

Development of Radiotracers for Imaging of Brain Diseases with Positron Emission Tomography

» Prof. Dr. Peter Brust

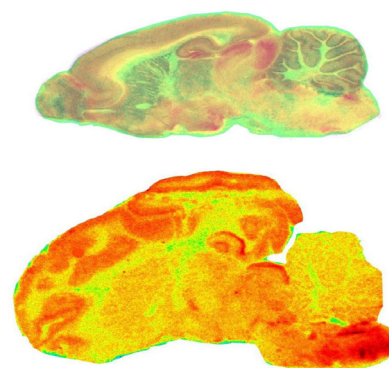
Positron Emission Tomographie (PET) is a molecular imaging discipline that enables visualisation of brain functions and the follow-up of molecular processes in living organisms without perturbing them. It differs from traditional imaging in that probes known as radiotracers are used to help image particular targets or pathways.

For PET molecules are used that are labelled with positron emitting isotopes such as Fluorine-18. They emit radiation of a short half life which is detected by a scanner which estimates the density of positron annihilations in a specific brain region and reconstructs images. The radiotracers interact chemically with their surroundings

and in turn alter the image according to molecular changes occurring within the region of interest. This ability opens up many possibilities for the investigation of brain diseases, including their early detection and treatment. The research group of Prof. Dr. Peter Brust currently develops radiotracers for a variety of brain targets which are involved in the pathology of depression, Alzheimers's disease, schizophrenia and traumatic brain injury among them nicotinic acetylcholine receptors, sigma receptors and phosphodiesterase 10.

Keywords

- Molecular Imaging
- Neurodegeneration
- Depression
- Schizophrenia



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