



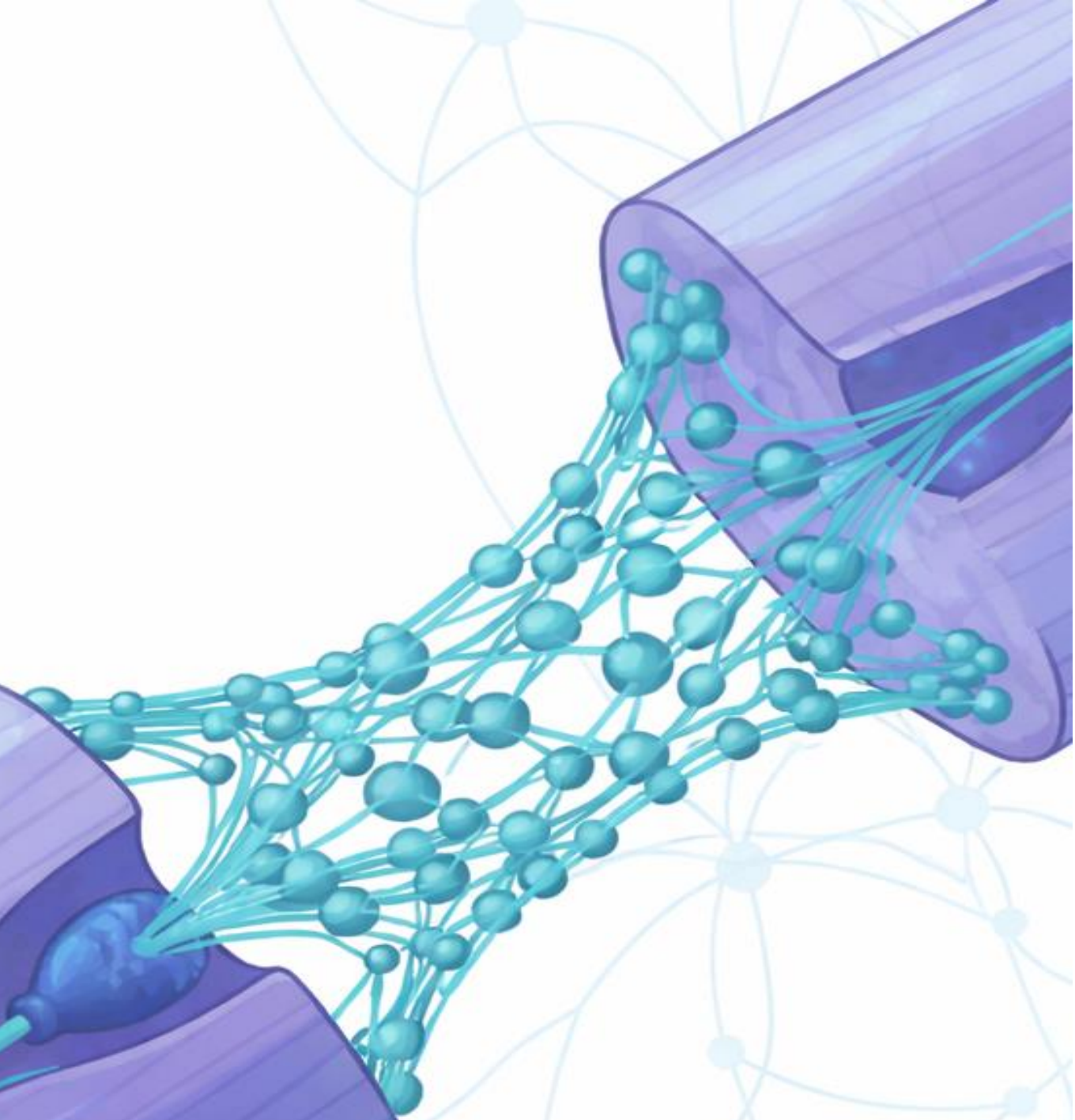
matricelf

## Rebuilding the Spinal Cord

Restoring lost neurological function by rebuilding the injured spinal cord using personalized autologous neural tissue.

Gil Hakim | CEO | [gil@matricelf.com](mailto:gil@matricelf.com)

**First in Human  
expected  
already in 2027**



# Forward Looking Statement and Disclosure

מצגת זו הוכנה על ידי מטריסלף (להלן "החברה") כמצגת היכרות כללית בלבד. המידע הכלול במצגת זו אינו ממצה ואינו כולל את מלוא המידע אודות החברה, פעילותה או עסקיה, ואין לראות בו כתחליף לעיון בדוחות החברה כפי שפורסמו או יפורסמו מעת לעת, לרבות תשקיפים, דוחות תקופתיים, דוחות מיידיים או מסמכים אחרים של החברה.

המידע הכלול במצגת זו אינו מתיימר לכלול את כל המידע הדרוש לצורך קבלת החלטת השקעה כלשהי, ואין להסתמך עליו לצורך קבלת החלטה כאמור. החברה אינה מתחייבת לעדכן או לשנות את המידע הכלול במצגת זו, לרבות לשם שיקוף אירועים, שינויים, עדכונים, עריכות, עיבודים או פילוחים, אשר עשויים להתרחש לאחר מועד הכנת המצגת.

