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Rosatom's scientists developed a new technology for production of a pharmaceutical for diagnosis and treatment of oncological and dynamic diseases

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Scientists from Khlopin Radium Institute JSC (part of the scientific division of Rosatom) have manufactured and put into operation a pilot sorbent synthesis plant for the production of a new type of gallium-68 generators. The work was performed within the framework of the implementation of the Unified Industry Thematic Plan (UITP) of Rosatom.

A radiopharmaceutical based on gallium-68 is used for the most accurate diagnosis of neuroendocrine tumors, myocardial perfusion, and prostate cancer. Generators of the Radium Institute with improved sorbent synthesis technology will meet the best world standards. The uniqueness of the method lies in the use of gel-spherification technology to obtain a sorbent based on titanium dioxide, which will allow the

synthesis of a radiopharmaceutical directly from the contents of a generator, reducing the number of production operations in clinics.

The project is able to completely meet the needs of the domestic and foreign pharmaceutical markets, and increase the effectiveness and availability of the pharmaceutical for consumers.

“In addition to diagnostics, the radiopharmaceutical based on gallium-68 can be used to treat oncological and dynamic diseases of the body. The radionuclide has greater contrast and resolution for visualizing oncology and physiological processes compared to currently used isotopes. The scientific and technology base we have built and the flexibility of the process will allow us to increase the competitiveness of existing generators, as well as create the next generation of generators,” commented Stepan Danilov, Project Manager of Khlopin Radium Institute JSC.

This year, scientists plan to begin life tests of experimental generators.

“According to its characteristics, this type of generator will be the most efficient of those made in the Russian Federation and will become one of the world leaders. Upon completion of R&D, we are planning to implement a project to create a manufacture of germanium-68/gallium-68 generators, which will become part of a cyclotron complex being built at the Radium Institute site. The manufacture of generators within the framework of this project will combine the entire process chain: from irradiation of targets for the production of germanium-68 isotope to production of the final product,” noted Konstantin Vergazov, Director General of Khlopin Radium Institute JSC.