

Wireless Brain Regeneration: Activating Stem Cells with Electricity

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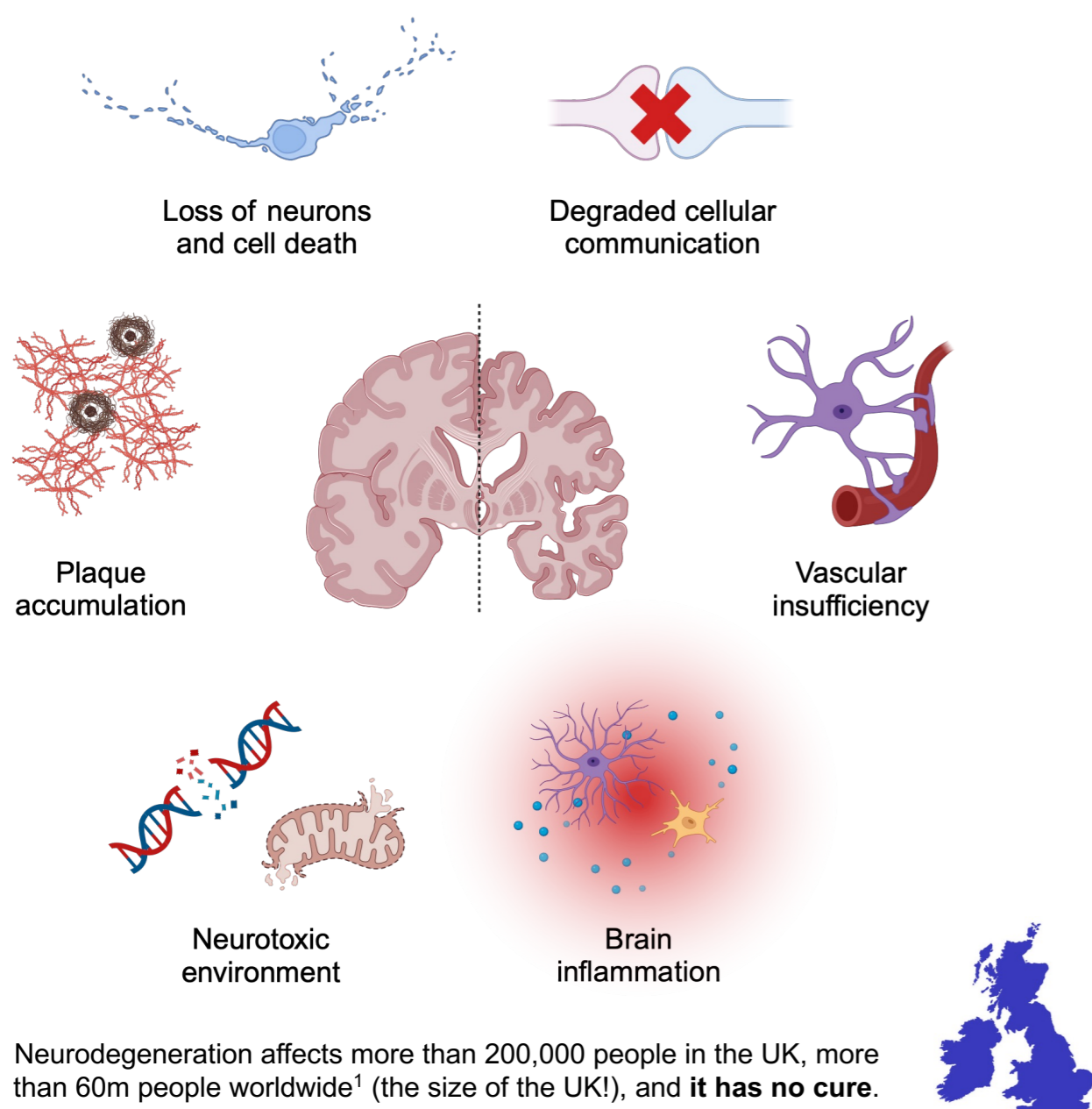
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What do we need?

