

In Russia, a new polymer was created for the delivery of genetic drugs

The press service of the St. Petersburg State University (St. Petersburg State University) reported that university scientists, together with colleagues from the Institute of High Molecular Compounds (a branch of the Kurchatov Institute), created a new polymer material. It is intended for the delivery of genetic drugs to the cells of the body and can be used in the treatment of cancer and genetic diseases.

The basis of the material was two components: hyaluronic acid and polylysine. Polylysine effectively binds nucleic acids, but can be toxic and does not release the load inside the cell. Hyaluronic acid, the natural component of human tissues, solves these problems. It reduces toxicity and helps to release the therapeutic agent at the right time.

The new polymer, called Ha-G-Plys, independently forms nanoparticles. These particles are capable of delivering genetic material or small interfering RNA (Sirna) to cells, which inhibit the development of the disease. The drug based on it can be administered intravenously or intramuscularly.

For synthesis, the method was used-click-chemistry. This approach ensured high accuracy of the assembly of molecules, the minimum amount of impurities and the simplicity of cleaning the final product. In terms of effectiveness, development is not inferior to existing commercial delivery systems.