Electrical Stimulation Device for Reversing Amblyopia-Induced Blindness

Tech ID: 34889 / UC Case 2026-689-0

BRIEF DESCRIPTION

A novel electrical stimulation method restores vision by selectively modulating neural activity in each eye to reverse amblyopia.

FULL DESCRIPTION

This medical device treats amblyopia by delivering targeted electrical fields via implanted electrodes positioned near the optic nerve and eye. High-frequency stimulation silences the dominant non-amblyopic eye, while low-frequency stimulation activates retinal ganglion cells in the amblyopic eye. This process reverses the cortical silencing responsible for vision loss in amblyopia, enabling restoration of vision even beyond the typical critical developmental period.

SUGGESTED USES

- Clinical treatment of amblyopia in pediatric and adult patients.
- Rehabilitative vision therapy following eye surgery or injury.
- Advanced neuro-ophthalmic devices for blindness reversal.
- Medical technology companies specializing in neurostimulation and vision care.
- Specialist ophthalmology and neurology clinics.

ADVANTAGES

- Targets visual pathways precisely by stimulating each eye with different frequency waveforms.
- Non-toxic and safer alternative to neurotoxin injections like tetrodotoxin.
- Effective in both children within and adults beyond the critical plasticity period.
- Continuous and asymmetric electrical stimulation maximizes neural rebalancing.
- Potential to fully restore binocular 3D vision and overcome current treatment limitations.

PATENT STATUS

Patent Pending

CONTACT

Alvin Viray
aviray@uci.edu
tel: 949-824-3104.



OTHER INFORMATION

CATEGORIZED AS

- **Medical**
  - Devices
  - Disease: Ophthalmology and Optometry
  - Rehabilitation

RELATED CASES

2026-689-0

UCI Beall
Applied Innovation

5270 California Avenue / Irvine,CA
92697-7700 / Tel: 949.824.2683

© 2026, The Regents of the University of California
Terms of use
Privacy Notice