RUSNANO

**PRESS-RELEASE**

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# RUSNANO and PET-Technology Open Nuclear Medicine Center in Kursk

A nuclear medicine center to give local residents access to high-precision cancer diagnostic facilities has been opened in Kursk. This is another stage of the socially important project to set up the first chain of nuclear medicine centers in the Central Federal District with private capital participation. The chain is being established and developed by PET-Technology LLC, RUSNANO's portfolio company, and covers Kursk, Lipetsk, Tambov and Orel regions. The budget of the project within the CFD exceeds 1.26 billion rubles, with 130 million rubles invested in the construction and equipment of the center in Kursk.

Cancer is presently one of the leading causes of death in Russia. Early high-precision diagnostics is required for effective treatment of the disease, which the new nuclear medicine centers will provide. Patients are examined using positron emission computed tomography (PET/CT), an up-to-date method which allows diagnosing the disease early on, define a proper treatment strategy and evaluate its efficiency.

The diagnostic center is supplemented with equipment which is already in use at the Kursk oncology early treatment clinic where local residents can undergo treatment. Thus, a full-cycle cancer care system has been created in the region, including both up-to-date treatment and innovative diagnostics.

The equipment installed in Kursk allows conducting up to 5 thousand PET/CT examinations annually. Each examination takes about two hours and has no adverse effects on the patient's health. PET-Technology's PET/CT examination is free for residents of the region, as it is covered by the mandatory medical insurance system. The service can also be provided on a paid basis, and it costs 3 to 4 times less than abroad.

PET-Technology's CFD chain is the only one in Russia to deliver required PET/CT radiopharmaceuticals to neighboring regions. The company owns a plant producing pharmaceuticals located in the Lipetsk region. Special-purpose vehicles with all required licenses and permits are used to transport radiopharmaceuticals to Kursk. The vehicles are protected in full compliance with international regulations specifying the requirements for such freight transportation. The PET-Technology transportation system is to ensure a guaranteed timely delivery of the radiopharmaceuticals.

The entire chain of the CFD nuclear medicine sites is part of a larger federal PET-Technology chain. Its first center was successfully launched in Ufa in spring 2014. By now, 3874 people have been successfully examined in the centers of the chain, including 3774 in Ufa, 55 in Tambov, 30 in Kursk, and 15 in Orel. In 2015-2017, the chain is also expected to cover Novosibirsk, Samara, Yekaterinburg, Kaluga, Orenburg, Perm, Izhevsk and Vladivostok. The PET/CT diagnostic system will eventually become available in numerous other regions, enjoying support from local authorities and with some medical insurance funds being allocated for the purpose.

Positron emission computed tomography (PET/CT) is a radionuclide tomography method for imaging human internal organs. The method is based on detecting pairs of gamma rays appearing in the process of positron annihilation with electrons. Positrons are released in the course of beta decay of the radionuclide present in the radiopharmaceutical introduced intravenously prior to examination and accumulate selectively in tumor tissues.

The method is based on using a special detector (PET scanner) to trace distribution of biologically active compounds marked with positron emitting radioisotopes in the organism. The positron emitting isotopes currently used in PET are mainly those of second period elements, most commonly fluorine-18, which has the optimal PET characteristics: the longest half life and the smallest radiation energy which is safe for the patient and medical staff.

Fluorodeoxyglucose (FDG), a glucose analog, is most commonly used for positron emission tomography. Its molecule contains radioactive (positron emitting) fluorine-18 nuclide (18-FDG). FDG is injected to the patient and subsequently spreads over the entire organism. Tumor cells

consume glucose much more intensively than others, and this allows detecting areas where the radiopharmaceutical (FDG) is accumulated, i.e. tumor cell clusters, using PET scanner.

To obtain fluorine-18, cyclic accelerators such as medical cyclotrons or, less commonly, linear accelerators are used. The target is typically pure or oxygen-18 saturated water which is subjected to proton bombardment. Oxygen-18 is in turn obtained by low-temperature rectification.

***About RUSNANO***

***RUSNANO*** *was founded as an open joint stock company in March 2011, through reorganization of state corporation Russian Corporation of Nanotechnologies. RUSNANO is instrumental in realizing government policies for nanoindustry growth, investing in financially effective high-technology projects that guarantee the development of new manufacturing within the Russian Federation. The company invests in nanotechnology companies directly and through investment funds. Its primary investment focus is in electronics, optoelectronics and telecommunications, healthcare and biotechnology, metallurgy and metalwork, energy, mechanical engineering and instrument making, construction and industrial materials, and chemicals and petrochemicals. The Government of the Russian Federation owns 100 percent of the shares in RUSNANO.*

*Work to establish nanotechnology infrastructure and carry out educational programs is fulfilled by RUSNANO's* ***Fund for Infrastructure and Educational Programs****, which was also established during the reorganization of the Russian Corporation of Nanotechnologies.*

***Management of the investment assets of RUSNANO*** *are carried out by a limited liability company established in December 2013, RUSNANO Asset Management.* ***Anatoly Chubais*** *is chairman of its Executive Board.*

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