PathMaker Neurosystems Inc.
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PATHMAKER NEUROSYSTEMS

Industry: Medtech

- Lead product: First non-invasive neuromodulation device for treatment of stroke patients with muscle spasticity
- Second product: ALS disease-modifying neuromodulation treatment

Management Team

- Nader Yaghoubi, MD, PhD
  President and CEO
- Jerry Jennings, BSEE
  Chief Technology Officer
- Jake Maslow, JD
  Executive VP and Chief IP Officer
- Sheila Hemeon-Heyer, JD
  VP Regulatory and Clinical Affairs

Board of Directors

- Hooman Hakami, BBA
  Chairman, Board of Directors; Formerly President of Medtronic Diabetes
- Terri Bresenham, MS
  Formerly Chief Innovation Officer, GE Healthcare
- John Donoghue, Ph.D.
  Formerly Founding Director, Wyss Center for Neuroengineering

Scientific Advisory Board

- Zaghoul Ahmed, PhD
  Scientific Founder; Chairman, Dept. of Physical Therapy, CUNY/CSI
- Jean-Charles Lamy, PhD
  Research Associate, ICM
- Emilio Bizzi, MD, PhD
  Institute Professor, MIT
- Bechir Jarraya, MD, PhD
  Neurosurgeon, Foch Hospital
- Ole Isaacson, MD, PhD

Intellectual Property

- MyoRegulator platform under patent protection in 38 countries
- 5 registered trademarks
- Freedom-to-operate (FTO) confirmed

Funding to Date

- $5.4M in non-dilutive NIH grant funding awarded to date
- In total, $7.5M in non-dilutive capital and $1.7M seed/A funds raised to date

Key Risks Retired to Date

- Clinical feasibility
- EU pivotal clinical trial
- R&D & IP

Fundraising Objective

- $20M Series B equity financing for commercial launch of first product takes company to profitability
- Additional risks retired: CE Mark clearance, EU commercialization, US pivotal trial completion, FDA approval

Contacts:

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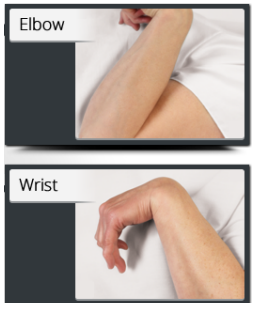
Executive Summary:

- PathMaker Neurosystems is a near-commercial stage neuromodulation company developing breakthrough non-invasive devices for the treatment of patients with serious neurological disorders. We are initially focused on stroke and ALS (amyotrophic lateral sclerosis, Lou Gehrig's disease). We expect CE Mark clearance in 2023 and the start of product sales in 2023.
- Our first product, MyoRegulator®, is the first non-invasive neuromodulation device for treatment of muscle spasticity found in stroke patients. MyoRegulator is a microprocessor-controlled device that uses PathMaker's patent-protected DoubleStim® technology to deliver synchronized stimulation at two sites along the neural axis via two pairs of disposable skin-surface electrodes. Through precisely sequenced and targeted multi-site stimulation directed at the spinal outflow and peripheral nerve leading to the muscle of interest, this proprietary approach modulates neural activity to suppress hyperexcitable spinal neurons involved in spasticity.
- Beyond treating spasticity following stroke, the MyoRegulator platform for hyperexcitability suppression is now being applied to ALS, we have a robust pre-clinical data package that establishes POC to apply our approach to ALS, and have designed a feasibility study for ALS.

Market Opportunity/Unmet Need:

- Over 19 million people live with stroke-related disabilities in the US, EU5 and Japan, and over 1.7 million new stroke cases occur every year in these territories. About 33% of stroke patients develop spasticity, resulting in over 600,000 new post-stroke spasticity patients/year, in addition to over 6 million existing patients with post-stroke spasticity.

Upper limb spasticity post-stroke

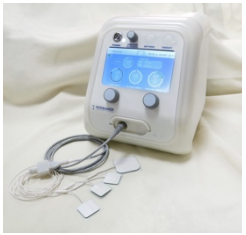


- Spasticity is a state of painful muscle contraction characterized by decreased motor function and stiffness. Affecting upper or lower limbs, it restricts performance and lowers quality of life.
- There are very few treatment options for patients with spasticity. Spasticity is now typically treated with repeated intramuscular injections of botulinum toxin (Botox® or Dysport®) every 3 to 4 months. These drugs are bacterial neurotoxins, and are associated with serious adverse events including difficulty swallowing, respiratory compromise, generalized muscle weakness, hypersensitivity and pain, together with declining efficacy after repeated administrations. Despite these issues, botulinum toxin for spasticity now is a >$1.0 billion annual market.
- The MyRegulator device is a safe, non-invasive, painless and cost-effective therapy. It represents the first non-invasive, portable neuromodulation device for treating spasticity, and there is nothing comparable to MyoRegulator either on the market or under development.
- We expect our non-invasive device to provide a novel treatment alternative for patients who are unable/unwilling to be injected with botulinum neurotoxin, have failed therapy or have stopped responding to neurotoxin injections. For payers and HC systems, it will save significant money.

Products, Pipeline & Competitive Advantage:

- MyoRegulator, PathMaker's first product based on our platform, is the only neuromodulation device to offer stroke patients a breakthrough solution with clear benefits over conventional treatments. MyoRegulator has been shown at three medical conferences and clinicians indicated excitement in anticipation of market clearance. EU pivotal trial recently ended with a positive readout.

Commercial MyoRegulator® system



- MyoRegulator is designated by FDA as a "breakthrough" medical device, FDA has confirmed the De Novo regulatory pathway, and clinical trials with MyoRegulator were confirmed by FDA as Non-Significant Risk (NSR). We expect initial regulatory clearance (CE Mark) on MyoRegulator in 2023, followed by FDA approval in 2024.
- Product revenues begin in 2023, and the company becomes profitable with the Series B raise.
- We have established the molecular mechanism by which our technology works. We published the first direct link between spasticity and overexpression of a specific neuronal co-transporter (NKCC1) found on spinal cord neurons which is responsible for maintaining chloride gradient (Mekhael 2019). We found that DoubleStim treatment suppresses NKCC1 levels and reduces neuronal hyperexcitability and spasticity.
- We expect our neuronal hyperexcitability suppression platform to be applicable to motor neuron diseases such as ALS, and have completed fundamental preclinical studies to lay the groundwork for what could be a **revolutionary approach to currently untreatable diseases**.

Recent Milestones & Achievements:

- $5M NIH award obtained in February 2018 to support MyoRegulator development in US
- In July 2019, PathMaker was awarded France's top prize for Innovation across all tech sectors
- $371K NIH grant award in September 2021 to apply our technology to ALS
- Positive readout on EU pivotal trial of MyoRegulator in post-stroke spasticity in January 2022
- Awarded the CERF Medical Electronics Prize in ALS ($250K) in February 2022