A Bi-layered Capsule for Sustainable Delivery of Protein Therapeutics

Published date: Feb. 19, 2019

Technology description

The Need

Retinal diseases can be extremely difficult to monitor once procedures have been initiated. AMD is the fourth most common causes of blindness and requires monthly injections to manage the effects of the disease and prevent permanent blindness. However, receiving recurrent injections can potentially cause additional problems such as infections of the eye and retinal detachment. Current procedures require highly frequent visits for the patient which ultimately increases their medical costs. The expenses and severity of retinal diseases make it challenging for the patient to receive treatment at an affordable rate.

The Technology

The invention is a biodegradable device that prolongs drug release to the eye via intravitreal injection with a 22-gauge needle. There are multiple layers for the device; an inner layer that controls the diffusion of the drug [anti-VEGF (vascular endothelium growth factor)] and an outer layer that slows down the release of the drug during device biodegradation. The drug can be contained and bioactivity is maintained for at least six months after injection, much longer than the monthly control of current procedures.
The Ohio State University laboratory that developed this technology has expertise in the design of polymeric biomaterials for soft tissue repair and drug delivery with focused applications in ophthalmology and wound healing. They specialize in polymer synthesis, mechanical characterization, cell-material interactions, and controlled release. The lab is focused on engineering biomimetic polymers that have properties similar to the native tissue to improve wound healing and outcomes after ophthalmic surgery and is open for collaboration for further products and investigational routes.
A biodegradable drug delivery system for the treatment of disease, especially ophthalmic diseases including age-related macular degeneration (AMD). The device will be injected and can control drug release for at least 6 months following the initial injection.

Application area

Ophthalmic Drug Delivery
Protein Therapeutic Delivery

Advantages

Controls and sustains the drug release during the procedure
Reduces the number of visits and injections for the patient from once per month to once every 6 months
Reduces patient's medical costs
Helps prevent the risk of side effects from frequent injections

Institution

Ventech Solutions

Inventors

Katelyn Reilly
Matthew Ohr
Marco Coutinho da Silva
John Lannutti
Pengfei Jiang

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com