



containing siRNA since December 2014. Moreover, in 2002 block copolymer vaccine containing peptides helped to treat 48 patients with melanoma in the US.

**Conclusion.** Numerous technologies are engaged in the development of nanocarrier. Oncologists in the near future should

have specific combinations of nanocarriers and target molecules - similar to the strategies of chemotherapy combination that can be personalized to improve treatment against cancer - that will contribute to improve therapeutic results and reduce costs. "

**Onikova A., Otchik A.**

### **EXPERIMENTAL STUDY OF COPPER ION ROLE IN MECHANISMS OF NEPHROPATHY**

**Research Advisor: PhD, Associate Professor Gorbach T.**

**Department of Biochemistry**

**Kharkiv National Medical University**

**Kharkiv, Ukraine**

**Actuality.** Despite the numerous studies that have found a role in lipid metabolism in the development and progression of certain types of kidney disease, the impact of environmental factors on lipids of cellular membranes of the kidneys not known until now.

**The aim** of our investigation was to study the features of lipid serum and membrane subcellular fractions of kidney cells, inflammatory interleukins in blood serum of rats with experimental nephropathy.

**Material and methods.** Experiments conducted on 30 rats - males 2 months of age. The animals daily for 1 month intragastric (through a tube) once injected 1 ml of an aqueous solution of CuCl<sub>2</sub> concentration of 1.35 mg / dm<sup>3</sup>. The control group of animals of the same

scheme received distilled water. After 1 month animals were taken out of the experiment. The kidneys were isolated, washed of blood, prepared 10% homogenates in 0,25M Tris-HCl buffer, pH 7.4. Using differential centrifugation membranes of subcellular fractions were distinguished. Renal cell membrane lipids extracted by Bligh and Dyer and fractionated by thin layer chromatography on plates Silufol.

**Results.** In experimental nephropathy, a decrease in the membranes of all factions (except the plasma membrane) cholesterol and increase of phospholipid content. Thus, in terms of nephropathy induced by hyperementosis of copper the ratio of cholesterol / phospholipids in intracellular membrane structures is



reduced, and the plasma membranes - increases. The features ratio of cholesterol/ phospholipids indicate a change in the structure and properties of membranes, which are expressed in different directions change their rigidity and microviscosity even within a single

cell, resulting to be violations of its functioning.

**Conclusion:** various disorders of lipid metabolism, induced by hypermicroelementosis of copper, play an important role in the mechanisms of nephropathy development.

**Pavlichuk E. A., Panich R. V., Karnaukh E. V.**

### **HOW BRANDS OF DRUGS DEFEND THEIR PRODUCTS AGAINST OF FALSIFICATION?**

**Research advisor: Karnaukh E. V., PhD, Candidate Medical of Sciences  
Department of Pharmacology and medical Prescription  
Kharkiv National Medical University, Kharkiv, Ukraine**

**Actuality.** The number of counterfeit drugs is growing rapidly every year. Therefore, manufacturers are looking for ways to protect their product from possible fraud. Nootropic drugs whose popularity is growing rapidly among young people, are no exception.

**Aim.** To explore how manufacturers are protected from counterfeiting, and can buyers to identify counterfeit medication.

**Materials and methods.** We developed questionnaires, with the help of these questionnaires we interviewed 50 respondents aged 18 to 25 years. The forms included 12 questions.

**Results.** 40% of respondents are taking nootropics, mainly Nootropil, Glycine. 100% of respondents are aware of the threat of fakes, but only 30% know how to distinguish a fake. 54% of respondents encountered

counterfeits. For 72% high price guarantee quality of a drug, while 92% are looking for an alternative to expensive drug (knowing that the analog may be fake). All the basic information about the drug and how it is protected from tampering, the majority of respondents receives from the Internet. The drugs in network marketing buys just 10%, 14% buy drugs with discount. Relative to glycine and nootropil, manufacturers protect them as follows. On the packages indicate the number of patents, and in the instructions indicate the regimen drug.

**Conclusions.** We can conclude that modern society knows about the threat of fakes, and many buyers of drugs one way or another are faced with counterfeit drugs. However, there is a tendency of having very low skills to identify the fake drug. We also found mistrust of