LIÈGE université
GIGA institute
CONSCIOUSNESS

Welcome and Introduction to [18F]FDG-PET

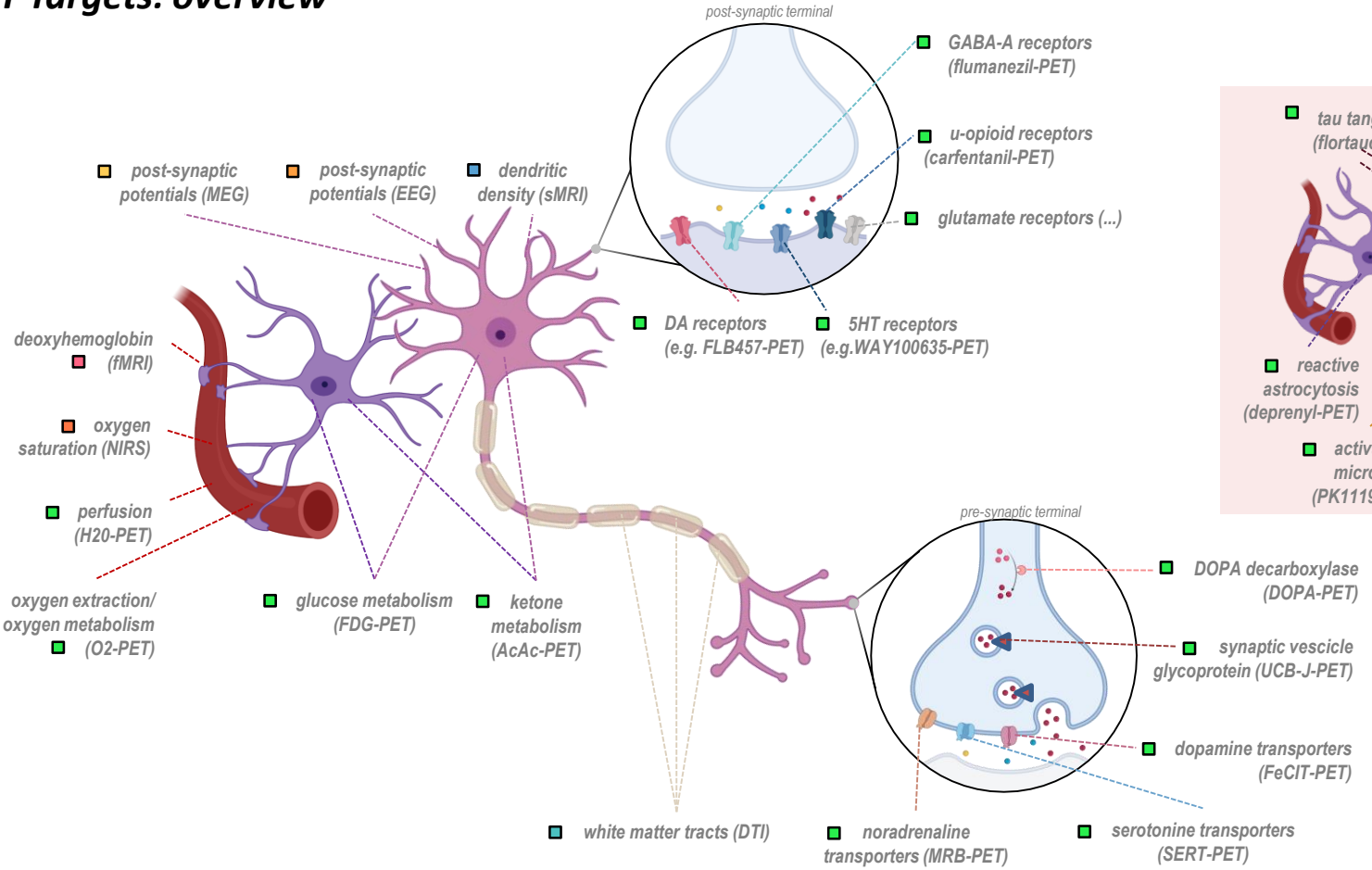
CSG PET workshop

Arianna Sala, PhD
Coma Science Group
GIGA-Consciousness
University Hospital & University of Liège