Solutions for Neurodegenerative Diseases

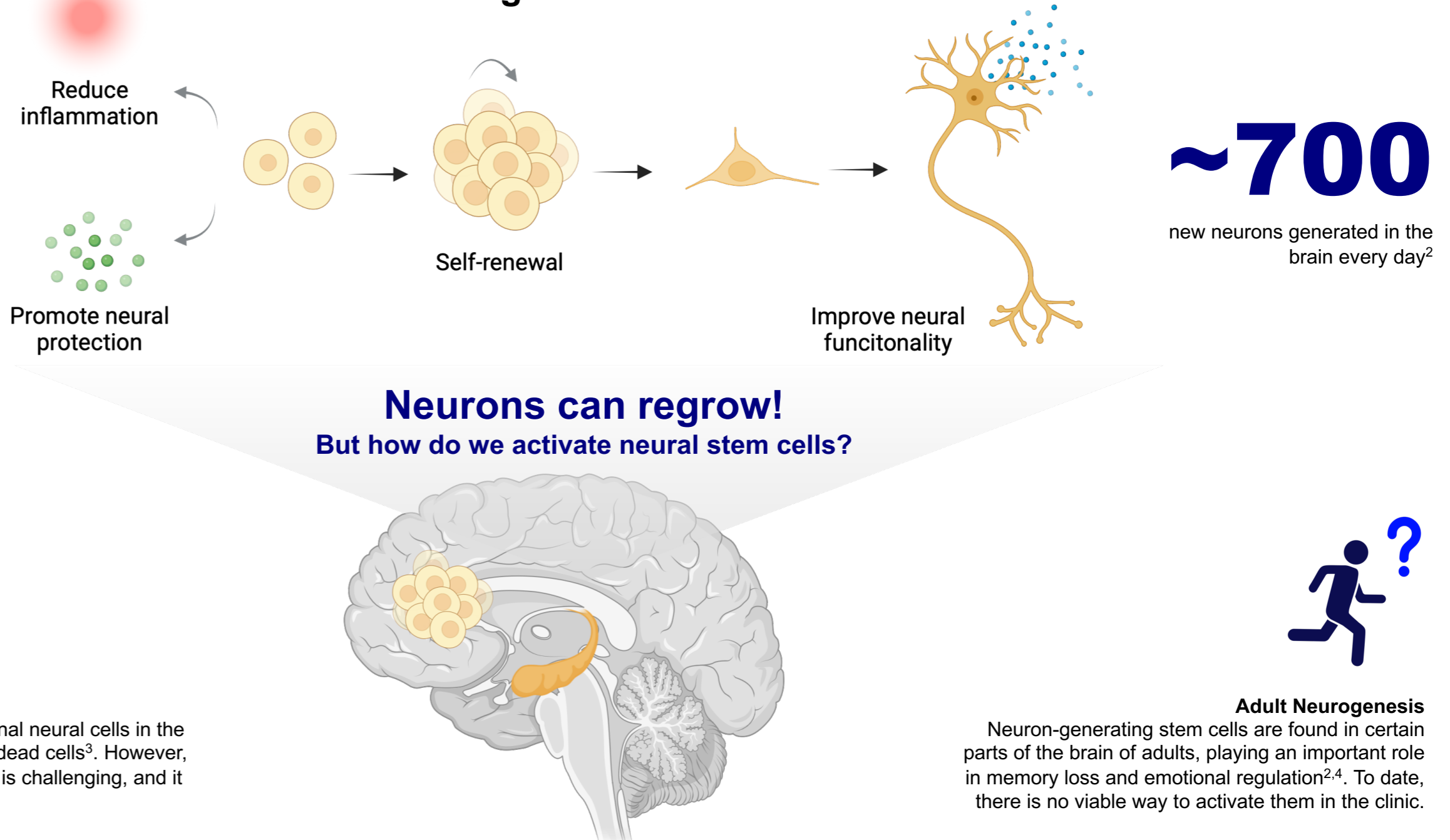


Neural Stem Cells are "generic" cells that can not only create new neurons, but can also act as brain "nurses", protecting other neurons from degeneration by releasing chemical factors in the environment.



