Life Science

Looking for a business partner

ARTIFICIAL RETINA "OUReP®"

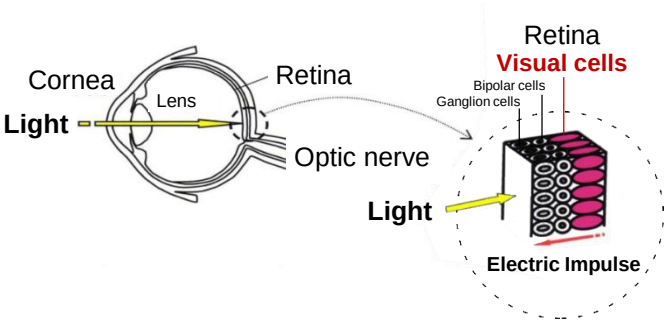
Challenge for the Blindness

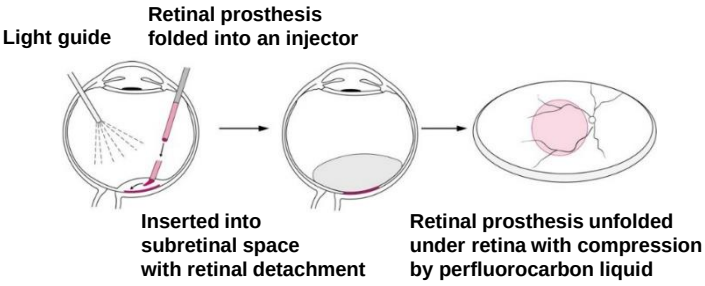
Inventions

- AGENT FOR INDUCING RECEPTOR POTENTIAL
- METHOD FOR PRODUCING ARTIFICIAL RETINA
- QUALITY CONTROL METHOD FOR ARTIFICIAL RETINA
- APOPTOSIS INHIBITOR

US Pub. No.: US7,101,533
WO No.: WO2015/152233
WO2016/063070
WO2016/136907

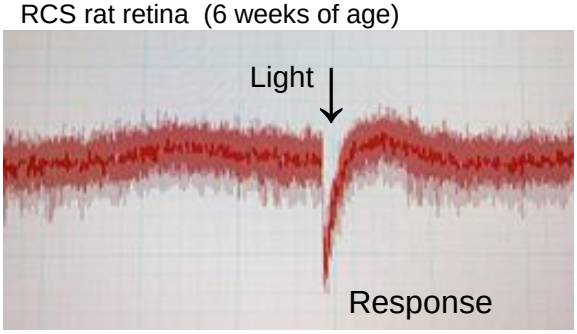
OUReP® does not require a camera or data processing system, or wiring to the retina. A single sheet of **OUReP®** would be implanted into the subretinal space by currently-used standard vitreous surgery, just as to treat retinal detachment. A large size of the thin film, up to 10 mm in diameter, could be implanted in the eye, which would provide a wide visual field. Dye molecules in high density on the polyethylene surface work as both an image (light)-receiver and a neuron-stimulator, leading to high resolution of images.

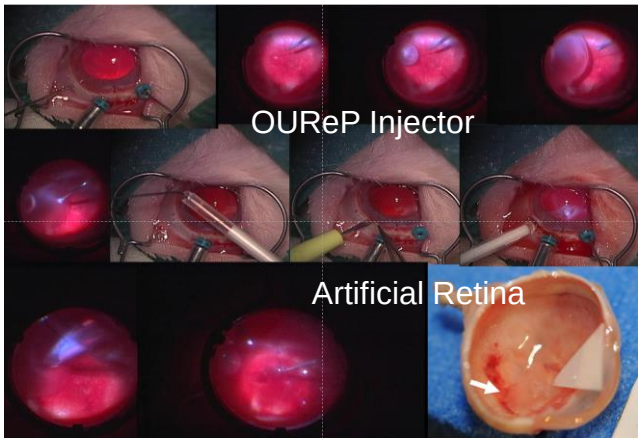




Multielectrode array (MEA) recordings

RCS rat retina (6 weeks of age)





Abstract

Eye doctor Dr. Toshihiko Matsuo and polymer science engineer Dr. Tetsuya Uchida have been developing a new type of retinal prosthesis that is based on a photoelectric dye. The photoelectric dye is an organic molecule that absorbs light and converts light energy into electric potentials. The dye molecules are coupled to the surface of a film made of polyethylene. The polyethylene film (or polymer) is known as a biologically safe and stable material that is used, for example, as a component of artificial joints. The photoelectric dye-coupled polyethylene film, called Okayama University-type retinal prosthesis or **OUReP®**, can be implanted beneath the retina as a substitute for photoreceptor cells.

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