מצגת זו כוללת מידע צופה פני עתיד כהגדרתו בחוק ניירות ערך התשכח 1968, לרבות תחזיות, הערכות, אומדנים, יעדים, תכניות ומידע נוסף המתייחס לאירועים עתידיים אשר יתרחשו או עשויים להתרחש, ובכלל זה ביחס להכנסות, לרווחיות ולפעילות העסקית של החברה. מידע צופה פני עתיד מבוסס על אומדנים, הערכות והנחות של הנהלת החברה נכון למועד הכנת המצגת, ואינו ודאי מטבעו, בין היתר בשל תלותו בגורמים שונים ובסיכונים הקשורים בפעילות החברה, אשר חלקם אינם מצויים בשליטתה.

התממשות התחזיות וההערכות האמורות עשויה להיות שונה באופן מהותי מן האמור במצגת זו, והחברה אינה מתחייבת כי מידע צופה פני עתיד כאמור יתממש בפועל. סטייה מהותית כאמור עלולה להשפיע לרעה על תוצאות החברה, פעילותה ומצבה העסקי.

מצגת זו כוללת נתונים סטטיסטיים ומידע אשר פורסמו על ידי צדדים שלישיים, אשר תוכנם לא נבדק או אומת באופן עצמאי על ידי החברה, והחברה אינה אחראית לנכונותם, לשלמותם או לעדכנותם.

המידע הכלול במצגת זו אינו מהווה הצעה לציבור או הזמנה להציע הצעה לרכישת ניירות ערך של החברה, ולא ייחשב כהצעה או כהמלצה לביצוע עסקה בניירות ערך כאמור, בכל תחום שיפוט שהוא.



Non-Confidential



# Matricelf | First Structural Restoration Therapy for Chronic SCI

## Executive Summary

### Massive unmet Need

- 310K US patients
- \$30B annual spend
- No curative therapy

### Category Defining Solution

- Autologous engineered neural tissue implant
- Living, structural 3D neural graft
- Designed to rebuild spinal cord connectivity

### Compelling Preclinical Signal

- Robust efficacy in efficacy chronic SCI models
- Clean safety, no teratomoas
- Durable functional recovery

### Clear Differentiation

- Dual autologous platform: cells and matrix
- Tissue architecture, not cell suspension
- Restoration, not stimulation or modulation

### Defined US Regulatory Path

- Biologic BLA pathway
- Pre-IND FDA alignment
- Target RMAT
- **First in Human H1/2027**

### Near Term Value Creation

- \$25M raised to date, TASE: MTLF
- Funded through FIH
- Raising \$8M to \$10M
- Use: NASDAQ dual listing and initial human studies

# Unmet Clinical Need

## A Permanent Injury With No Restorative Treatment



- Chronic complete spinal cord injury (SCI) leads to lifelong paralysis
- No approved therapy restores lost neural tissue and function
- Even modest functional gains improve independence and reduce long-term costs

Matricelf is developing the world's first restorative therapy for complete SCI

# Spinal Cord Injury: U.S. Market and Economic Burden

Large economic burden mainly based on long term support

## Economic Burden In the U.S.

**310,000**

people living with  
SCI in the U.S.

**32%**

Complete Paraplegia  
& Tetraplegia

Up to **\$6M**

life-time cost per patient

**50%**

of total cost is attendant care  
and personal assistance

**\$30B**

spent annually

**65%**

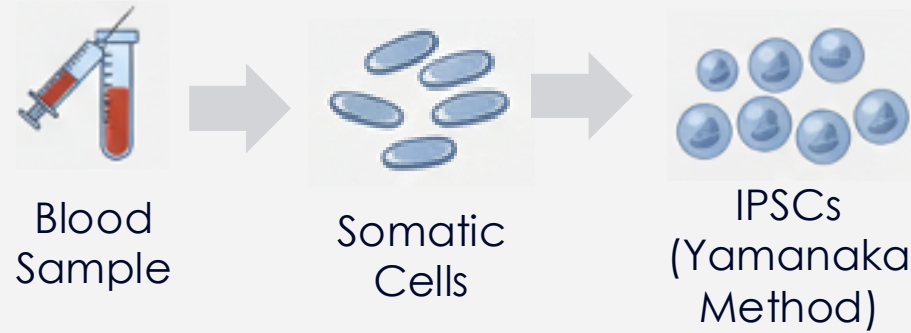
of chronic SCI costs  
are long-term care

High economic burden creates  
a strong reimbursement rationale

# How It Works: Engineering Patient-Specific Neural Tissue.

1

## Personalized iPSCs Generation



2

## Patient Specific ECM Matrix



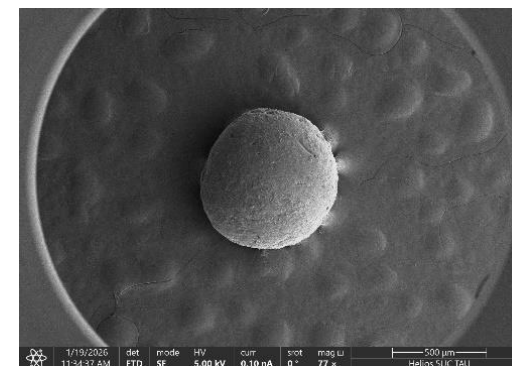
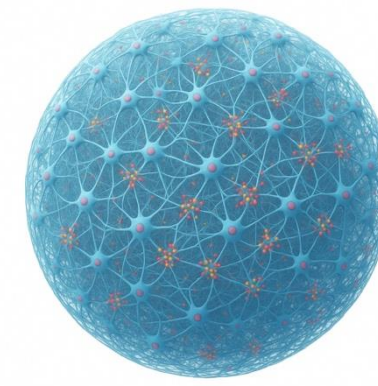
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## Engineering Functional Neural Tissue

