"Molecular Imaging" at Tohoku University

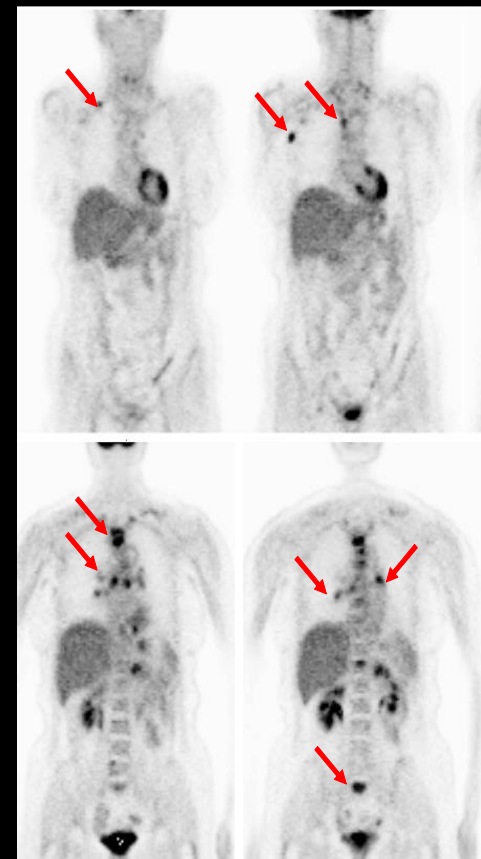

Eminence STARGATE
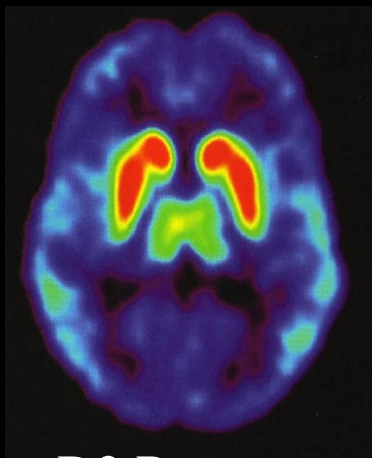
Whole body glucose metabolism during running
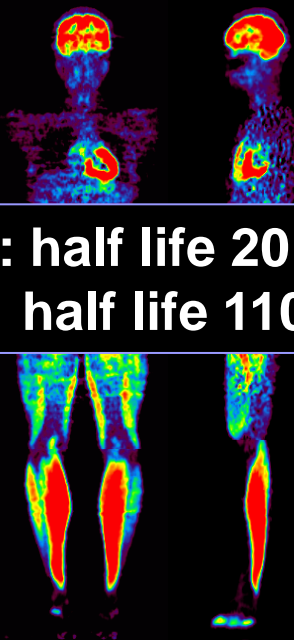
^{11}C: half life 20 min
^{18}F: half life 110 min

^{18}FDG
(Fluoro-deoxy-glucose)

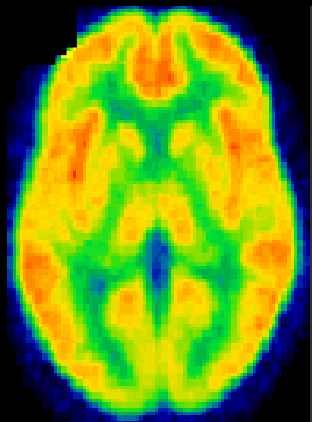^{18}FDG-PET in Cancer Patients

D2 Receptor
[^{11}C]Racropride
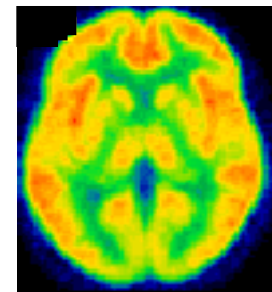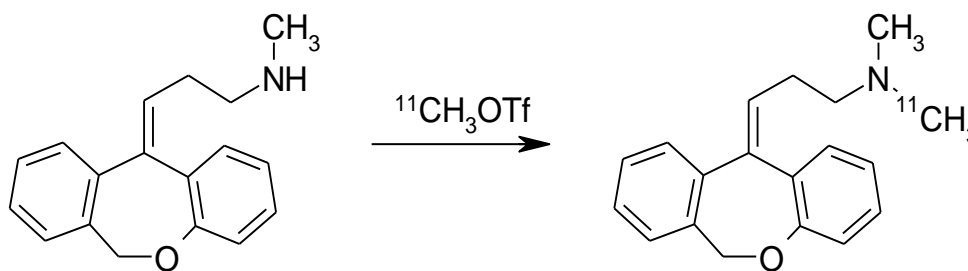
H1 Receptor
[^{11}C]Doxepin

Amyloid Aβ and Tau Imaging
[^{11}C]BF227, [^{11}C]PIB , [^{18}F]THK

Brain Molecular Imaging at Tohoku University

Originally-developed automated synthesis system of ^{11}C-ligands
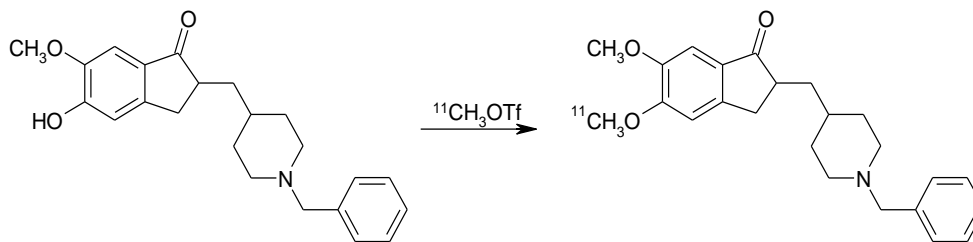

Histamine H1 Receptors studied by [^{11}C]Doxepin, [^{11}C]Pyrilamine for 20 years

Pathophysiological studies on brain diseases and evaluation of sedative properties of antihistamines

Automated system for reaction, separation and purification

Acetylcholine esterase studied by [^{11}C]Donepezil for 7 years
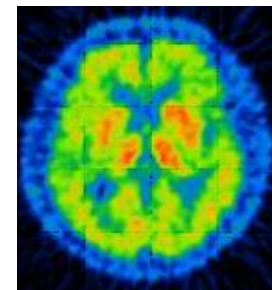
Application to Alzheimer disease

Molecular Imaging Devices at Tohoku Univ.

- Animal PET using semiconductor（FinePET®: In collaboration with Sumitomo Heavy Industry and Tohoku Univ.)
- Animal PET/CT using conventional photomultipliers with DOI (Clairvivo®: Shimadzu Corp.)
- Planar Positron Imaging System（PPIS® : Hamamatsu Photonics)
- Human 3D-PET (SET 2400; Shimadzu Corp.) and 3D-PET/CT (Eminence STARGATE®; Shimadzu Corp.) only for Clinical Research Use

Fine Structure Imaging PET scanner

Fine-PET

PPIS

Clairvivo PET/CT

SET2400

Eminence STARGATE

Cyclotron at CYRIC, Tohoku University

**930 AVF cyclotron
(Multiple use, K=110)**

**HM12 AVF Cyclotron
(Specific for production PET
Tracers, K=12)**