

Controlled delivery of mAb to the mouse brain using focused ultrasound and immunoTEP

AIM

Facilitating cetuximab (CTX, Anti-EGFR mAb) penetration into brain using focused ultrasound (FUS) – Monitoring CTX delivery by immunoTEP

METHODS

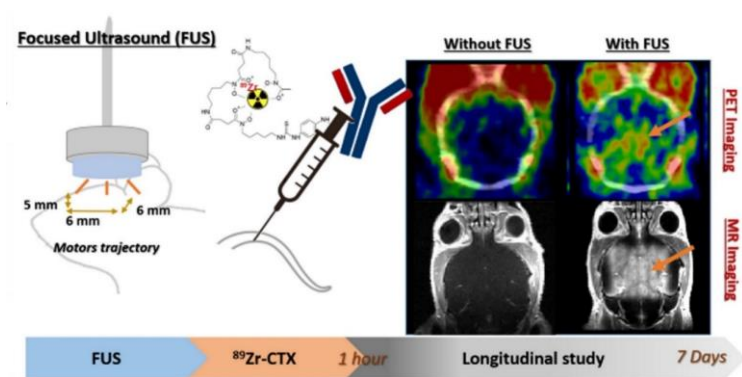
- FUS-induced blood-brain barrier permeabilization in the mouse brain : intravenously administration of microbubbles and transmission of ultrasonic waves
- Injection of [⁸⁹Zr] radiolabeled CTX 10 min after FUS and dynamic PET acquisition

RESULTS

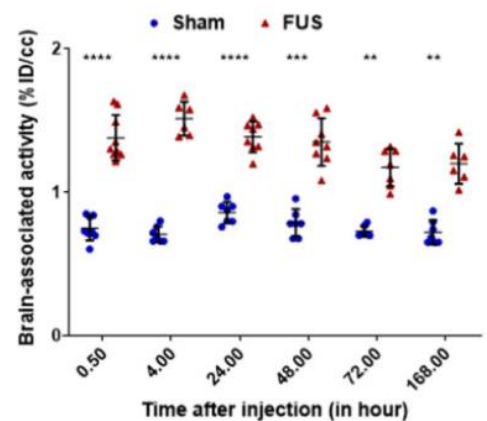
- Significant increase of the uptake and the transfer rate of CTX using FUS
- CTX stayed at the proximity of the FUS field for up to 72 h

CONCLUSION

- ImmunoPET- combined FUS is a clinically relevant strategy to monitor brain tumor innovative therapy



Experimental protocol

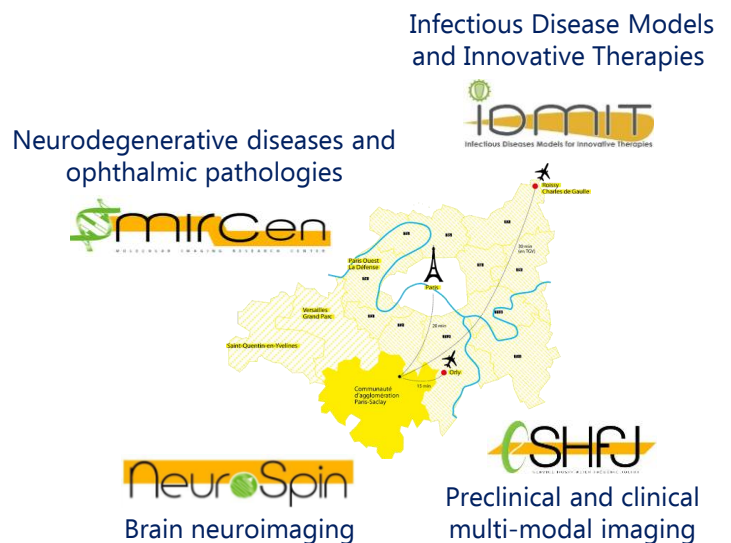


Brain kinetics of [⁸⁹Zr] CTX after FUS-induced BBB permeabilization - Accumulation of CTX in the brains of FUS group (red) as early as 15 min and even up to 168 h after the injection of labeled compound compared to without FUS (blue)

PASREL-Imagerie: *in vivo* imaging to de-risk your medical innovations

A unique synergy of expertise & technologies to support your innovative projects

- The synergy of four complementary and multidisciplinary centers (IDMIT, MIRCen, SHFJ and NeuroSpin) contributing to major advances in various research fields



From preclinical POC to drug development in patients



PET, MRI, ultrasound, multimodal imaging
and radiopharmaceutical production

- Expertise and state-of-the-art translational *in vivo* imaging platforms:
 - * 4 medical research imaging centers
 - * 34 technological platforms for preclinical and clinical research
 - * 10 research laboratories

- An access to a full range of scientific and technological solutions through one-stop shop and a dedicated project manager to support partner innovative developments from preclinical to clinical stages



PASREL
imagerie