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## Chitosan Based Nanoparticles for Ocular Delivery

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Ocular drug delivery efficiency depends on the barriers and the clearance from the choroidal, conjunctival vessels and lymphatic. Nanoparticles (NPs) have been designed to overcome the barriers, increase the drug penetration at the target site. Mucoadhesive chitosan (CS)-sodium alginate (ALG) nanoparticles were investigated as a new vehicle for the prolonged topical ophthalmic delivery of antibiotics. Chitosan is very suitable for nanoparticle technology due to its better stability, low toxicity, simple and mild preparation methods providing versatile routes of administration. Chitosan-based systems for improve the retention and biodistribution of drugs applied topically onto the eye. Besides its low toxicity and good ocular tolerance, chitosan exhibits favourable biological behaviour, such as bioadhesiveness and permeability-enhancing properties, and also interesting physico-chemical characteristics, which make it a unique material for the design of ocular drug delivery vehicles. Chitosan has been shown to form colloidal particles and entrap macromolecules through a number of mechanisms, including ionic crosslinking, desolvation, or ionic complexation. Moreover being a natural polymer it is considered as a safe material that has good biocompatibility and bioavailability which accounts for its wide use.