Bio-engineering



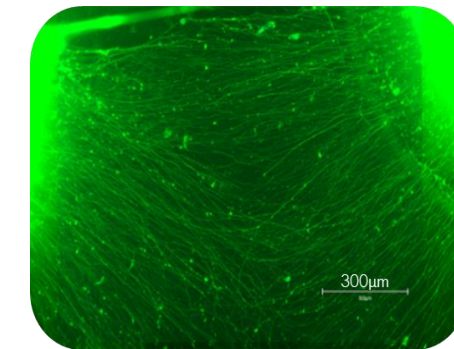
Controlled Differentiation



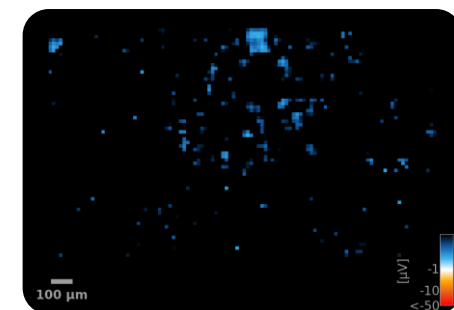
iPSCs embedded in ECM



Dense 3D network of neurons



Neuronal connections forming



Synchronized firing.

4

Spheroids ready for implantation



Functional Engineered Personalized 3D-Neural Tissue Spheroid

Autologous approach is designed to biologically integrate and reduce immunogenicity

# Matricelf Advantage: From Modulation to Restoration

Redefining the SCI Treatment Landscape

## Support & Modulation



## Functional Restoration



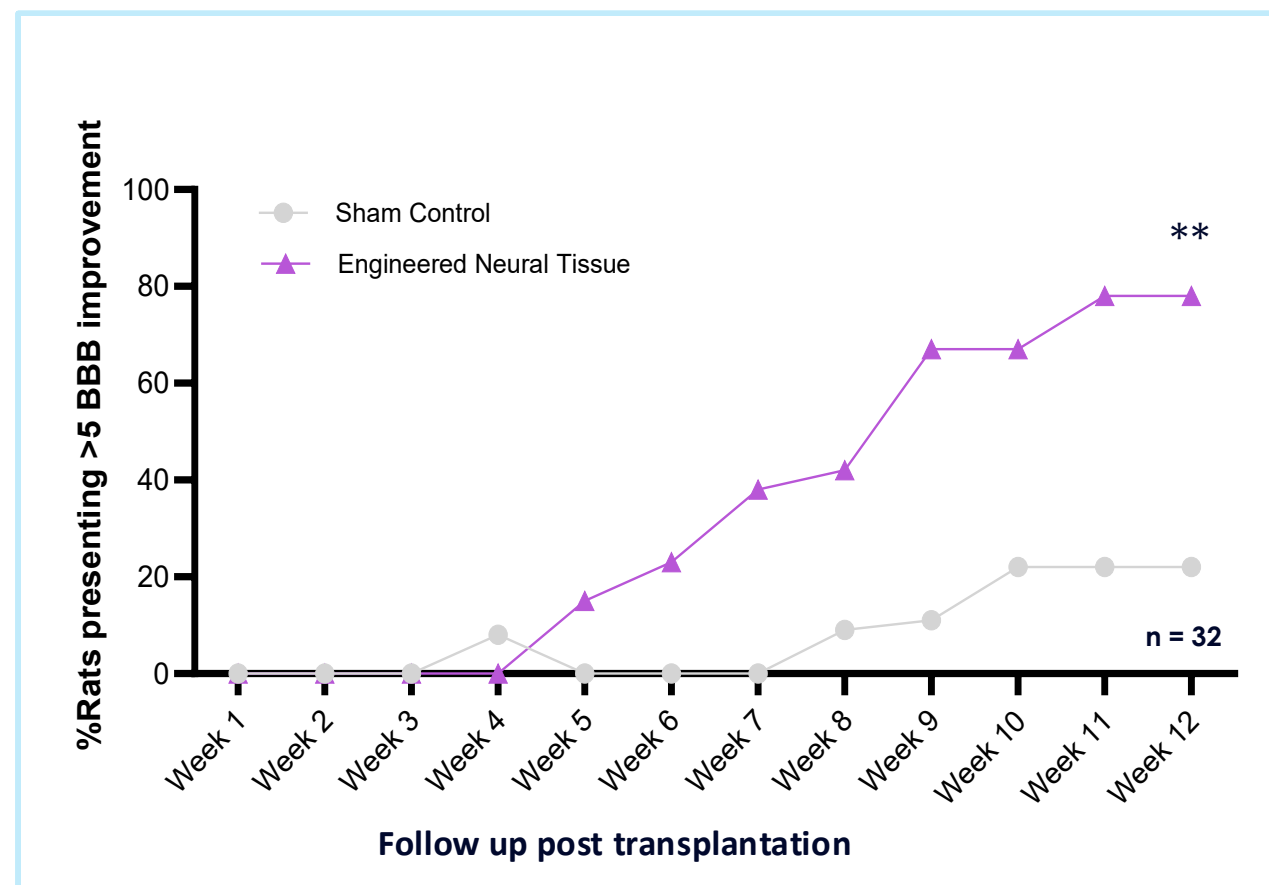
Most competitors modulate injury response, but only Matricelf restores tissue function

