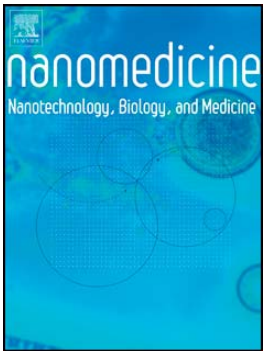

Nano-ophthalmology: Applications and Considerations

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Nano-ophthalmology: Applications and Considerations

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Abstract
The advent of nanotechnology promises to drastically accelerate progress towards nanomedicine. Nanoscale particles in the size range of cellular and molecular structures, which are usually referred to as nanoparticles (NPs), can be designed to improve penetration, sustained delivery, and controlled release of different drugs for ophthalmic therapeutic applications. After explaining different forms of routinely-used NPs such as nanomicelles, nanosuspensions, liposomes, and dendrimers, potential applications of NPs for the treatment of anterior and posterior eye diseases will be discussed by highlighting their ubiquitous properties. Furthermore, genotoxicity, cytotoxicity, and neuronal toxicity, as the major limiting factors in the wider application of NPs in medical sciences have been discussed, and novel diagnostic techniques and nanomedical tools being utilized in ophthalmology have been introduced. The development of an effective, nontoxic nanoscale biomaterials, in combination with identifying the best delivery systems, will shed more light on the future applications of nanotechnology in ophthalmology.

Keywords
Nanoparticle; Nanomedicine; Ocular Disease; Drug Delivery; Toxicity

Conflict of Interest
The author declares no conflict of interest.