

## **PROSPECTS OF CREATION OF NEW OPHTHALMIC MEDICINES WITH NANOPARTICLES**

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A number of important problems facing the pharmaceutical science can be solved with the help of nanotechnology – a rapidly developing interdisciplinary scientific direction. The introduction of nanotechnological innovations in pharmacy is the key to the successful development of the pharmaceutical sector of the State medical industry. Nanotechnology in pharmacy is the creation of drugs with nanoelements, which in their composition can serve as active pharmaceutical ingredients, auxiliary substances, packaging materials.

As is known from ophthalmic practice, the widely used method of instillation of the drug into the eye has many disadvantages. Only 5-25% of active pharmaceutical ingredients reach the goal and have a therapeutic effect. It causes increase of their concentration in the composition, increase the number of instillations, as a result of which the risk of side effects arises. The creation of new safe drugs will increase the effectiveness of therapy for a number of ophthalmic diseases and human eye pathologies.

The use of contact lenses with nanoparticles on their surface and in pores can be an effective alternative the introduction of drugs in the form of drops, suspensions, ointments, etc., since the presence of a matrix in the form of a hydrogel base of the contact lens will facilitate retention of the active pharmaceutical ingredients in the tear film of the eye and prolongation of their action. The longer retention time of active pharmaceutical ingredients in curative soft contact lenses minimizes the penetration of substances into the bloodstream, as well as their flow through the tear-nasal canal.

The introduction of nanotechnology in pharmacy will make it possible to approach the formation of personalized medicine through treatment and prevention on the basis of the individual characteristics of the appropriate patient.

The actual problems of creating drugs with nanoelements are the elaboration of quality values for such substances, as well as the development of methods for monitoring their quality. It will give possibility to intensify research on the creation of medicinal preparations, active pharmaceutical ingredients, auxiliary substances and packaging materials on their base. Modern pharmaceutical science has already presented a number of successful examples of using the achievements of nanotechnology both in the development of drugs with targeted delivery and their analysis. There is a constant trend of growth in innovation activity in the world pharmaceutical market.