PATENT

ciber CENTRO DE INVESTIGACIÓN BIOMÉDICA EN RED

COMPOUNDS FOR SIGHT RESTORATION

The Need

Treatment for patients with retinal blinding disorders, since those at present are very limited.

The Solution

A group of light-regulated drugs that activate and deactivate receptors, which are exclusively expressed in retinal bipolar cells, and achieve functional restoration of the physiological signaling process that occurs in the retina.

Innovative Aspects

The molecules of the invention target receptors, which are only expressed in retinal bipolar cells, thus offering unparalleled response selectivity and upstream signaling control of the retinal circuit.

In retinal degeneration, these light-regulated drugs support a functional recovery of vision that is rapid, stable and based in small molecules.

The regulation of these compounds is mediated by visible light, rather than UV light.

The compounds of the invention, once activated, they return to the relaxed state in seconds, rather than minutes.

The therapeutic opportunities of photoregulating endogenous proteins with photoswitchable compounds do not require microbial protein overexpression or gene therapy, and are only subject to conventional drug assessment tests *in vitro* and in a variety of animal models.

These compounds exhibit a very potent activity on receptors (nanomolar range).

These compounds also act as agonists and positive allosteric modulators on the receptors in the nanomolar range of concentrations and thus do not require co-application of an agonist.

Stage of Development:

Tested in both, *in vivo* models of retinal degeneration in mice and in blind zebrafish.

Intellectual Property

European patent application (Priority date: May 26, 2023)

PCT application: May 24, 2024

Available for:

- **Licensing**
- **Further development**

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Bioingeniería, Biomateriales y Nanomedicina

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