



Dear friends,

The new issue focuses on new biomedical technologies being developed by Siberian researchers. Quite recently, it was considered that such significant abnormalities as chronic renal insufficiency or diabetes exclude the possibility of reactivating the organs stricken by the disease. However, the work of Tomsk scientists on the development of the pharmacological modifiers of stem cells show that there is a real opportunity to restore the structure and function of virtually any organ. It goes without saying that we cannot grow a lost member through activating our own stem cells but it is quite possible to cure cirrhosis or to conduct no-insulin therapy of diabetes.

Another topical problem of modern regenerative medicine is transplantation of organs and tissues, which is hampered by the lack of donor material, tissue incompatibility and lack of suitable prostheses. At the same time, the world demand for the small vessels alone for coronary artery bypass surgery is the minimum of 450 units a year! The new molecular-biological approaches and cell engineering methods have made it possible to approach the development of the artificial prostheses of blood vessels whose properties are virtually identical to those of the natural vessels. Such prostheses made by the electrispinning method by Novosibirsk specialists have been tested for mechanical strength and successfully passed trials on laboratory animals.

One more concern of the government should be the support of phagotherapy, which fights pathogenic microorganisms with the help of special viruses – bacteria eaters (phages). In contrast to regular antibiotics, phage drugs are highly selective, do not build up drug resistance and have no negative side effects. Interestingly, Russia was the leader in this most important biomedical area: the development of the first phage medicines began in Tbilisi as early back as in the

1930s, and now they are produced industrially. If a network of well-equipped centers with phage collections and microbiological testing laboratories is established in Russia as part of the personalized medicine program, the country will have every chance to remain the leader in this field.

Our scientists have achieved major success in the studies of a most serious parasitic disease provoked by flat worms. The practical result of the complex molecular-genetic investigation of opisthorchiasis including the deciphering of the genome of its most frequent in Russia causative agent is the new tools for DNA-diagnostics, which are currently undergoing the final stage of clinical trials. The basic knowledge base developed during the execution of the project can be used to detect new therapeutic targets for opisthorchiasis treatment and creation of safe drugs.

The theme of heroic past has always attracted collectors as well as researchers. The readers of the new issue of our journal can experience the remarkable “participation effect” caused by the exhibits of the unique collection dedicated to the war of 1812, gathered by D. G. Burylin, a Russian manufacturer, art patron and philanthropist. There relics which, are not only documents but arms, sculptured portraits, service medals, and vintage china, to name just a few, were first exhibited in the Imperial Russian Historical Museum at the exhibition devoted to the centenary of the Patriotic War of 1812. Of special interest are “120 dozens of paper kerchiefs with the picture of the European theater in December 1812” and five printed calico kerchiefs depicting historical figures and events of the Napoleonic wars made at the Burylin factory and presented by its owner to the recently organized 1812 Museum of the Year 1812.

We do hope that this thematically diverse issue will find a wide range of interested readers.

Academician N.L. Dobretsov,
Editor-in-chief

A handwritten signature in black ink, appearing to be 'N.L. Dobretsov', written in a cursive style.