

8. LIPOSOME BIOPHARMACEUTIC AND NANOPARTICLES IN HUMAN BODY



Author: Costea Anastasia

Scientific advisor: Anton Mihail, Associate Professor, Department of Drug Technology, *Nicolae Testemitanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova

Introduction. The use of nanotechnology in medicine, and more specifically in drug delivery, is rapidly spreading. Numerous substances are currently being researched for drug delivery and, in particular, cancer therapy.

Aim of study. This study aims to describe biopharmaceutical peculiarities of liposomes and nanoparticles in the human body.

Methods and materials. A bibliographic study of scientific literature specialized at biopharmaceutical peculiarities of liposomes and nanoparticles in the human body.

Results. Nanoscale drug design has been widely studied and is by far the most advanced technology in nanoparticle applications due to its potential advantages, such as the ability to modify properties like solubility, drug release profiles, diffusivity, bioavailability and immunogenicity. Nanomedicines have improved solubility due to the presence of both hydrophilic and hydrophobic environments. A number of well-known nanodrugs are already available on the market. Since 1995, 50 nanopharmaceuticals have received Food and Drug Administration (FDA) approval and are currently available for clinical use. Pharmaceutical sciences use nanoparticles to reduce the toxicity and side effects of drugs and, until recently, have not realized that the delivery systems themselves may impose risks to the patient.

Conclusion. The benefits of nanoparticles for modern medicine are numerous. Indeed, there are some cases where nanoparticles enable analyses and therapies that simply cannot be performed otherwise. However, nanoparticles also bring with them unique challenges for the environment and society, particularly in terms of toxicity.