March 7, 2023
11:00

Prof. Frederik Cleeren
University of Leuven, Leuven, Belgium

BACKGROUND

Frederik Cleeren is an assistant professor at the laboratory of radiopharmaceutical research, KU Leuven, headed by Prof. Bormans. He obtained his Master in Pharmaceutical Sciences at KU Leuven in 2012 and a PhD in Pharmaceutical Sciences in 2016 “18F-labeling of biomolecules”. Prof. Cleeren research focusses on in vivo PET imaging and targeted radionuclide therapy of cancer and he is specialized in theranostic applications. Continuous structural scientific exchange is in place with prof Deroose, prof Goffin and Prof Van Laere (Nuclear Medicine, UZ Leuven) so that preclinical developments can quickly be picked up and translated to clinical applications.

On a daily basis, Frederik supervises a team working on diagnostic PET/SPECT imaging (e.g. 18F, 89Zr, 125I, 155Tb, 152Tb and 111In) and targeted radionuclide therapy (e.g. 161Tb, 177Lu, 212Pb, 225Ac and 213Bi) using peptides and proteins as vector molecules. In this way, he is expanding the field of expertise of the laboratory of radiopharmaceutical research, from solely diagnostic to therapeutic applications.

3p-C-NETA, a versatile chelator for theranostic applications in Nuclear Medicine

Abstract

Using dedicated radiopharmaceuticals, nuclear medicine significantly contributes to all stages of cancer patient care, including early detection, diagnosis, therapy monitoring and treatment. Apart from external high energy X-ray beam therapy, Targeted RadioNuclide Therapy (TRNT) is another approach to deliver radiation to cancer cells. In TRNT, the therapeutic radiopharmaceutical is distributed within the body by the vascular system and allows targeted irradiation of a primary tumor and all its metastases, resulting in substantially less collateral damage to normal tissues as compared to external radiotherapy. TRNT represents an established, evidence-based treatment modality and its role has been enforced by the excellent results obtained in the randomized, controlled NETTER-1 and VISION trial using the radiopharmaceuticals 177Lu-DOTATATE and 177Lu-PSMA-617, respectively.

Ideally, the same precursor (combination of chelator-linker-vector) can be used for production of both diagnostic and therapeutic radiopharmaceuticals with very similar or identical pharmacokinetic properties, allowing for accurate personalised dosimetry estimation. 3p-C-NETA is a versatile chelator that can be used for both diagnostic applications (Al18F) and targeted radionuclide therapy (213Bi, 177Lu, 161Tb). It has the potential to be the new theranostic chelator of choice for clinical applications in nuclear medicine.

Academia C²TN

SEMINÁRIOS · Workshops · Ações de formação · Mesas redondas