

Methodological substantiation of applied problems of nanotechnology in pharmacy

Piminov O.F., Shulga L.I., Yakushenko V.A., Rolik S.M., Gubchenko T.D., Kvitchata A.I.

Department of general pharmacy and safety of drugs

Institute of Pharmacy Professionals Qualification Improvement

National University of Pharmacy

Kharkiv, Ukraine,

farmtex-ipksf@ukrfa.kharkov.ua

Unique features of behavior of substance at the atomic level can be used in macro scales, directed at changing the nanoscale structure of various materials, thereby optimizing their useful properties and carrying out manipulations inside the organism or material. In the 50-ies years of the last century, nanotechnology as a new direction was appeared, but nanoscience still remains in a period of "initial accumulation". In spite of published in the scientific and popular publications avalanche of disparate information of opportunities and successes in the application of nanotechnology their application use, particularly in the development of new drugs, it needs knowledges of the fundamental laws, theoretical foundations, principles of operation, tools and methods of nanoscience, which requires maximum efficiency in the research work and the need for a sufficient theoretical preparation of research. It becomes apparent how relevant is systematic organization of knowledge in the field of nanotechnology, the creation of the scientific base of nanotechnology, the development of the methodological framework for the implementation applied problems using nanotechnology. To solve these problems a team of scientists of our department sets himself the task to generalize and revise the material on the nanotechnology to make a "photographic slice" of the state of nanotechnology in medicine and pharmacy, and present the results of work as a an encyclopedic publication "Nanotechnology in pharmacy and medicine".

The monograph as a scientific and methodical edition containing 23 chapters in 2 books was prepared and published. The publication basic principles, laws, and historical aspects of nanoscience were formulated, are considered materials, tools and techniques of nanotechnology, is given a comprehensive analysis of modern achievements and possibilities of nanotechnology. This is methodical edition because it opened great possibilities of nanotechnology in the development of new effective nanosubstances, allowing with minimal side effects to treat intractable diseases: oncological, systemic, etc. The methodological approaches of creating new managed medicines for targeted therapy and describes methods for monitoring the effectiveness treatment with the help of nanostructures and nanodevices, etc. are presented here.

Thus, the monograph "Nanotechnology in pharmacy and medicine" is an encyclopedic and scientific-methodical edition, which can be considered as a source of knowledge and as a methodological framework in the field of nanotechnology for researchers, teachers and students.