A joint study of specialists in the field of medicine, chemistry and physics revealed an unusual mechanism for the survival of cancer cells. Scientists have found that tumor cells are able to make changes to ribonucleic acid (RNA) molecules of their genes.

RNA editing is a natural cellular process in which special enzymes correct genetic information. This allows cells to create additional protein options and flexibly control the work of genes. However, cancer cells use this mechanism to increase their resistance to therapy.

An interdisciplinary team, including specialists from MIPT, the first MGMU of the name of Sechenov and the Institute of Bioorganic Chemistry of the Russian Academy of Sciences, systematized the processes of editing RNA in malignant cells. Researchers came to the conclusion that mass changes in RNA editing violate the work of hundreds of genes, which contributes to the development of tumors.

Scientists consider the promising direction of the development of new generation genetic systems. Instead of the classic CAS9 enzyme, editing DNA, it is proposed to use its modified versions for RNA correction. This approach will correct errors in already synthesized molecules without affecting the genome.

Preliminary data indicate that a directed correction of editing processes can suppress the programs for the formation of tumors.