Method For Optogenetic Treatment Of Blindness Including Retinitis Pigmentosa

Tech ID: 31702 / UC Case 2009-374-0

BRIEF DESCRIPTION

Retinitis pigmentosa (RP) refers to disorders characterized by degeneration of photoreceptors in the eye which hinders visual ability by nonfunctional neuronal activation and transmission of signals to the cortex. The prevalence of this disease is at least one million individuals.

The optogenetic treatment is based on a very recent phenomenon where chemically identical neurons can be activated by blue light with high temporal precision by introducing a light-activated molecular channel, named channelrhodopsin-2 (ChR2), into specific groups of cells by genetic targeting. There is a need of a systematic method for nonviral delivery of the ChR2 gene into retinal ganglion cells of the adult retina so as to create visually evoked potentials in the visual cortex.

The illustrated embodiments of the invention includes an in vivo method for sensitizing retinal ganglion cells in an eye without use of viral transfection includes the steps of nonviral in vivo delivering of gene coding for channelrhodospsin-2 (ChR2) or any photosensitive genetic material now known or later devised to target the retinal ganglion cells of a retina by intravitreous injection of plasmid DNA; and electroporating the plasmid into the retina. In addition to intravitreous injection of plasmid DNA or photosensitive genetic material, plasmid DNA or photosensitive genetic material may be inserted into the eye by ionotophoresis of the plasmids into the eye.

FULL DESCRIPTION

SUGGESTED USES

ADVANTAGES

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,089,698	07/28/2015	2009-374

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OTHER INFORMATION

CATEGORIZED AS

» **Medical**

» Disease: Ophthalmology and Optometry

RELATED CASES

2009-374-0

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