Sustained Release Microparticles for the Treatment of Ocular Diseases

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Technology description

The Need

Age-related macular degeneration (AMD) is the leading cause of blindness in individuals 65 and older and is the third leading cause of blindness worldwide. Wet AMD is characterized by abnormal growth of leaky blood vessels leading to damage to the macula of the retina resulting in vision loss and permanent legal blindness. Once the blood vessels bleed and scar due to their fragile structure, it will bring irreversible damage to the photoreceptors and retina. For current treatment, monthly intravitreal injections of anti-VEGF such as bevacizumab and ranibizumab are given by an ophthalmologist to block VEGF from initiating angiogenesis. However, frequent injections may lead to infection, elevated intraocular pressure and rhegmatogenous retinal detachment. Moreover, the current treatment has resulted in poor patient compliance and increased medical costs due to the side effects associated with the treatment.

The Technology

Researchers at the Ohio State University, led by Dr. Katelyn Swindle-Reilly, have developed a controlled release microparticle system for the treatment of ocular diseases. Comprised of a biodegradable particle with a core component containing a therapeutic agent complexed with a polymer and an outer shell layer of a second polymer, the delivery system is administered by intravitreal injection. Capable of controlled drug release of six to twelve months after injection, this novel biodegradable drug delivery system has the potential to treat several ophthalmic diseases, including glaucoma and wet AMD.

Institution

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