



IRE and SCK CEN Partnership on lutetium-177 production: a ray of hope for prostate cancer treatment

IRE (Institut National des Radioéléments) and SCK CEN are joining forces to benefit medicine. Both organisations specialised in the research, development and production of medical radioisotopes, signed a public-public partnership whose initial aim is to produce lutetium-177 (Lu-177). This medical radioisotope gives a ray of hope to treat prostate cancer, which causes around 90,000 deaths per year in Europe.

Every year, more than 8,500 new prostate cancers are detected in Belgium. Prostate cancer is the second most common cancer among men, causing around 90,000 deaths per year in Europe. One of the most promising approaches to treating it involves the use of a therapeutic radioisotope, Lu-177. Nowadays, this radioisotope is used in hospitals to treat neuroendocrine cancers which commonly affect the digestive system, mainly the stomach, pancreas and bowels. The need for Lu-177 to treat prostate cancer through clinical trials is growing. IRE and SCK CEN are expecting the global demand to triple in the coming years. In order to anticipate the growth of global demand, IRE and SCK CEN have been working closely for over a year to produce this radioisotope.

Both organisations made their cooperation official by signing a public-public partnership. The production of lutetium-177 (Lu-177) is the first project implemented in this partnership. Other radioisotopes are likely to follow suit in the coming years. "We want to enable the development of new radioisotopes and to make it easier for specialists and patients to access them", affirms Erich Kollegger (IRE). "Our excellent relationship and our will to work jointly with IRE will reinforce Belgium's crucial role in the production and distribution of radioisotopes for nuclear medicine", pointed out Eric van Walle (SCK CEN).

Second public-public partnership

The two partners join forces for the second time. In December 2018, IRE and SCK CEN concluded their first public-public partnership as part of the RECUMO project (*Recovery of valuable Uranium residues of ⁹⁹Mo-based radio-pharma in Belgium*). The latter brings a structural industrial solution to the management of irradiated residues resulting from the production of medical radioisotopes and stored on the IRE's site in Fleurus. Thanks to this second partnership, IRE and SCK CEN push the boundaries of their cooperation. "It is perfectly in line with our ambition which seek to develop theranostic applications (therapeutic and diagnostic applications) and to offer a personalised medicine approach. A public-public partnership makes sense if we want to make the most of the complementary of both our organisations in this project", concluded Erich Kollegger (IRE).

Lutetium-177: moving towards personalised medicine

Thanks to its purity, this new generation medical radioisotope has the advantage of being radioactive in the body for a shorter period of time, hence a shorter hospitalisation for the patient. The radioisotope Lu-177 can be coupled more efficiently to a vector which, once administered to the patient, is programmed to target cancer cells specifically. Thanks to this targeted action, it can effectively destroy cancer cells without affecting healthy tissue. Lutetium-177 is the "companion drug" isotope of gallium-68 (Ga-68). The latter makes it possible to visualize the extent of the prostate tumours and to determine the dose of lutetium-177 to be administered to the patient when treating cancerous cells.

IRE and IRE ELiT

IRE, the *Institut National des Radioéléments*, is a public utility foundation whose main activity is the production of radioisotopes for diagnostic and therapeutic applications in the area of nuclear medicine. It is a global leader in the production of Molybdenum-99, the “parent” isotope of metastable Technetium-99 and the most widely used in nuclear medicine for numerous examinations (heart, bones, lungs, thyroid, brain, kidneys, etc.).

Besides its production activities, IRE contributes to protecting and monitoring the environment thanks to its many services: measurement of radioactivity in various samples, radiological characterisation of contaminated waste and elements, technical consultancy and support in the radiological and nuclear fields.

IRE ELiT is the innovation subsidiary of IRE which was created in 2010 in order to develop radiopharmaceuticals used in imaging and treatment of some cancers as well as for palliative care. In 2017, IRE ELiT allocated 18% of its turnover to R&D. This percentage is steadily growing ever since the company was created. IRE and IRE ELiT employ 230 people at the moment.

More info: www.ire.eu

65 years of experience in nuclear science and technology

SCK CEN is one of Belgium’s largest research centres. It has more than 800 employees who devote themselves every day to developing peaceful applications of nuclear energy. The research activities of SCK CEN relate to three main themes: the safety of nuclear facilities, sustainable management of radioactive waste and protecting the population and the environment against ionising radiation. SCK CEN is recognised worldwide and shares its knowledge through numerous publications and training courses in order to keep up this exceptional pool of talent.

More info: www.sckcen.be

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