# Robust Recovery in Chronic, Severe SCI

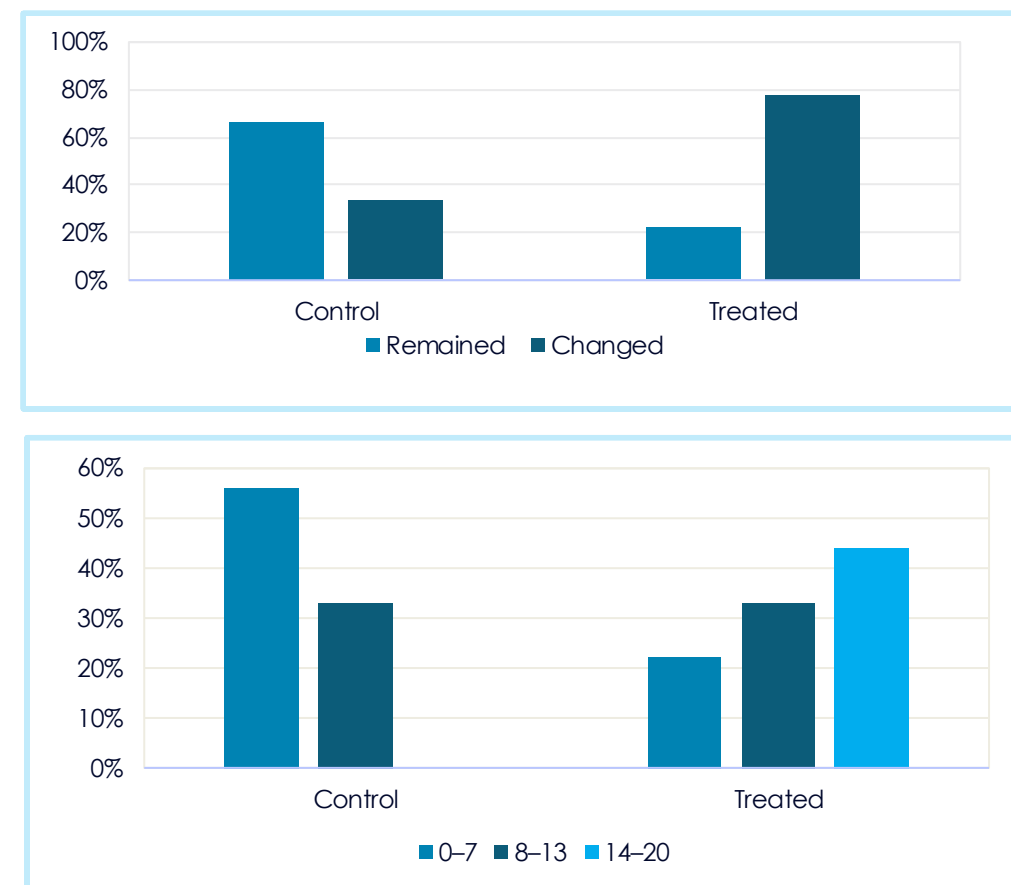
## Pre-IND Feedback

Pilot **efficacy** study: **Chronic**<sup>(1)</sup> spinal cord injury nude rat model (T10 contusion)

% of BBB improvement (>5 pts)