LIÈGE université
GIGA

08:30 → 08:40	**Welcome and introduction to [18F]FDG-PET** Speaker: Dr Arianna Sala (ULiege)	10m	
08:40 → 08:50	**Principles of [18F]FDG Tracer Kinetics** Speaker: Mr Tommaso Volpi (Universita degli Studi di Padova)	10m	
08:50 → 09:00	**Patient preparation and setup** Speaker: Ms Estelle Bonin (ULiege)	10m	
09:00 → 09:35	**From Acquisition to Reconstructed Images: Steps and Corrections -** Speaker: Mrs Claire Bernard (CHULiege)	35m	
09:35 → 09:45	**Introduction to MATLAB and SPM interfaces (hands-on)** Speaker: Dr Arianna Sala (ULiege)	10m	
09:45 → 10:00	**Computation of Standardized Uptake Value (SUV) Images** Speaker: Mrs Claire Bernard (CHULiege)	15m	

PET Targets: overview



- (PET)
- (DTI)
- (sMRI)
- (fMRI)
- (EEG)
- (MEG)
- (NIRS)

Positron Emission Tomography (PET) Techniques

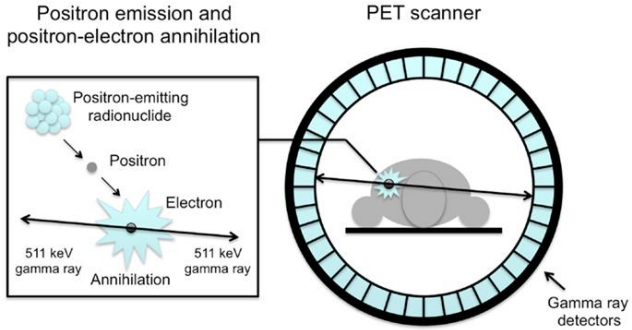
- Molecular neuroimaging technique based on radioligands

- a PET tracer is a ligand labeled with a radioactive isotope (fluorine-18, carbon-11…)

- After injection the biologically-active molecule reaches its target receptor or system