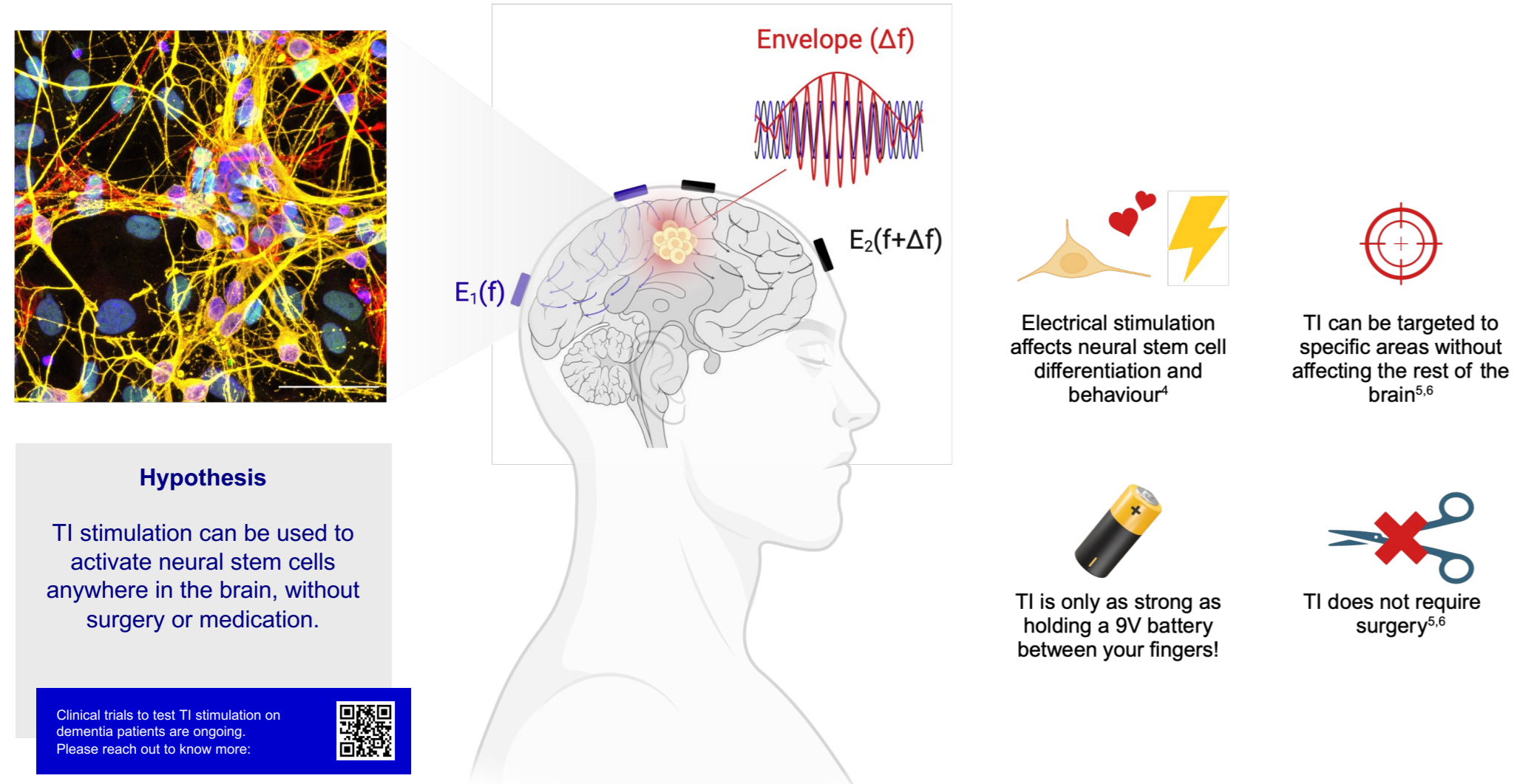
Cell Replacement Therapies are a way to transplant additional neural cells in the degenerating brain to replace dead cells³. However, integration into the host circuit is challenging, and it can take a long time.