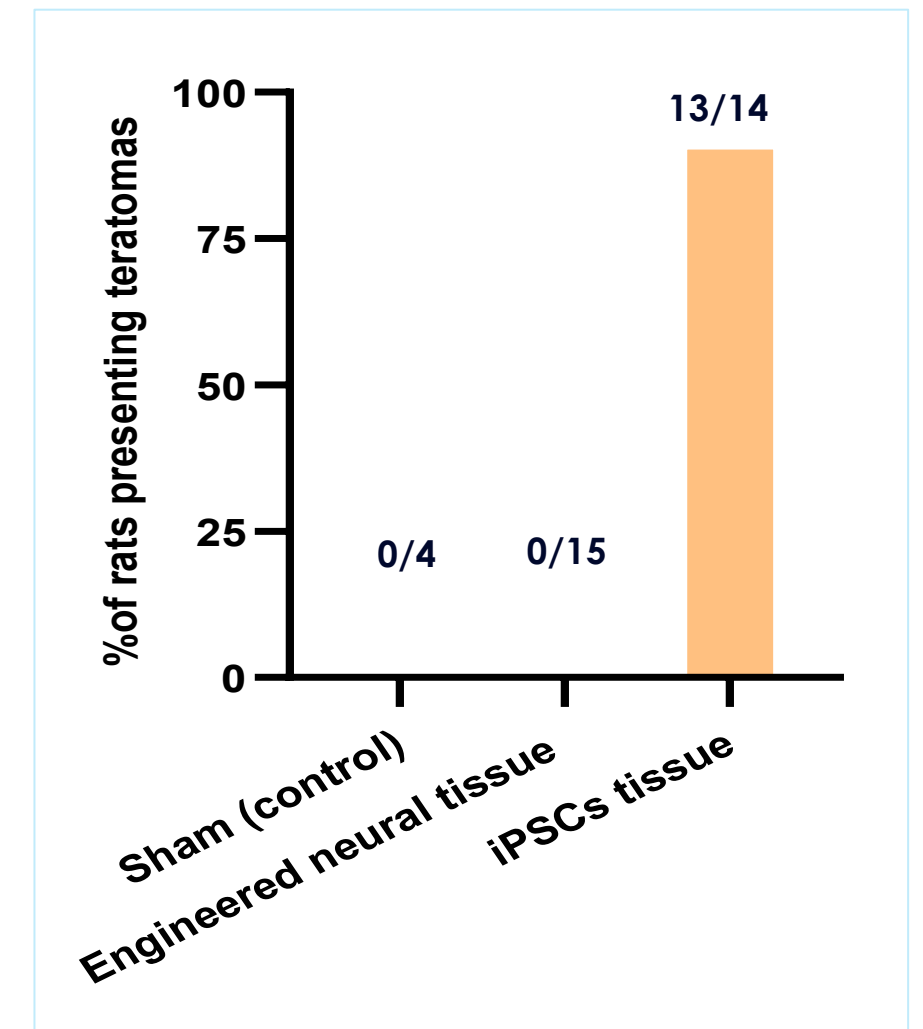
Category change and distribution from Baseline to 12 weeks



(\*\*) A 5-point improvement signifies functional recovery

(1) Transplantation performed 4-weeks post injury

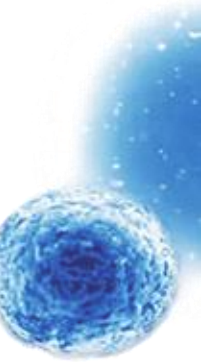
Pilot **safety** study: C4 corticospinal tract transection in a nude rat model



Engineered neural tissue drove meaningful BBB locomotor recovery and upward category shifts in chronic SCI compared with control. Safety was supported by the absence of teratomas, in contrast to iPSC tissue.

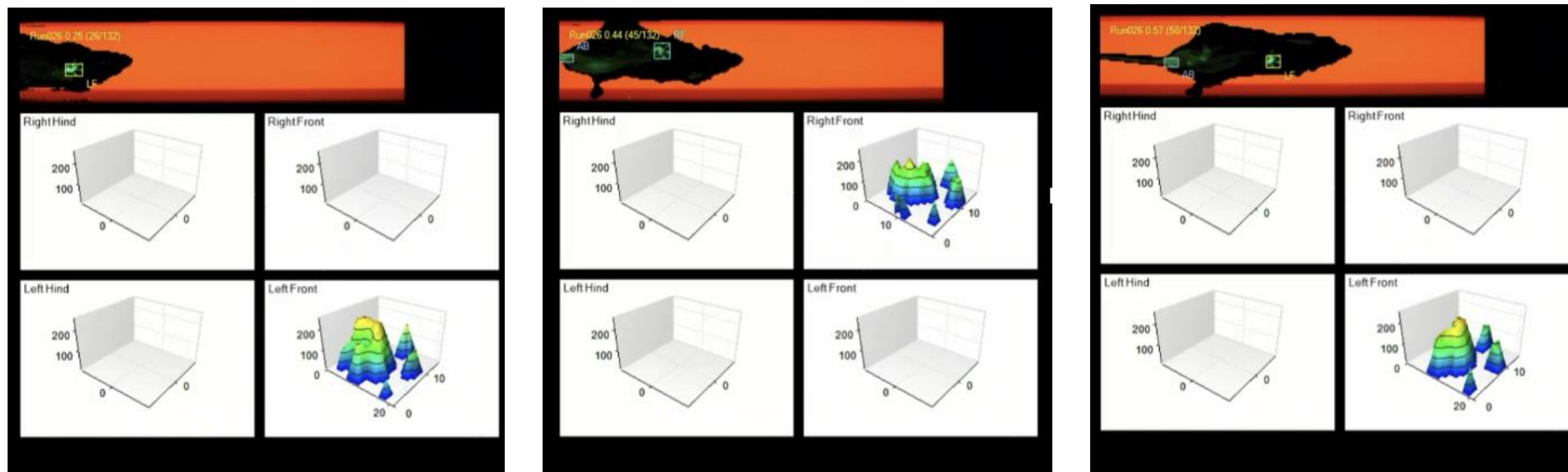
# Robust Recovery in Chronic, Severe SCI Rat Model

CatWalk XT gait analysis shows coordinated limb use and posture.



