# МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ ХАРКІВСЬКА МІСЬКА РАДА ДЕПАРТАМЕНТ ОХОРОНИ ЗДОРОВ'Я ХАРКІВСЬКОЇ МІСЬКОЇ РАДИ НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ

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Збірник містить тези доповідей VII Міжнародної науково-практичної конференції «Ліки — людині», де розглядаються проблеми фармакотерапії захворювань людини, наводяться результати експериментальних та клінічних досліджень, аспекти вивчення й упровадження нових лікарських засобів, доклінічні фармакологічні дослідження біологічно активних речовин природного і синтетичного походження. Наведено також праці, присвячені особливостям викладання медикобіологічних і клінічних дисциплін у закладах вищої освіти.

Видання розраховано на широке коло наукових і практичних працівників медицини і фармації.

Відповідальність за зміст наведених матеріалів несуть автори.

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The collection contains abstracts of the VII International Scientific and Practical Conference «Medicines for humans. Modern issues of pharmacotherapy and drugs prescription», which deals with the problems of pharmacotherapy of human diseases, presents the results of experimental and clinical studies, aspects of study and implementation of new drugs, preclinical pharmacological studies of biologically active substances of natural and synthetic origin. There are also works devoted to the peculiarities of teaching medical-biological and clinical disciplines in higher education institutions.

The publication is designed for a wide range of scientific and practical workers in medicine and pharmacy.

The authors are responsible for the content of these materials.

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### SOME ASPECTS OF TRAINING SPECIALISTS IN THE FIELD OF NANOBIOTECHNOLOGY

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The rapidly changing conditions of our life, as well as increasing cooperation with Europe and the USA, puts forward new requirements for the educational process in Ukrainian universities.

One of the promising areas of the educational process is the field of biotechnology and in particular nanobiotechnology.

Nanobiotechnology, as a branch of nanopharmacy, studies the influence of nano-sized objects on biological objects (biomolecules, microorganisms, tissues, cells) and their use for the development of nanomedicine, which deals with the creation of nanomedicines, diagnostic systems based on nanoparticles and medical nanorobots, nanomaterials and nanoobjects, for example, nanoparticles metals can have a targeted effect on certain biological targets.

To develop new promising nanotechnological materials and study the properties of already created ones, highly qualified personnel in the field of nanotechnology are required. Such specialists are widely in demand in the world community.

Educational programs in the field of nanobiotechnologies are implemented in European countries and the United States in two directions, which are fundamentally different from each other.

European educational programs focus on a narrow profile, but nevertheless, for example, the master's course combines chemistry, physics and astronomy, engineering mechanics and materials science.

American scientists emphasize that nanotechnology is an interdisciplinary and multidisciplinary field. In 2002, the first national doctoral degree program (Ph.D) in nanotechnology was launched at the Center for Nanotechnology at the University of Washington, USA. The close connection of this program with other natural science disciplines made it possible to combine the natural sciences, pharmaceutical and medical fields with nanotechnology.

The analysis shows that training personnel for nanotechnology requires the development of non-traditional educational programs - courses of lectures and textbooks for specialists and for retraining teaching staff, programs for students, and the organization of electives. The development of nanobiotechnologies will largely depend on the creation of groups of highly qualified specialists with knowledge in

such areas as biophysics, chemistry, biology, medicine, etc. Training systems specialists is a serious task that is practically not solved by universities: they still adhere to a fairly strict division into specialties.

The relevance of the problem of interdisciplinary training of specialists in universities is due to the fact that a modern university is called upon to play the role of a catalyst for the development of the economy and social sphere in the training of cultural, responsible, creative professional personnel. Recently, there has been an increasing emergence of cross-industry technologies, including nanotechnologies. Specialists in this field must possess information from different fields of knowledge. To train such specialists, a new system of continuous interdisciplinary education is required from universities, postgraduate studies, doctoral studies with subsequent retraining. The highly specialized education system has outlived its usefulness. Today, work at the intersection of science and technology is relevant, which leads to the need to form a new worldview, new knowledge and skills in the conditions of an innovative economy. This is especially true for biotechnologies and nanobiotechnologies in particular. The need for an interdisciplinary approach to training specialists for the industry of the future, along with an industrial principle, is becoming increasingly clear.

We will only use autologous drug. We have no right to be pests for our patients. Once we have enough patients and funding, we will take the next step towards growing the patient's own tissue. They can be used in various branches of medicine, including reconstructive plastic surgery.