- The tracer is designed to bind without altering the system to be investigated

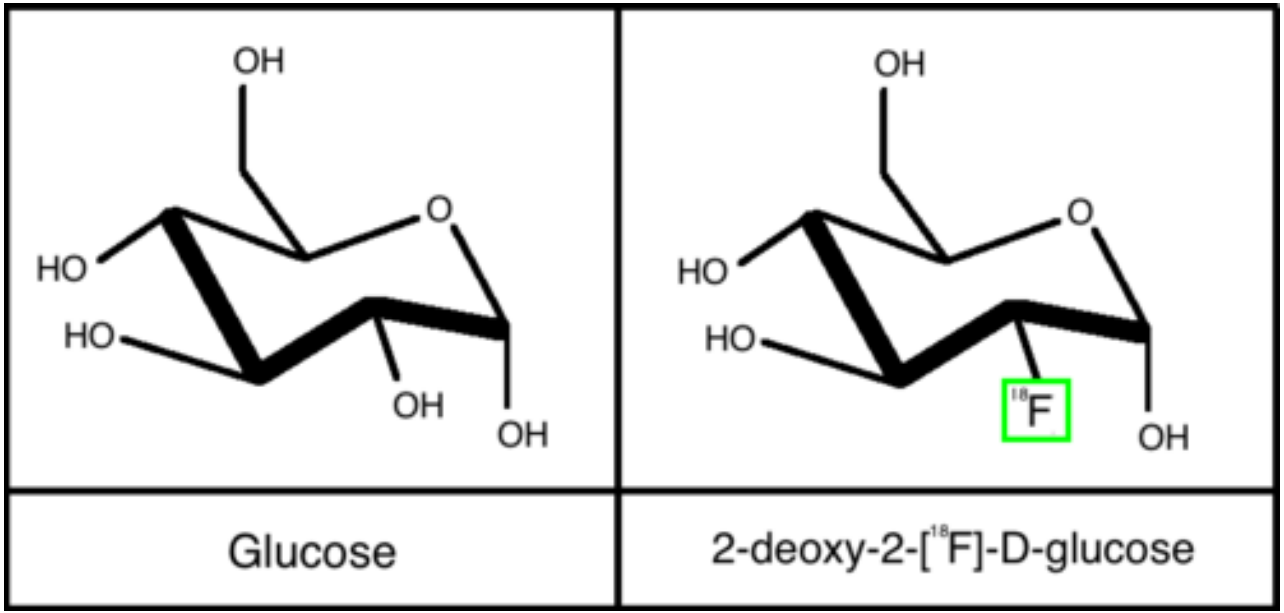
i.v. injection of radioligand



Van der Veldt et al., 2013 Front Oncol

Courtesy of Leonardo Iaccarino, PhD, UCSF

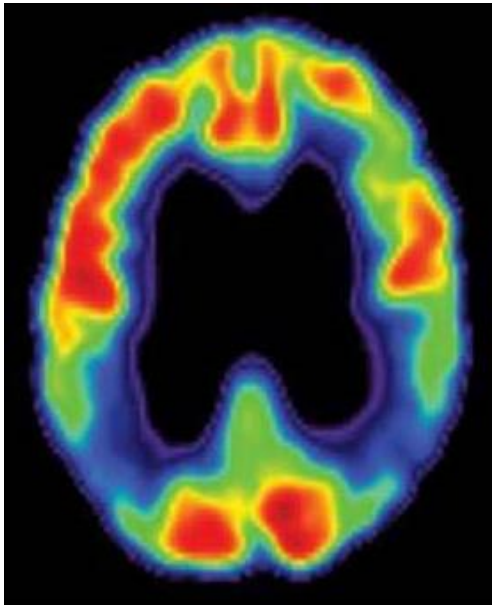
Paradigmatic example: 18F-FDG

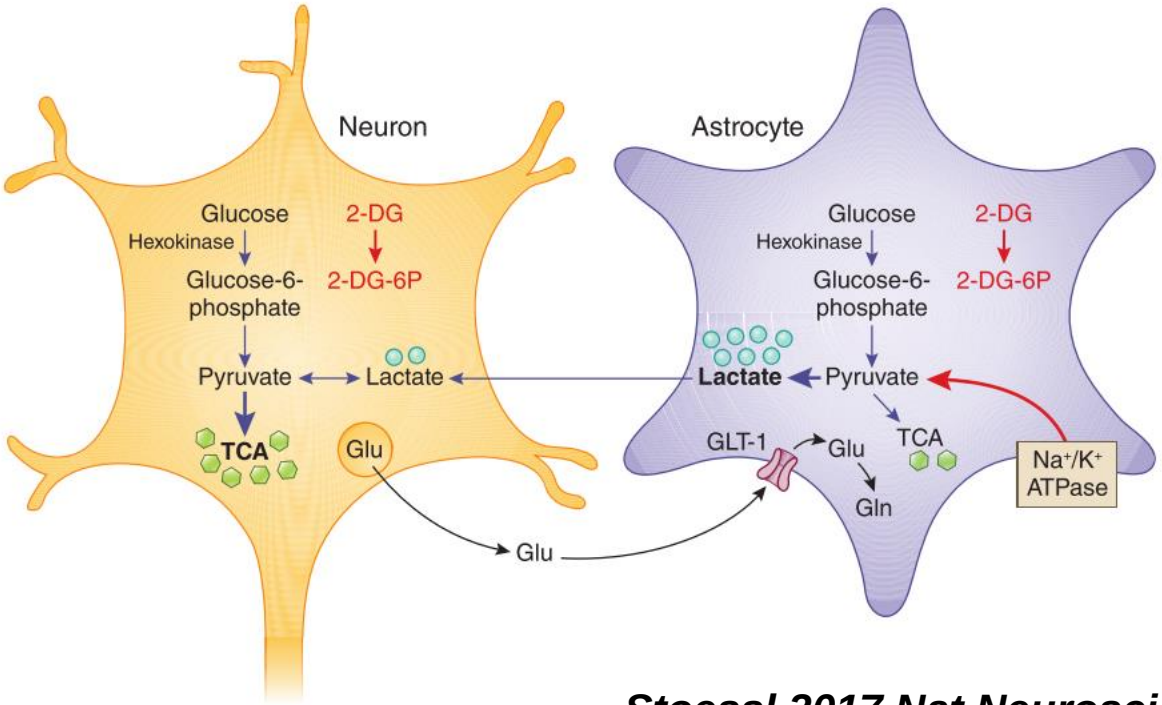


Courtesy of Leonardo Iaccarino, PhD, UCSF

PET Targets: glucose metabolism (HEX)