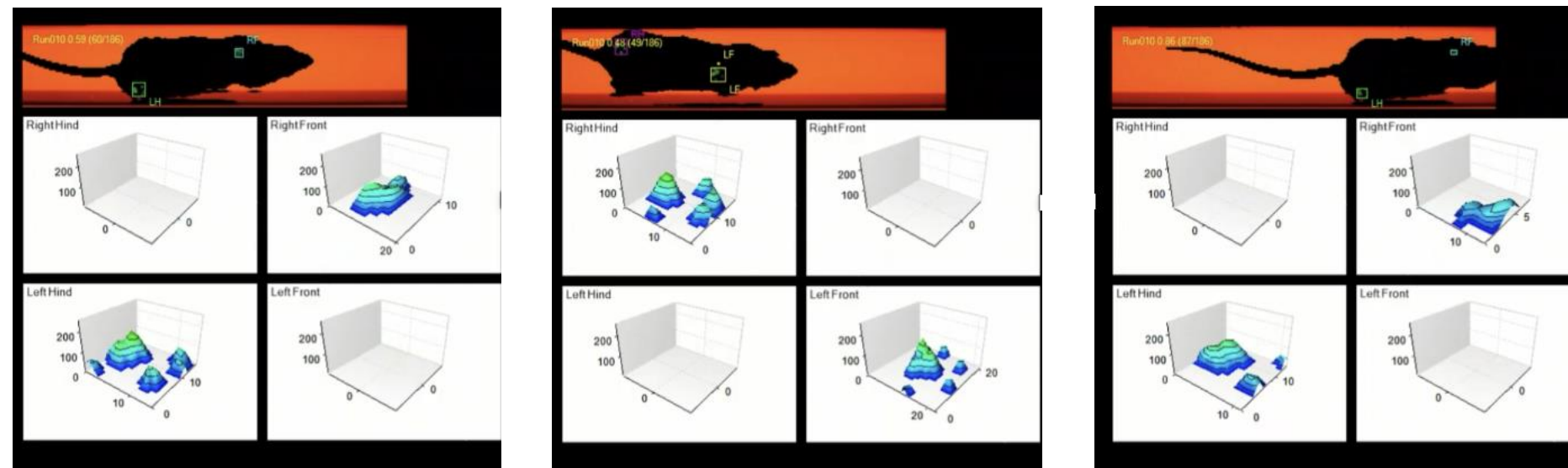
## Pilot efficacy study

### Pre-treatment, Paralysed Rat







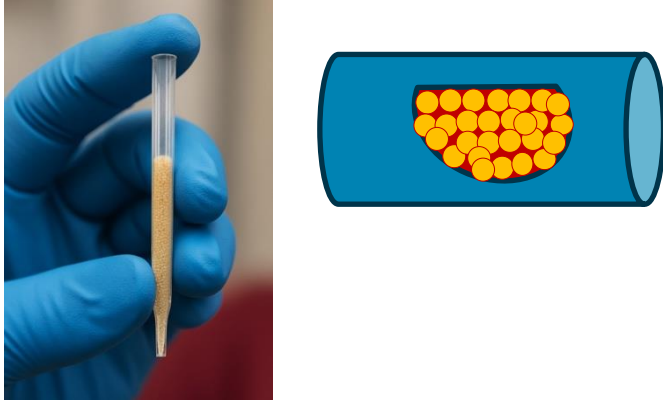

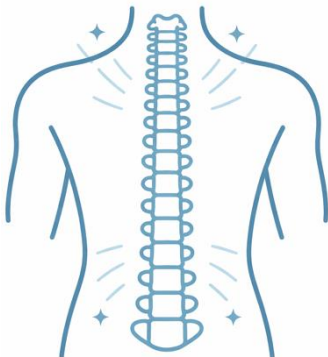
- Hind limbs show limited movement
- No measurable paw contact from rear limbs
- Hind paws drag behind front limbs
- Clear indication of **paralysis and loss of coordinated gait**

### Post-treatment, With Matricelf



- All four limbs regain coordinated movement
- Measurable paw contact from all limbs
- Restored coordinated gait pattern
- Evidence of **functional recovery** approaching **normal mobility**

# Journey to Recovery: Rebuilding the Spinal Cord

Traumatic Spinal Cord Injury	Stabilization of impairment	Autologous Source	GMP Production	Standard Spine Surgery Techniques		Rehabilitation	Neural repair & Regeneration
							
<p>Disrupted nerve pathways, complete injury</p>	<p>3-9 months from injury</p>	<p>Patient's Blood &amp; Omentum sample</p>	<p>6 months production of neural tissue spheres</p>	<p>No novel surgical tools required</p>	<p>Cavity is filled with neural tissue spheres</p>	<p>Standard SCI rehabilitation</p>	<p>Restored neural signaling with potential functional improvement</p>

From Permanent Impairment to Functional Restoration  
In Single-stage implantation

# Why Matricelf?

A first-in-class approach to spinal cord functional restoration with first in human studies expected in 2027



## Category defining approach

We create an **autologous engineered neural tissue** implant. Replacing damaged spinal cord tissue, not only modulating the injury.