Activating Neural Stem Cells

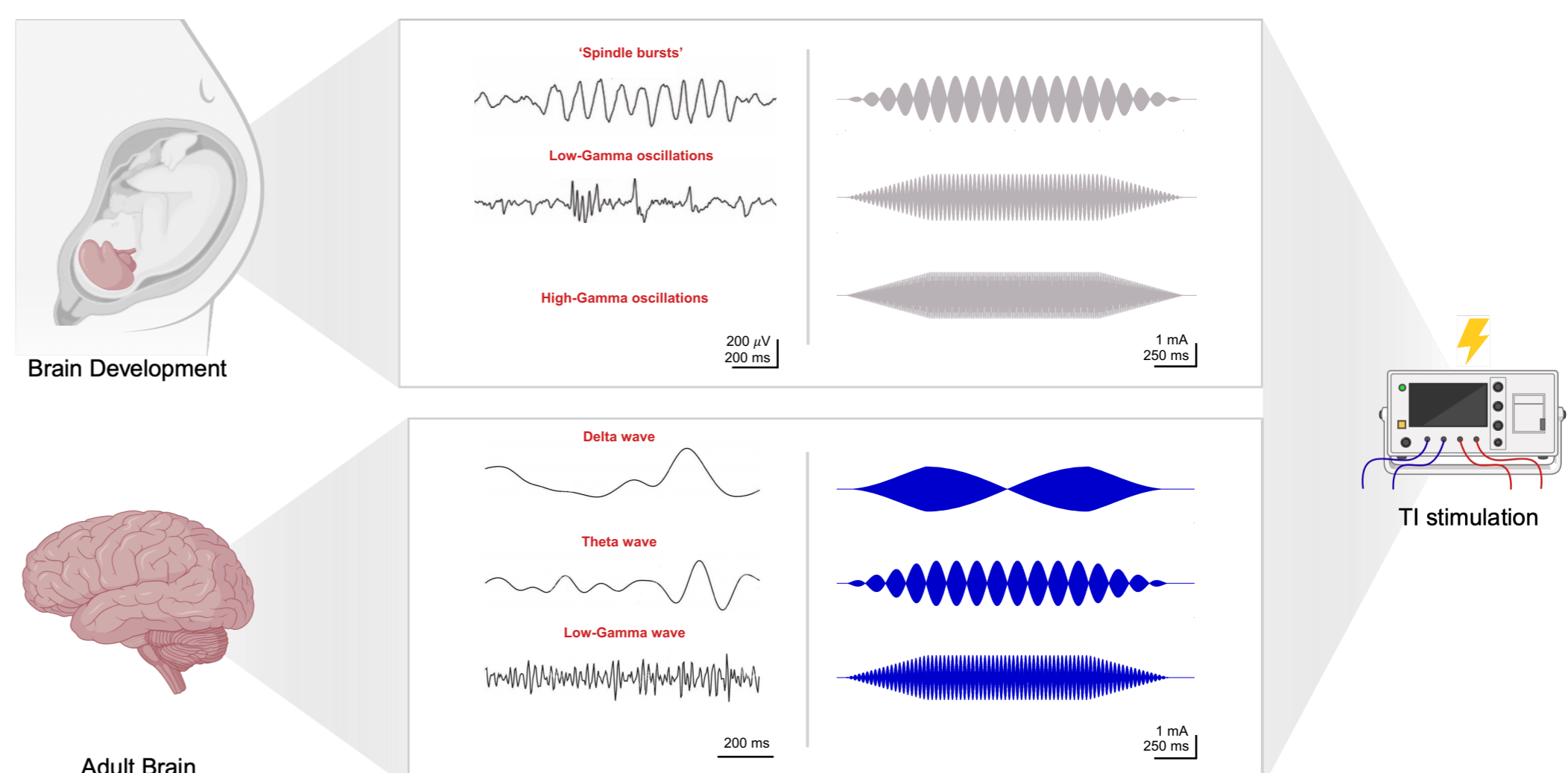


How are we tackling it?

