

Bayer AS installs top-of-the-line MILabs VECTor PET/SPECT/CT to advance its targeted alpha therapy programs

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Bayer AS has installed a state-of-the-art MILabs VECTor PET/SPECT/CT system to support its Targeted Alpha Therapy (TAT) platform of oncology projects. After its success with radium-223 dichloride (Xofigo), the first and only clinically approved targeted alpha therapy, Bayer is advancing an emerging class of novel targeted alpha therapies that combine tumor-targeted antibodies with the alpha emitter thorium-227. To support the preclinical oncology research programs, Bayer has now acquired MILabs preclinical VECTor⁶ system, the only system that can deliver sub-mm spatial resolution images for such targeted alpha radiotherapy isotopes. The investment is made as part of a broader collaboration with The University of Oslo and the Norwegian Medical Cyclotron Centre.



Dr. Alan Cuthbertson, Head of Radiopharmaceuticals Research at Bayer in Oslo, Norway, explains: *“Radioisotopes like actinium-225 and thorium-227 emit very energy-rich alpha radiation over short distances. When guided by antibodies, which recognize and bind to tumor-specific antigens, the radiation dose accumulates in the tumor effectively killing the cancer cells while sparing the surrounding healthy tissue. One of the main advantages of alpha radioimmunotherapy is that even in cancers that have become resistant to standard therapies, the alpha particles can still kill the cancer cell. They even search and attack tumors that are too small to be picked up by most imaging techniques, such as very early-stage metastases.”*

According to Prof. Frederik Beekman, CEO/CSO of Milabs: *“The VECTor PET/SPECT/CT is currently the only system that can detect alpha-emitting radiotherapy isotopes with sub-mm resolution so that the effect of such radiotherapy can be followed with high precision in mouse cancer models using the SPECT modality. Moreover, Bayer’s chelator molecule that enables specific delivery of thorium-227 (²²⁷Th) to tumor cells is also a very efficient chelators for the PET isotope zirconium-89 (⁸⁹Zr) and can, therefore, be used as surrogate for understanding ²²⁷Th radio-immunotherapy. Since the VECTor’s PET modality can also image ⁸⁹Zr with sub-mm resolution, this unique MILabs system can be used to simultaneously track the biodistributions of both thorium (SPECT) and zirconium (PET) conjugates, co-registered in space and time.”*

About Oncology at Bayer

Bayer is a global enterprise with core competencies in the life science fields of health care and nutrition. Its products and services are designed to benefit people by supporting efforts to overcome the major challenges presented by a growing and aging global population. Bayer is, therefore, committed to delivering science for a better life by advancing a portfolio of innovative treatments. The oncology franchise at Bayer now expands to six marketed products and several other assets in various stages of clinical development. Together, these products reflect the company's approach to research, which prioritizes targets and pathways with the potential to impact the way that cancer is treated.

About MILabs B.V.

MILabs is a fast-growing Dutch company delivering high-end biomedical imaging instruments to expand the applications of in vivo imaging with continuous innovations. Today, MILabs has succeeded at commercializing a scalable imaging platform and provides any combination of high-quality PET, SPECT, X-ray CT, and Optical tomography. These multimodal imaging systems have the highest resolution available in the industry, and its nuclear imaging capabilities are especially suited for alpha- and beta-emission radiotherapy imaging. MILabs products are used by biotech and pharmaceutical companies as well as academic research institutes worldwide to empower discovery and advance diagnostic and therapy applications.