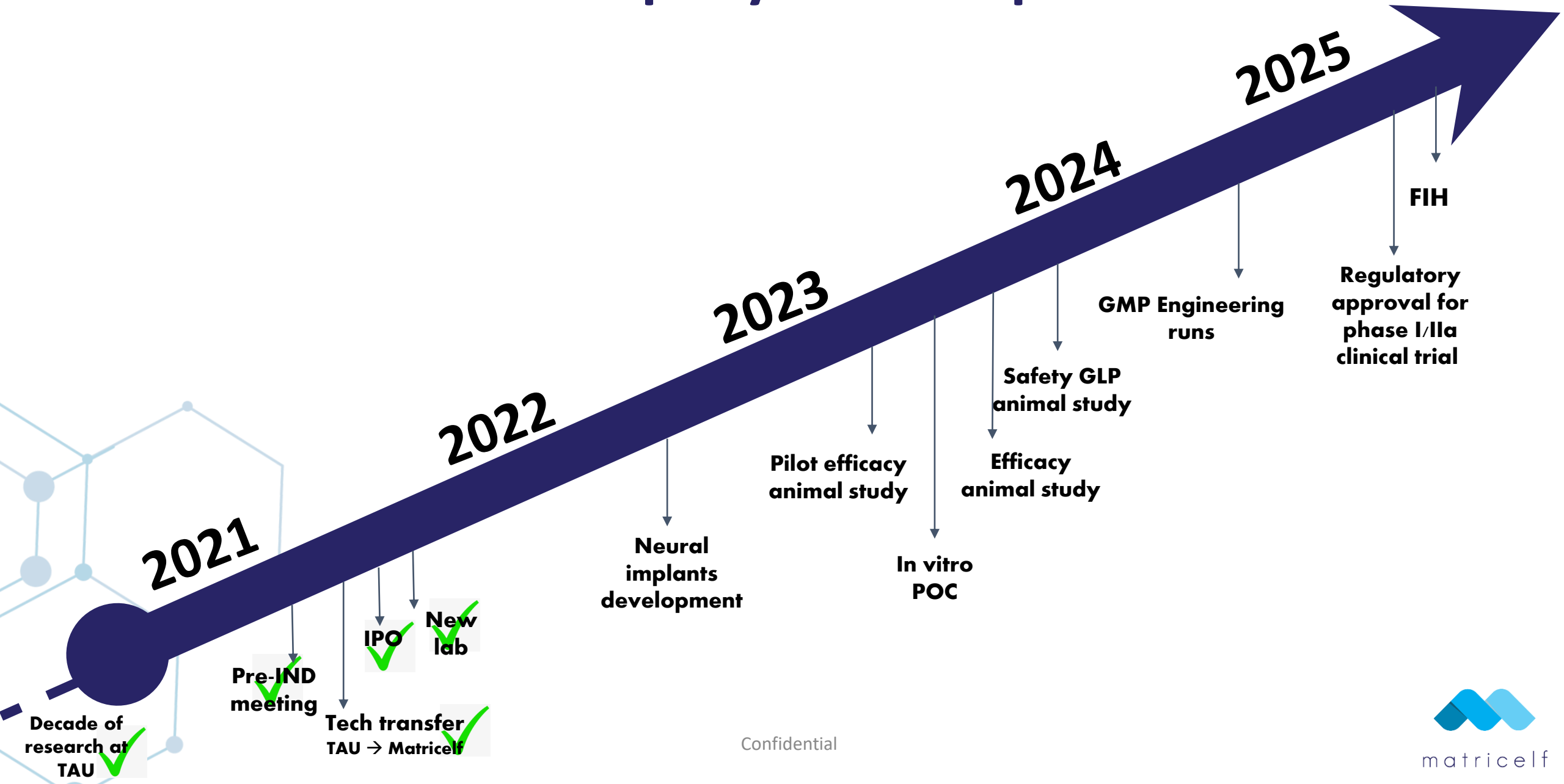
Competitive Therapeutic Landscape

Analysis of alternative technologies							
	 matricelf		 AMEX: LCTX	 NSDQ:NVIV	 CHINESE ACADEMY OF SCIENCES	 Keio University Tokyo, Japan	 STEM CELL PROGRAM
Autologous cells							
Pluripotent cells							
Autologous scaffold							
3D structure							

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



Company Roadmap



Confidential



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Key Achievements: 2022

- ✓ Development of human hydrogel
- ✓ Development of human iPSC lines
- ✓ Development of human neural implant
- ✓ Usability study in pigs in collaboration with Johns Hopkins Medical school
- ✓ Three granted patents, two new patents application submitted
- ✓ Completed technology transfer of 3D bioprinting support medium from Tel Aviv University to Matricelf
- ✓ MTA with a multinational technology corporation - 3D bioprinting support medium to explore future cooperation
- ✓ PIPE on TASE for ~ USD 6M



Projected Milestones: 2023

- Completion of pilot efficacy study
- Completion of pilot safety study
- Completion of formulation development
- Initiation of POC efficacy study
- Pipeline broadening – New indication



The Team



ASAF TOKER, MD
CEO



TAL DVIR, PhD
Founder, CSO



TAMAR HAREL ADAR, PhD
VP R&D



TAL BEN NERIAH, MSc
VP of Operations



SIGAL RUSSO, CPA
CFO



ALON SINAI
Founder, Deputy CEO



Board of Directors



DORON BIRGER
Chairman



RUTH ARNON, PhD
Board member



TAL DVIR, PhD
Board member



NEOMI ENOCH, CPA
Board member



STANLEY HIRSCH, PhD
Board member



SUZANA NAHUM-ZILBERBERG, CPA
Board member



ALON SINAI
Board member





KAPIL BHARTI, PhD

Senior researcher at the National Institutes of Health ("NIH"), an expert in the use of induced pluripotent stem cells (iPSC) in regenerative medicine and the development of cellular therapies.



NICHOLAS THEODORE, MD

Professor of Neurosurgery and the Director of the Johns Hopkins Neurosurgical Spine Center.

Scientific Advisory Board



ECKHARD VON KEUTZ, PhD

Chairman of the Advisory Board of the Fraunhofer Institute of Toxicology and Experimental Medicine
Member of the Executive Council at Center of Healthcare Innovation (US);
Member of the Industrial Advisory Board (IAB) of the European Organ-on-Chip Society (EUROoCS).



ADAM WOLLOWICK, MD

Sr. Director of Business Development at Stryker Spine.



MARK TUSZYŃSKI, MD PhD

Director of The Center for Neural Repair, University of California, San Diego



BROCK REEVE, PhD

Advisor to the Petit Institute at Georgia Tech University and on the Board of the Pioneer Charter School of Science in Everett, MA.



Summary

Unique advantages	<ul style="list-style-type: none">• Autologous treatment• 3D engineered tissue implants (cells and matrix)• Cell/iPSC differentiation within a 3D structure• Support medium enabling 3D bioprinting
Main programs	<ul style="list-style-type: none">• Spinal Cord Injury (SCI)• 3D bioprinting
IP status	<ul style="list-style-type: none">• 3 granted patents, 7 pending applications, extensive knowhow
Market opportunity	<ul style="list-style-type: none">• Address unmet medical need in a multibillion-dollar market
Financial position	<ul style="list-style-type: none">• NIS ~33 million in cash and cash equivalents as of December 31st, 2022
Market capitalization	<ul style="list-style-type: none">• NIS ~75 million as of December 31st, 2022



Watch our corporate video at:

<https://youtu.be/XUGfveypuAs>





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Thank you

www.matricelf.com

info@matricelf.com



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