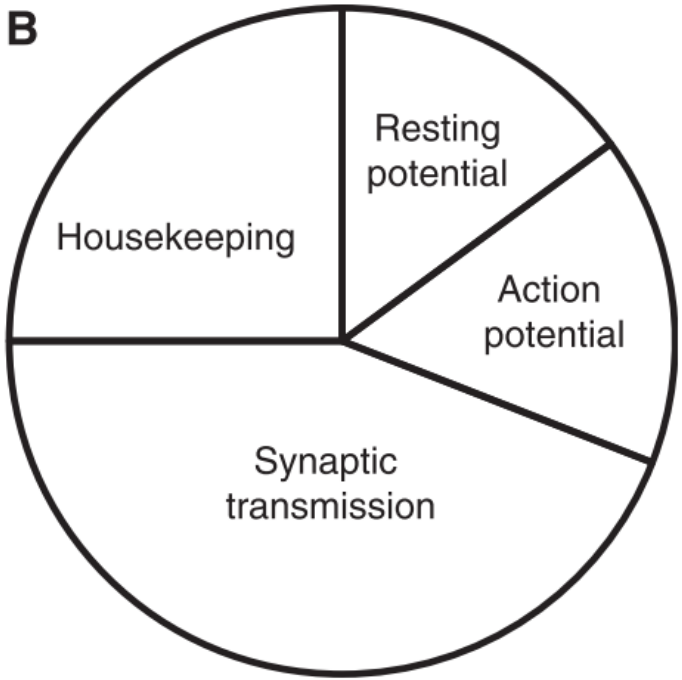
[18F]FDG-PET



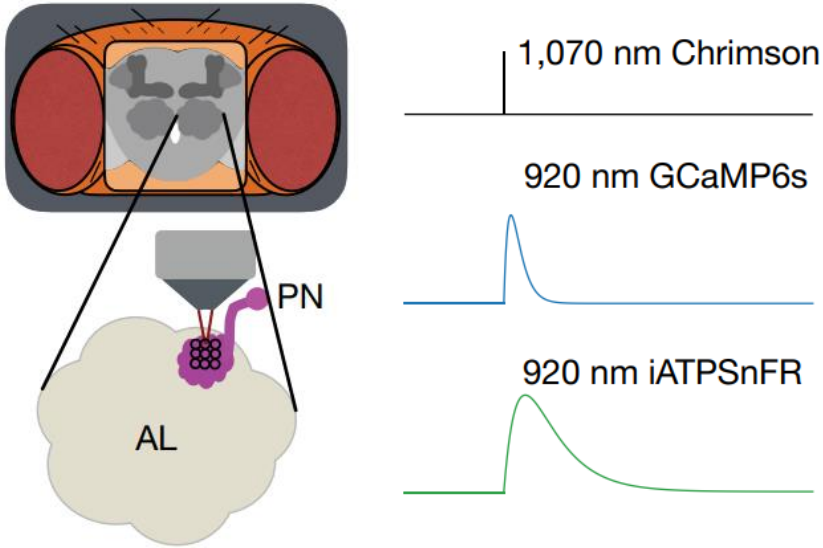


Stoessl 2017 Nat Neurosci

PET Targets: glucose metabolism is related to neural communication



Howart et al 2012



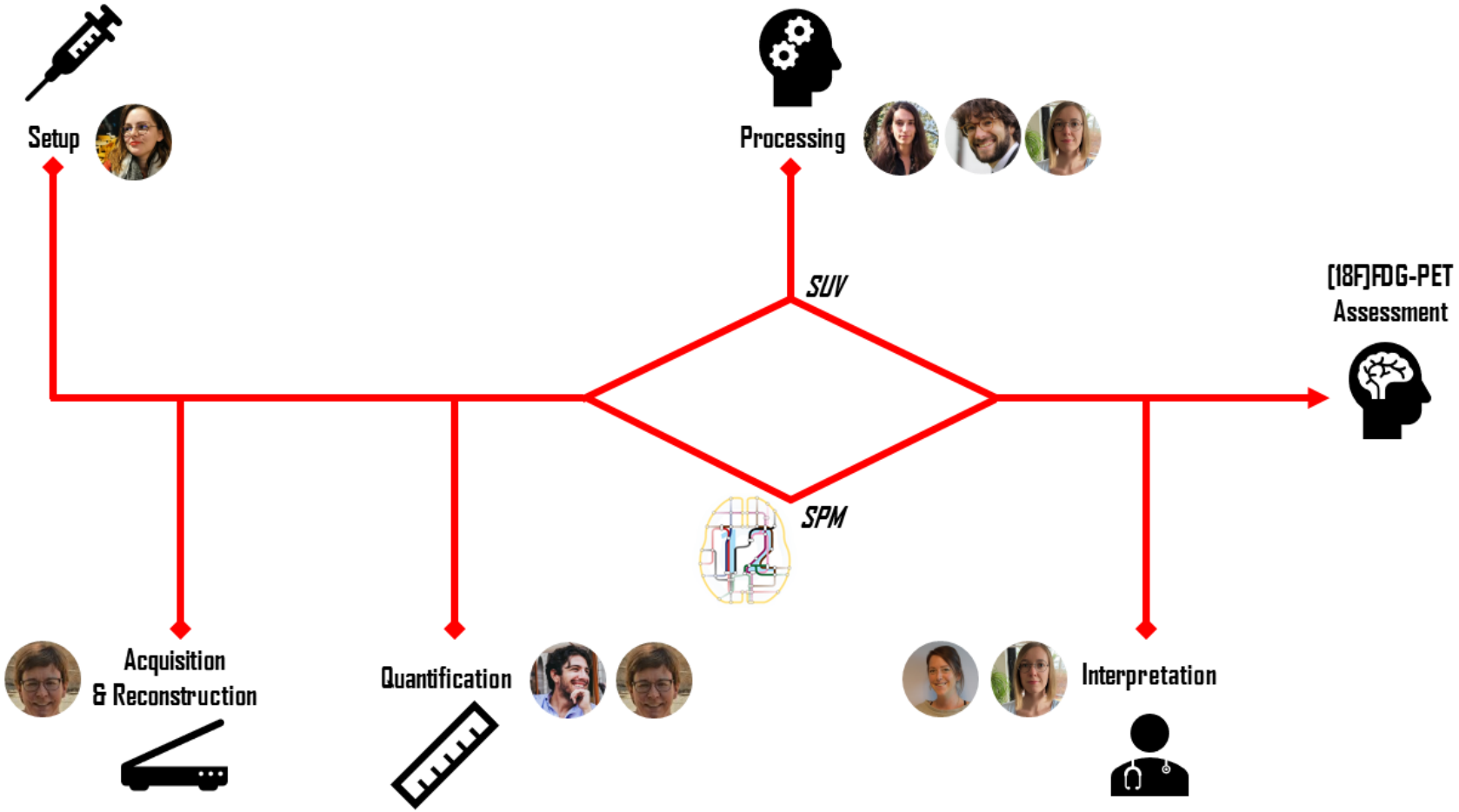
Mann et al 2021

FDG-PET in DOC

- Resting state (no passive or active tasks)

➔ circumvent motor, language & attentional biases

- Scientific & clinical insights


Setup
Processing
SUV
[18F]FDG-PET
Assessment
SPM
Acquisition
& Reconstruction
Quantification
Interpretation