

4th International Conference on Clinical & Experimental Ophthalmology

July 14-16, 2014 DoubleTree by Hilton Baltimore-BWI Airport, USA

A new platform for sustained topical delivery of antiglaucoma drugs

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Glaucoma is a leading cause of blindness in the world. Glaucoma therapy typically begins with topical medications. Unfortunately, antiglaucoma drugs in form of eye drops are topically administered 1-3 times daily. This need for frequent dosing with multiple medications makes compliance difficult. Longer-acting formulations and combinations which require less frequent administration might improve compliance and therefore medication effectiveness. Recently, we developed a novel ocular drug delivery system, namely hybrid dendrimer hydrogel/poly (lactic-co-glycolic acid)(PLGA) nanoparticle platform (HDNP), for delivering antiglaucoma drugs topically. This platform is designed to deliver glaucoma drugs to the eye efficiently and release the drug in a slow fashion. Furthermore, this delivery platform is designed to be compatible with many of the glaucoma drugs that are currently approved for use. In this presentation, we will discuss this new delivery system with an emphasis on its structural features, properties, and pre-clinical results in glaucoma treatment. In addition, new chemistries developed to address effectiveness and safety of the dendrimer-based formulations will be discussed.

Biography

Hu Yang is an Associate Professor in the Department of Biomedical Engineering at Virginia Commonwealth University. He has completed his Ph.D. from University of Akron in 2004 and conducted postdoctoral studies from University of Wisconsin-Madison School of Pharmacy. His research interests include dendrimer-based drug and gene delivery, nanomedicine, and novel polymers for pharmaceutical applications. He has won NSF CAREER Award and Wallace H. Coulter Translational Research Award.

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