The Trick: Temporal Interference (TI) Stimulation

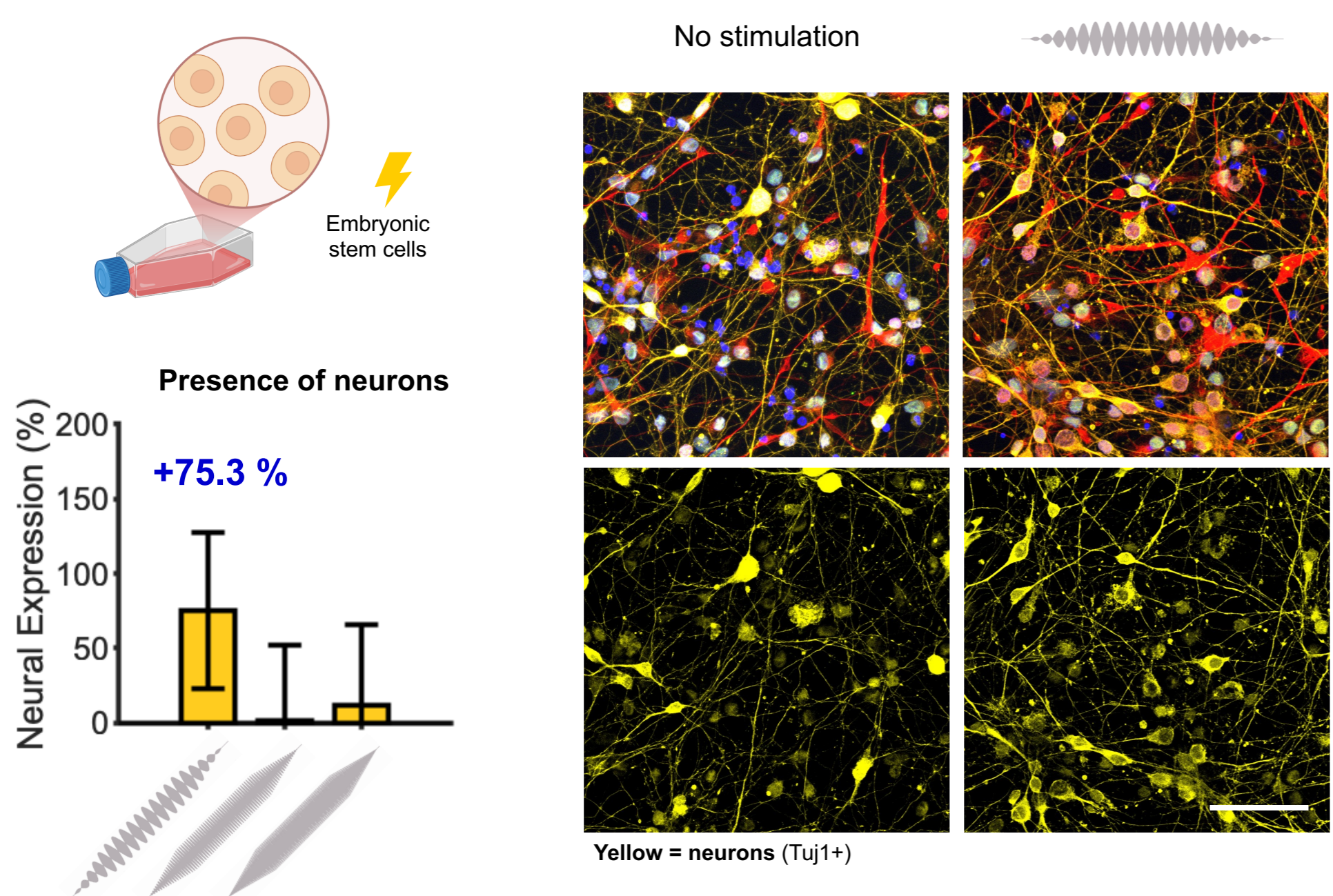


The approach: Taking Inspiration from Nature

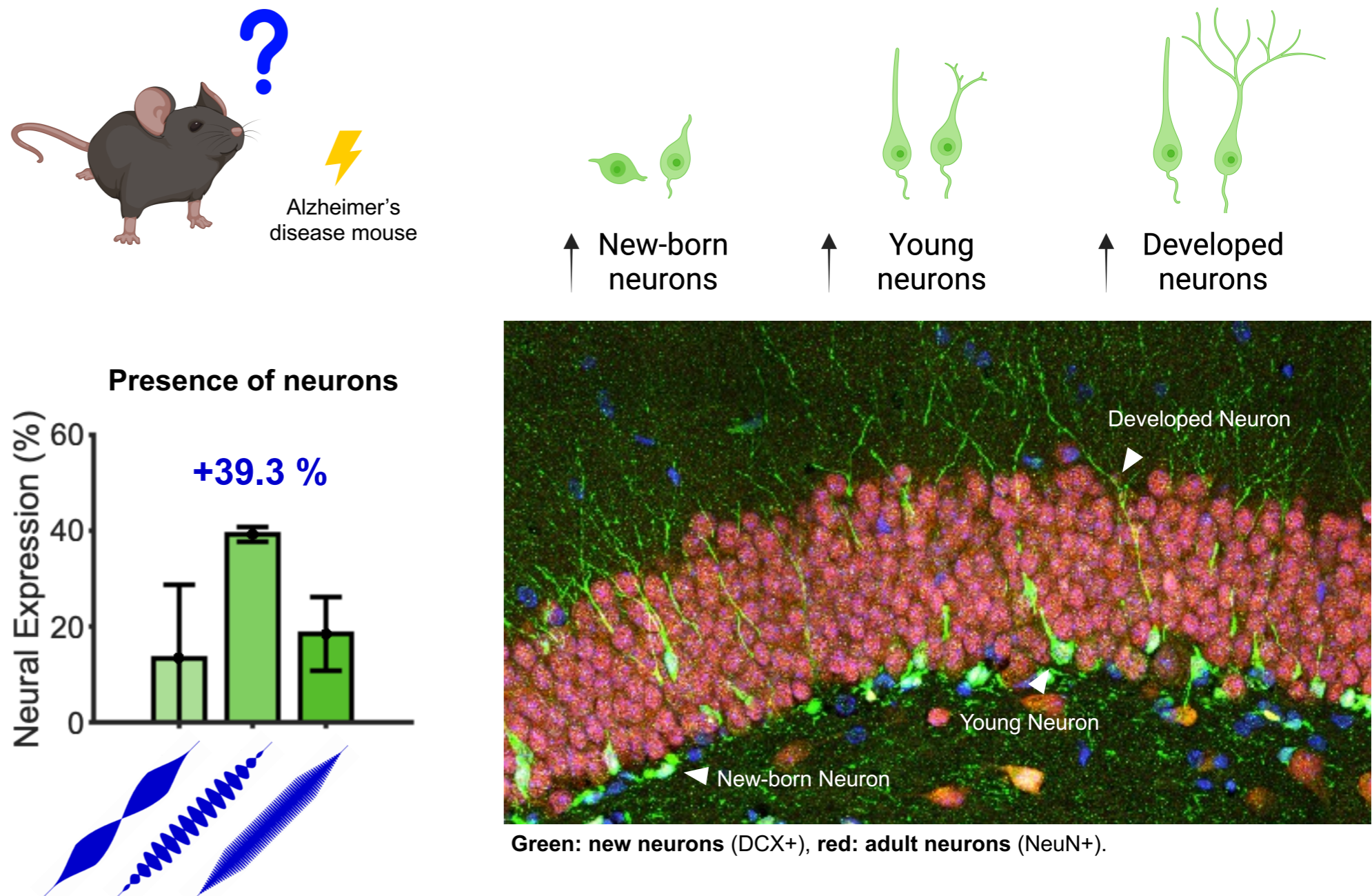


Does it work?

'Spindle Burst' Embryonic Waves Increase Neural Activity



More New Neurons with Theta Wave in Alzheimer's Disease



What does it mean?



An innovative approach to activate neural stem cells with minimal costs and side effects.



A complementary therapy for neurodegenerative diseases to counteract neural loss.



Improvements in the efficacy of stem cell transplants for neurological disorders.

... and more!

References: 1. GBD 2021 Nervous System Disorders Collaborators, *Lancet Neurology* (2024). 2. Spalding et al., *Cell* (2013). 3. Kimbrel et al., *Nat. Reviews* (2020) 4. Zhu et al., *Exp. Neur.* (2019) 5. Grossman et al., *Cell* (2017). 6. Violante et al., *Nat. Neuroscience* (2023). Images created with Biorender.