What biotechnologies are available to people today?

There are 2 main areas: replacement therapy and bioinsurance.

Bioinsurance is the preservation of your own biomaterial in a cryobank. The peculiarity is that the tissues are filtered with high quality and the material is placed in a special nutrient medium. There it does not age, so it can be used at any time. For the treatment of acute and chronic diseases, to restore the body's reserves in old age or for family planning in case of infertility.

Treatment, in turn, is similar to hormonal replacement, when we make up for the body's deficiency. The patient's own cells are multiplied under favorable conditions in order to be reintroduced and thus compensate for the deficiency. Replacement therapy is used for autoimmune diseases of the nervous system and intestines, for operations on the heart and bones, for the restoration of cartilage material and for cirrhosis of the liver.

There is even experience in creating a cancer vaccine using a person's own bone marrow lymphocytes trained against a tumor. Not to mention the treatment of impotence, infertility, wrinkles, fatigue and other signs of old age.

Peupet N'Guessan Elie Justin. MODERN METHODS OF CONTRACEPTION AMONG DIFFERENT GROUPS OF THE POPULATION
Popusoi C., Pantea V., Andronache L., Reabiseva M., Gudumac V. CHANGES IN THE GLUTATHIONE SYSTEM UNDER THE ACTION OF COPPER COORDINATING COMPOUNDS WITH THIOSEMICARBAZONES <i>IN VIVO</i> 63
Prozor A. V., Pisarkova L. R., Holembiovska O. I. CURRENT HORMONAL AND NON-HORMONAL AGENTS FOR MALE CONTRACEPTION
Rakhimova M.V., Bondarenko I.S., Yaremenko V.D., Sych I.A., Kobzar N.P., Bevz O.V., Perekhoda L.O. SOME ASPECTS OF TRAINING SPECIALISTS IN THE FIELD OF NANOBIOTECHNOLOGY
Ryzhenko I.M., Derimedved L.V., Bondariev Ye.V. STUDY OF PSYCHOTROPIC PROPERTIES AND ACTOPROTECTIVE ACTIVITY OF A NEW DERIVATIVE OF 1-ARYLTRIAZOLYL-SILENCED 2,4-DIOXO-QUINAZOLINE
Shchokina K.G., Rachida El Mansouri. PHARMACOLOGICAL STUDY OF POLYPHENOLIC COMPLEX OF LINDEN CORDIFOLIA GASTROPROTECTIVE PROPERTIES
Snihur N.O., Mindova K.V., Serba N.A., Ruzhytska B.A., Golembiovska O.I. MECHANISM OF ACTION AND PHARMACOLOGICAL CHARACTERISTICS OF EGF
Strechen S.B., HirajiRime, Alaoui Chrifi Mohammed. PHARMACEUTICAL ANALYSIS AND CLINICAL APPLICATION OF COMBINED MEDICATIONS FOR ARTERIAL HYPERTENSION
Sulashvili Nodar, Beglaryan Margarita, Gorgaslidze Nana, Chichoyan Naira, Gabunia Luiza, Kvizhinadze Natia, Alavidze Nato, Abuladze Nino, Gabunia Ketevani, Giorgobiani Marina, Zarnadze Irine, Zarnadze Shalva (Davit), Pkhakadze Giorgi, Tadevosyan Ada (Adel), Okropiridze Tamar, Sulashvili Marika. THE SCIENTIFIC DISCUSSION OF THE MODERN CHARACTERISTIC OF PHARMACIST SPECIFIC OCCUPATION, ROLE, PROFESSIONAL VIEWPOINTS, CAREER PROSPECTS AND SOME PHARMACEUTICAL ORGANIZATIONAL AND EDUCATIONAL ISSUE CHALLENGES IN VARIOUS DIRECTION IN GEORGIA
Sulashvili Nodar, Beglaryan Margarita, Gorgaslidze Nana, Tadevosyan Ada (Adel), Gabunia Luiza, Abuladze Nino, Gabunia Ketevani, Sulashvili Marika, Okropiridze Tamar. THE SCIENTIFIC DISCUSSION OF MANIFESTATION OF KEY ISSUES ASPECTS OF CHARACTERISTICS OF THE EFFECTS OF BEHAVIORAL AND PSYCHOSOCIAL ARGUMENTS OF OPIOID-DEPENDENT PATIENTS ON METHADONE REPLACEMENT THERAPY IN GENERAL