Development of PET radiopharmaceuticals for the imaging of the brain

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Positron Emission Tomography (PET) is an imaging modality that allows studying physiological, biochemical and pharmacological functions at a molecular level in laboratory animals and humans using radiopharmaceuticals synthesized with positron emitting nuclides. PET offers an opportunity to directly obtain quantitative information on pharmacokinetics of drugs, their distribution and efficacy. Several positron emitting nuclides are available for incorporation into biomolecules, but most of the PET radiopharmaceuticals applied in neurological research have been labelled with either carbon-11 or fluorine-18. This talk will provide an illustrative example of the radiopharmaceutical development process with emphasis on the central nervous system as well as an overview of some of the most useful clinical brain PET radiopharmaceuticals.