# Scientists at Polytechnic University have developed a new method of treating Alzheimer’s disease

Employees of the Laboratory of Molecular Neurodegeneration at Peter the Great St. Petersburg Polytechnic University have developed an effective method to combat Alzheimer’s disease. Scientists identified compounds and managed to target them at target molecules, while activating and changing the function of the latter. As a result, contacts between cells in the brain are no longer disrupted and memory improves.

Our drug aims to limit the loss of connections between cells and help the brain retain memory. We believe that Alzheimer’s disease begins with destruction in the contacts between neurons in the brain, and if we can slow down the process of loss of connections, we will consequently delay the onset of the disease symptoms, explained Senior Researcher at the Laboratory of Molecular Neurodegeneration of the Institute of Biomedical Systems and Biotechnology at SPbPU Elena Popugaeva, doctor of biological sciences.

The resulting compounds were tested on animals that had memory problems. When injected into the body, the substances successfully crossed the hemostatic barrier, reached the brain and had a positive effect on the cells, demonstrating

a good result — the animals regained their memory.

The next step will be toxicity and mutation analysis. With the help of special tests, scientists will understand if there are any side effects — breath-holding, blood pressure increase, weight loss, lethality and others. Then the necessary dosage will be determined. After the laboratory experiments, it will be possible to move on to clinical trials. Alzheimer’s disease is a serious medical and economic problem. It mostly affects people over the age of 65, very rarely it is detected in people younger than.

The disease is associated with memory loss, a person begins to forget where he left his keys, cell phone, and then the names and faces of relatives. Currently, an increase in the incidence of the disease is being recorded in the world. According to some forecasts, by 2050, almost 140 million citizens of the planet may be diagnosed with this disease. The rapid positive dynamics is associated primarily with the development of medicine in the world and the increase in life expectancy.

Employees of the Laboratory of Molecular Neurodegeneration have been studying Alzheimer’s disease since its foundation, which celebrated its tenth anniversary in December. In 2012, SPbPU applied for and won a mega-grant from the Russian Ministry of Science and Higher Education, and used the money to create the laboratory. Its founder was Ilya Bezprozvannyi, a graduate of SPbPU Biophysics Department and a world-class scientist in the field of research of molecular mechanisms of neurodegenerative diseases, doctor of biological sciences.

The main scientific goal of the laboratory for these ten years has been to study the pathogenesis of neurodegenerative diseases within the calcium hypothesis, as well as to develop fundamentally new pharmacological drugs based on the experimental results obtained. All studies are conducted on mouse models using the most modern research methods. The result of ten years of work is the publication of more than one hundred scientific articles in highly ranked Russian and foreign journals.

Дата публикации: 2023.01.27

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