Method to Treat Amblyopia
Technology #18125

Applications
The purpose of this technology is to provide a treatment for amblyopia that promotes full recovery of normal visual ability in both eyes for patients of all ages.

Problem Addressed
Amblyopia is a widespread and severe form of visual disability that originates in childhood and persists into adulthood. Currently, the primary treatment for amblyopia involves patching or blurring the vision in the stronger eye. However, this treatment is ineffective beyond 10 years of age, is hampered by poor compliance, and does not promote recovery of binocular vision. The technology described has proven effective in both juvenile and adult animals, and provides a treatment strategy that circumvents compliance issues. Meanwhile, it maintains the primary advantage of the current treatment in that it is a minimally invasive strategy for treating a brain disorder.

Technology
This invention presents a novel approach to effectively treat amblyopia by harnessing metaplasticity to promote recovery of vision. The method involves silencing activity in both retinas using a local anesthetic, in this case, tetrodotoxin. Tetrodotoxin can be delivered through intraocular injections. Upon the completion of treatment with the anesthetic, normal visual acuity quickly develops. Therefore, the inventors have demonstrated that a single binocular injection of the sodium channel blocker tetrodotoxin, which silences the retinas for approximately 2-3 days, is sufficient to enable recovery from monocular deprivation in animals.

Advantages
- Recovery is possible at an older age compared to treatment using traditional reverse occlusion
- Provides 100% complete recovery
- Recovery of the weak eye does not come at the expense of the stronger eye

Categories For This Invention:
- Life Sciences
- Clinical Applications
- Ophthalmology
- Research Tools
- Animal Models
- Therapeutics
- Other (Therapeutics)
Intellectual Property:
Methods to treat visual impairment
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