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## 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 channelrhodopsin-2 (ChR2) or any photosensitive genetic material now known or later devised to target the retinal ganglion cells of a retina by intravitreal injection of plasmid DNA; and electroporating the plasmid into the retina. In addition to intravitreal injection of plasmid DNA or photosensitive genetic material, plasmid DNA or photosensitive genetic material may be inserted into the eye by iontophoresis 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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