

Nanomedicine, the reincarnation of Feynman's vision into a highly evolving medical branch, is revolutionizing medical research and offers solutions in many previously unresolved medical problems. The contribution of this branch in the field of regenerative ophthalmology and imaging is vast and is expected to deliver major breakthroughs. The present review not only summarizes, but offers a comprehensive insight into the use of nanomaterials for both therapeutics and imaging of major ophthalmological degenerative diseases. The result of various studies utilizing a plethora of nanomaterials for diseases that concern retinal regeneration, corneal tissue, ocular surface and diseases like glaucoma and cataract have been summarized accordingly. Also, the miscellaneous use of nanomaterials in imaging, both as contrast agents alone and in conjunction with a functional imaging platform, have been presented. The purpose of this review is to provide accurate and comprehensive insight on the rapidly evolving field of "nano-ophthalmology", so that existing and future obstacles can be surpassed.

Keywords: nanotechnology, nanoparticles, nanomedicine, nanodisks, nanorods, dendrimers, nanoscaffolds, nanoceria, ophthalmology, regenerative medicine, ocular regeneration, cell regeneration, retinal regeneration, nanotherapeutics, imaging, corneal tissue, glaucoma, cataract, imaging platform.