

SCK•CEN expands production of medical radioisotopes

To meet increased global demand for medical radioisotopes and the need for less invasive cancer therapies, SCK•CEN expands its activities in nuclear medicine with the production of two new medical radioisotopes for the treatment of prostate cancer among other things: lutetium-177 “non carrier added” and actinium-225. For this, the research centre joins forces with IRE ELiT and Global Morpho Pharma.

Nuclear reactors are usually associated with the idea of nuclear energy. Incorrectly. On the SCK•CEN site there is a reactor that saves thousands of lives each year: the BR2 research reactor. The core of the research reactor produces more than a quarter of worldwide demand for molybdenum-99 (Mo-99), and when demand is strong even up to 65%. “Over the past few years, we have put a lot of effort into adapting the irradiation installations to make production possible of other medical radioisotopes. From 2019 on, we will be adding two new radioisotopes to the list: lutetium-177 non carrier added (nca Lu-177) and actinium-225 (Ac-225).

“ Our cooperation with IRE ELiT and Global Morpho Pharma reinforces our pole position in nuclear medicine. ”

The radioisotope nca Lu-177 is an important ally in the fight against prostate cancer. “Prostate cancer is, bar one, the most common type of cancer in men and causes close to 90,000 deaths each year in Europe alone”, says Richard Zimmerman, CEO at Global Morpho Pharma. “Due to its purity, the isotope introduces less radioactivity in the body when administered. This results in shorter hospital stays. Moreover, this new generation medical radioisotope can be coupled to a number of carrier molecules, which bind to targeted cancer cells and disrupt the DNA directly. This leaves healthy tissue virtually unaffected. Fewer side effects, another step towards developing personalised treatments.”

In its pursuit of less invasive cancer therapies, SCK•CEN will also produce a second innovative radioisotope: actinium-225 (Ac-225). “Actinium-225 – also coupled to a carrier molecule – will release alpha particles that destroy cancer cells. The radioisotope makes it possible to tailor the treatment to the tumour, its size and location”, explains Richard.



Strengthened cooperation with IRE ELiT

Just like for the production of molybdenum-99 (Mo-99), SCK•CEN relies on the National Institute for Radioelements (IRE) in Fleurus. "For the production of nca Lu-177, we partnered with IRE ELiT, an IRE subsidiary. This subsidiary specialises in the production of radiopharmaceuticals used in the treatment of different types of cancer and in palliative care. This cooperation with IRE ELiT enables us to aim for outstanding quality. Quality that follows the rules of Good Manufacturing Practices (GMP) and meets the expectations of GMP", explains Koen Hasaers, Head Commercial and Marketing about the cooperation. SCK•CEN takes care of the total production of Ac-225.



Koen Hasaers, Head Commercial and Marketing

RACE AGAINST TIME

Lutetium and actinium decay rapidly. As a result, the radioactive substances must be administered to the patient within six days. This short period includes: 16h cooling down after production in Mol, transport to Fleurus (Belgium) or Petten (Netherlands) for the chemical treatment of the irradiated targets, encapsulation in the diagnostic tool and worldwide distribution to hospitals. "There, doctors and patient are already waiting. Seamless logistics is therefore crucial. Thanks to cooperation with Global Morpho Pharma, we reinforce the worldwide network and strengthen our position as reliable suppliers", explains Koen Hasaers, Head Commercial and Marketing.

Worldwide distribution

For the distribution of this new generation of medical radioisotopes, SCK•CEN and IRE ELiT join forces with Global Morpho Pharma. "A golden team", says Koen Hasaers. SCK•CEN has extensive knowhow and unique infrastructures in the nuclear field. IRE ELiT put their weight on the scales by making available their outstanding expertise in the radiopharmaceutical sector. Global Morpho Pharma have the necessary expertise and network to reach the market. Indeed, the business manages a production and distribution network for therapeutic radioisotopes and will take care of distribution in Europe and North America. "With this double partnership, we strengthen the position occupied by SCK•CEN worldwide as major player in the production of medical radioisotopes. Not only that, we reinforce our pole position in nuclear medicine, concludes Koen.

Cooperation

Join forces to make a difference

SCK•CEN embraces the challenges of targeted radionuclide therapy. To succeed, SCK•CEN works in close cooperation, internally and externally. Internal cooperation through the pooling and broadening of expertise in the production of innovative radioisotopes, radiobiology and dosimetry and radio-pharmacy. External cooperation by joining forces with clinical and pharmaceutical partners. In this respect, our research forms the backbone for continuous improvement and innovation in healthcare.

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