PET-Pro: Integrating open-source neuroimaging tools into a reproducible pipeline for quantitative [18F]UCB-H PET analysis

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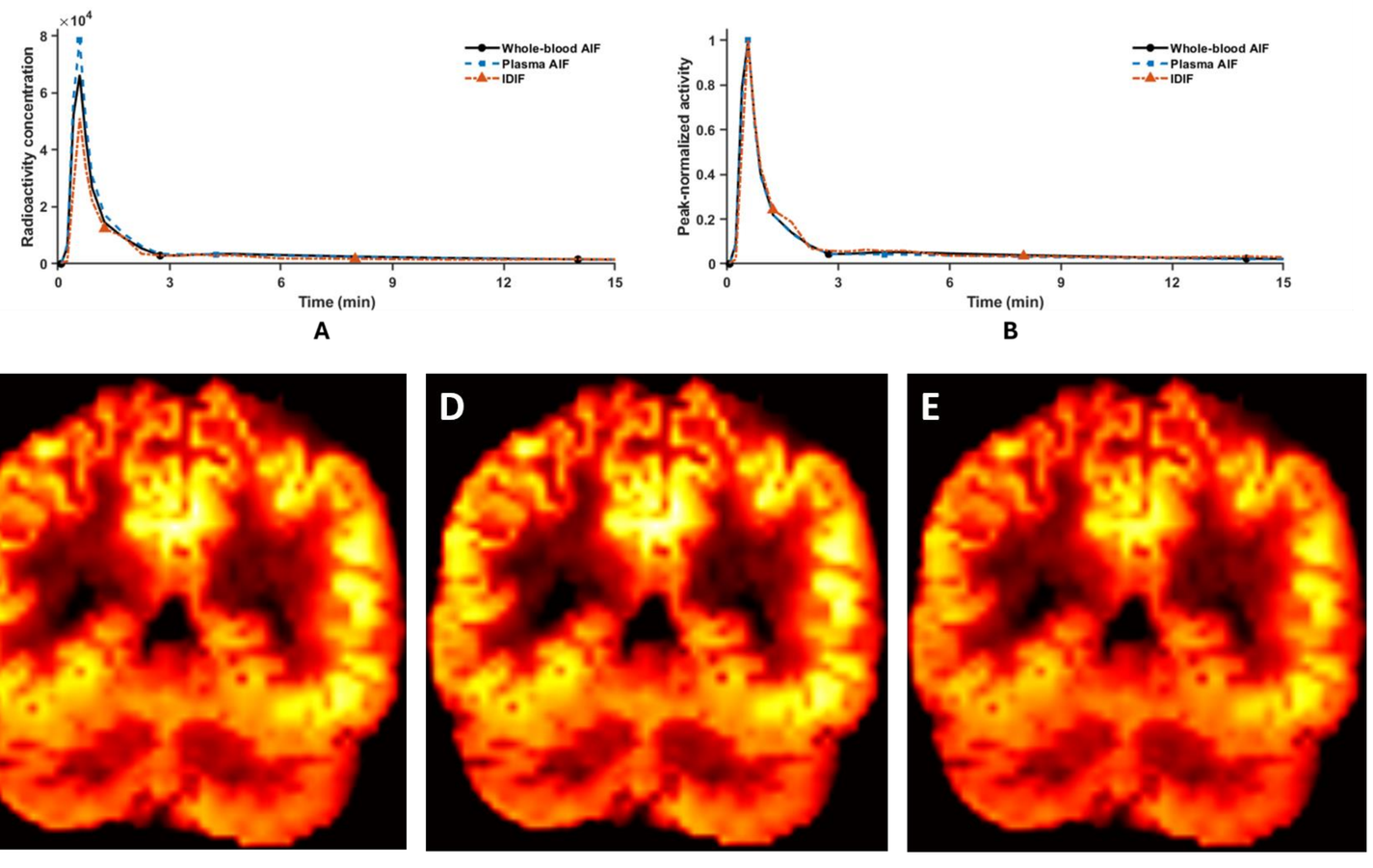
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Open Science day
2026 Poster #1

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Introduction

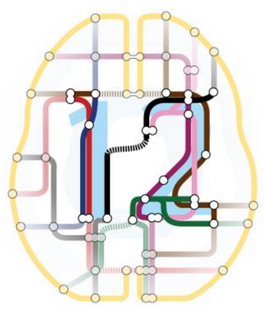
- **[18F] UCB-H PET helps us study synapses, the connections between brain cells**
- **Quantification needs a blood tracer curve (input function).**
- **PET-Pro estimates this curve from the carotid arteries in the PET scan.**



Input functions and corresponding VT parametric images (A)How the tracer signal changes from blood, plasma and PET estimation. (B)Normalized signal changes. (C-E) Corresponding V_T Maps from blood, plasma and PET-derived input function.

Method

PET-PRO

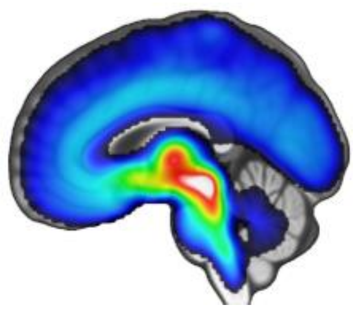


SPM12
Preprocessing

Cyclotron research centre

Homemade modules
Carotid detection &IDIF

PETPVC
Partial-volume correction

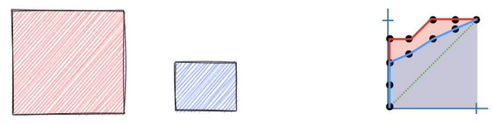


MAGIA
V_T map Reconstruction

PET image → *Input function* → *Corrected PET image* → *V_T mapping*

Reproducibility

- **Input function level**



Shape, Area under curve

- **Image level**

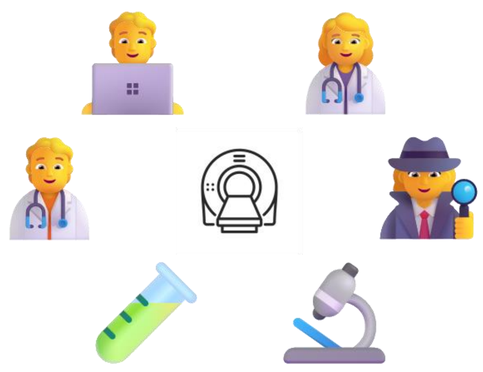
Reconstruction quality

An Integrated, automated and reproducible toolbox for UCBH PET analysis

Open Science Practice

CODE REUSE

BIDS
BRAIN IMAGING DATA STRUCTURE



GitHub ORBi

Reuse existing tools & data

Standard data structure to facilitate reuse
→ **Poster #5**

Multidisciplinary oversight
(Engineers, Neurologists, Biologist Neuroscientists, Chemist, PET Experts)

Open Access

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fnrs
FREEDOM TO RESEARCH