

Device for Ocular Drug Delivery

Track Code: 2022-LEE-69581

Categories:

- Biomedical Engineering
- Medical/Health

Keywords:

- Biomedical Engineering
- Drug Delivery
- Glaucoma
- Intraocular Injection
- ocular

Ocular drug delivery is very challenging due to the complex and sensitive structure of the eye. Researchers at Purdue University have developed a minimally invasive and effective ocular drug delivery platform. This method enables long term sustained release of therapeutic ocular drugs via a tear-soluble contact lens that leaves behind biodegradable silicon nanoneedles. The tear-soluble contact lens provides an optimal curvature to fit the cornea and it is degraded in less than a minute, enabling initial short-term release of anti-inflammatory drugs and long-term release of therapeutic drugs. This technology directly benefits patients undergoing treatment for chronic diseases or injuries, including glaucoma, cataract, and graft rejection.

Advantages

Minimally invasive

- Long term sustained release
- Initial burst release of anti-inflammatory
- Long-term release of therapeutic drugs
- Demonstrated biosafety and efficacy in lab testing

Applications

- Ocular drug delivery
- Treatments for glaucoma, cataract, and graft rejection

Technology Validation:

This technology has been validated for efficacy and safety through successful in vivo testing in a rabbit corneal neovascularization (CNV) model.

People:

- Lee, Chi Hwan (Project leader)
- Kim, Dong Rip
- Paulus, Yannis Mantas

Intellectual Property:

Application Date: October 10, 2022

Type: PCT-Gov. Funding

Country of Filing: WO

Patent Number: (None)

Issue Date: (None)

Application Date: October 8, 2021

Type: Provisional-Gov. Funding

Country of Filing: United States

Patent Number: (None)

Issue Date: (None)

Contact OTC:

Purdue Office of Technology Commercialization
The Convergence Center
101 Foundry Drive, Suite 2500
West Lafayette, IN 47906

Phone: (765) 588-3475

Fax: (765) 463-3486

Email: otcip@prf.org