Development of novel PET radiotracers for imaging Cancer and Alzheimer’s disease

In vivo biological evaluations of $^{64}$CuPep-IL for imaging IL13RA2 receptors of Glioblastoma

Clinical translation

- High potential to image the target (design)
- Amenable for PET radiolabeling
- Superior in vitro and in vivo binding properties
- High target: non-target ratio
- Excellent pharmacokinetics

Stages

Stage 1
- $[^{11}C]$A1: GSK ligands for neurological disorders
- $[^{18}F]$KBM-1: retinoic acid receptor in GBM
- $[^{11}C]$Ac: prostate cancer
- $[^{18}F]$FMISO: hypoxia
- $[^{64}Cu]$Pep1: GBM

Stage 2
- $[^{11}C]$Rac & $[^{18}F]$fallypride: dopamine imagine in cocaine and alcohol addiction in monkeys
- $[^{11}C]$acac: ketone metabolism in monkey brains

Stage 3
- $[^{11}C]$Rac: cocaine addiction
- $[^{11}C]$PiB: amyloid plaques
- $[^{11}C]$acac: ketone metabolism in Alzheimer’s disease

In vitro cell uptake in PDX-GBM cell line

Translational studies of $[^{11}$C]Acetoacetate, a ketone body tracer for Alzheimer’s disease

$[^{11}$C]acetoacetate PET studies uncover the role of ketone metabolism in early AD and potentially lead to new preventive and therapeutic strategies.