## De risked by PoC Chronic SCI model

Strong **functional recovery and a clean safety** profile  
In FDA accepted SCI animal models



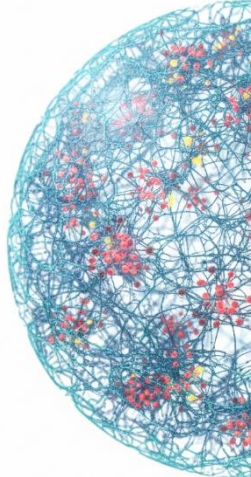
## Near term value catalysts

Advancing to **First in Human implantation** followed by interim readouts.

**Near term First in Human milestone in a \$30B+ high unmet need market**

# Strategic Roadmap 2026-2028

Integrated Execution | Defined Value Inflection Points | Scalable Platform



	2026	2027	2028
<b>Clinical</b>	Trial set up, sites live, enrollment starts	<b>FIH</b> Interim data from initial 2 pts	interim data readout from 3-5 pts Clinical proof of concept milestone
<b>Regulatory</b>	Israeli MoH submission and FIH clearance	FDA IND submission US clinical pathway activation	RMAT designation targeted
<b>Production</b>	GMP tech transfer completed	Manufacturing optimization for clinical scalability	Scaled manufacturing platform
<b>R&amp;D</b>	IND enabling safety and efficacy package	Product optimization and performance refinement	Product automation and process robustness
<b>Business Development</b>	platform monetization (i.e. NeuroVectis/Parkinson)	platform monetization	Strategic partnering inflection point
<b>Financing</b>	PIPE: \$8m – \$10m Nasdaq F1 – Resale (Q4)	~\$30m Nasdaq F1 – IPO (Q1)	

# Go-To-Market:

Anchored in capacity & reimbursement

## Near-term SOM (Annual Capacity):

1 **~3,000** patients

New (~1y) SCI cases, age 18-55 (50%)  
suffering from **complete** impairment (32%)

Based on manufacturing capacity  
and center-of-excelence (COE) rollout

Estimated  
treatment price:



**\$700K – Paraplegia**  
**\$1.8m – Tetraplegia**

Based on ~50% of lifetime direct  
medical costs & QALY gain, excluding  
first-year post-injury expenses.

Potential  
market value

**~\$3.2B** annually



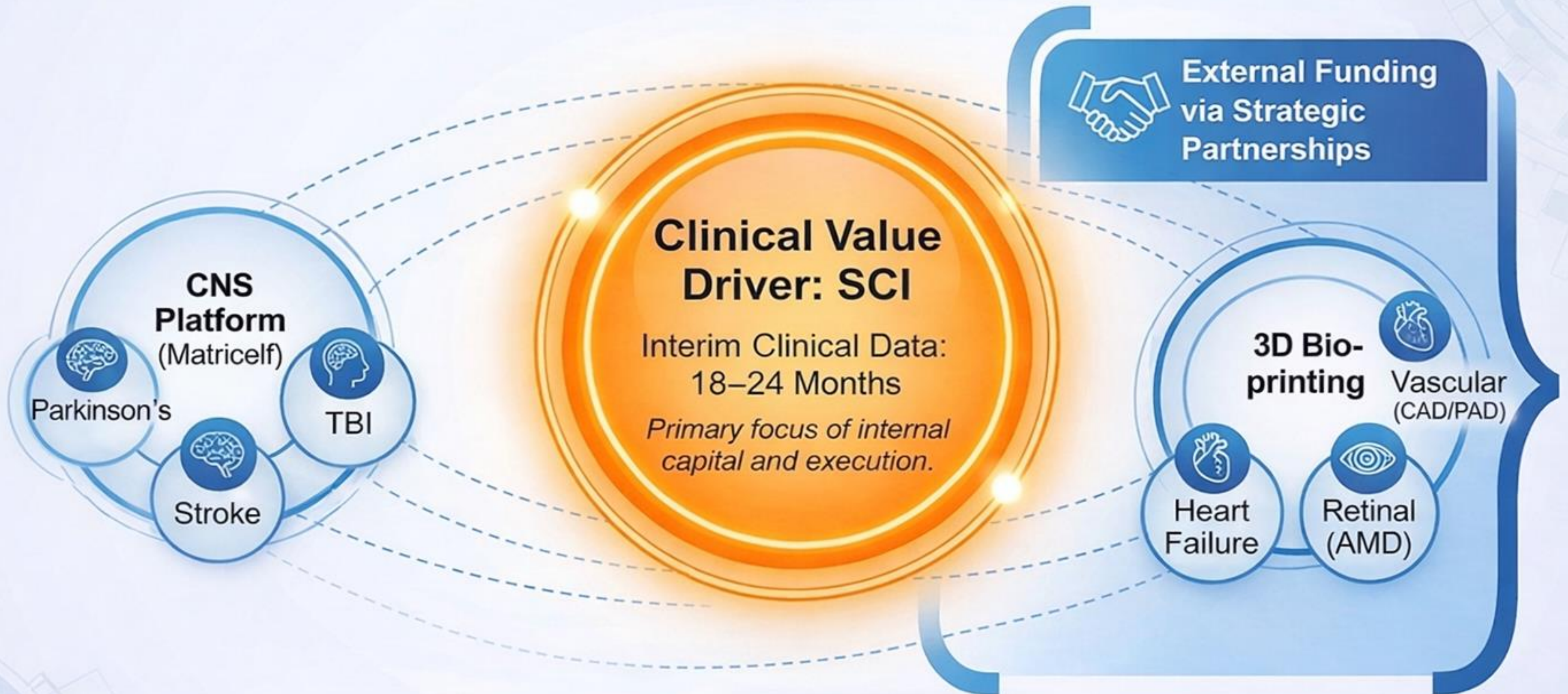
Based on 25 COE, ~115 cases per  
year/COE, ~\$130m per center

## Long-term SAM (cumulative U.S. population)

2 Approximately 25,000 eligible U.S. chronic complete SCI patients (>10 years) support a potential market of about \$15 billion based on projected treatment pricing.

A game-changing opportunity: unlocking a \$15B+ cumulative U.S. SCI market with a multibillion-dollar annual entry point

# Strategic Focus: Capital-Efficient Execution & Platform Optionality



# Accomplished Management Team

a powerhouse of expertise in biotech innovation, regenerative medicine, and business strategy



**Gil Hakim**  
CEO



**Alon Sinai; PhD**  
Deputy CEO;  
President & Co-  
Founder



**Tal Dvir, PhD**  
CSO & Co-  
Founder



**Tamar Harel  
Adar, PhD;**  
VP R&D



**Tal Ben Neriah**  
VP Operations



**Sigal Russo**  
CFO



**Hadas Shoham  
Nissan**  
Director Clinical  
and Regulatory  
affairs



**Anat Shnaiderman**  
QA Manager



World class science, proven biotech execution, de risking delivery and accelerated value creation.

# Board of Directors

Board includes Nasdaq IPO, M&A, and global pharma operating leadership



**Ron Mayron,**  
Director &  
Chairman

Former CEO, Teva Israel, senior Teva leadership, decades in global pharma operations, business development, and scaling



**Tal Dvir, PhD**  
Co-Founder,  
Director and CSO

MIT trained tissue engineering pioneer, leads the scientific platform, founder of TAU Tissue Engineering Lab.

**An award-winning researcher and recipient of the Young and Promising Bio-Medical Researcher Rappaport Prize (2018), the Juludan Foundation Research Award (2018), and the Da Vinci Award (2023).**



**Alon Sinai; PhD**  
Co-Founder,  
Director, Deputy  
CEO & President

25 plus years in MedTech and Biotech operations, former LBT Laser Beam Therapeutics, brings execution and scaling experience



**Stanley Hirsh**  
Director

Biotech and pharma CEO and board member, experience across US and UK public markets, fundraising and M&A



**Lori Confino**  
Independent  
Director

Corporate and capital markets attorney, guides financings, M and A, governance, and IPO readiness



**Neomi Enoch, CPA**  
External Director

Senior financial executive, CFO and public company experience, IPO and capital raise track record, audit and controls.



**Meir Clifi-Amir;**  
Maj, Gen. (Res.)  
External Director

Senior executive and strategic leader, deep governance and international operations experience, supports scaling and stakeholder management

IPO and M&A expertise, global pharma leadership, strong governance

# Clinical Advisory Board

## Pioneers in Neurosurgery and SCI Treatment



### **Prof. Michael G. Fehlings, M.D., PhD**

Prof. Michael G. Fehlings is Professor of Neurosurgery at the University of Toronto, Vice Chair of Research, and neurosurgeon at Toronto Western Hospital. Holder of the Robert Campeau Foundation Dr. C.H. Tator Chair, he leads spinal cord injury research, publishing 1,100 papers and advancing neuroprotection, stem cell repair, and guidelines.



### **Prof. Allan D. Levi, M.D., PhD**

Dr. Allan Levi is Professor and Chair of Neurosurgery at the University of Miami and Chief of Neurosurgery at Jackson Memorial Hospital. Renowned for spinal cord injury, peripheral nerve repair, and spine surgery, he advances regenerative therapies and develops innovative surgical approaches to improve outcomes in acute and chronic SCI.



### **Prof. Nicholas Theodore, M.D.**

Dr. Nicholas Theodore is Chair of Neurosurgery at the University of Arizona College of Medicine, Phoenix. He is recognized for brain and spinal cord injury, minimally invasive spine surgery, and robotics, with more than 400 peer reviewed articles, 75 book chapters, and more than 30 patents.



### **Prof. Ran Harel, M.D.**

Prof. Harel is Director of the Spine Surgery and Spine Radiosurgery Division at Sheba Medical Center. An expert in minimally invasive spine surgery, spinal oncology, and radiosurgery, he trained at Sheba and the Cleveland Clinic. He introduced Novalis based spine radiosurgery in Israel, publishes widely, and lectures at Tel Aviv University.



### **Dr. Moshe Bondi, M.D.**

Dr. Moshe Bondi currently directs Neurological Rehabilitation and outpatient services at Sheba Medical Center. A PM&R specialist, he focuses on spinal cord injury, pain, and secondary complications. Trained at Sheba and Toronto Rehabilitation Institute, he leads bone health and SCI clinics, researches osteoporosis prevention, and lectures at Tel Aviv University.

Provides clinical and surgical oversight to optimize trial design and execution



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**Thank you**

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