

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

AIM

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

METHODS

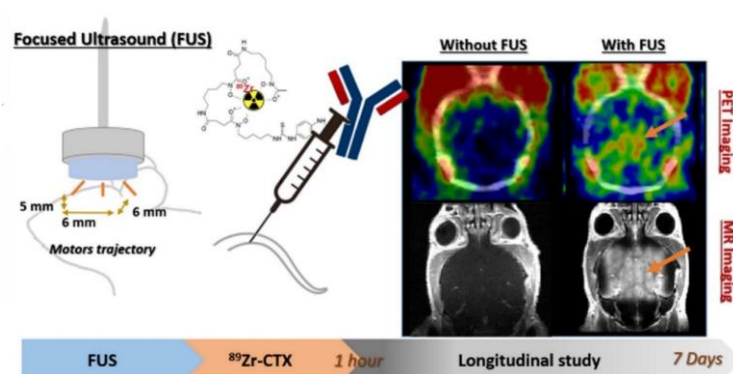
- FUS-induced blood-brain barrier permeabilization in the mouse brain : intravenously administration of microbubbles and transmission of ultrasonic waves
- Injection of [⁸⁹Zr] radiolabeled CTX 10 min after FUS and dynamic PET acquisition

RESULTS

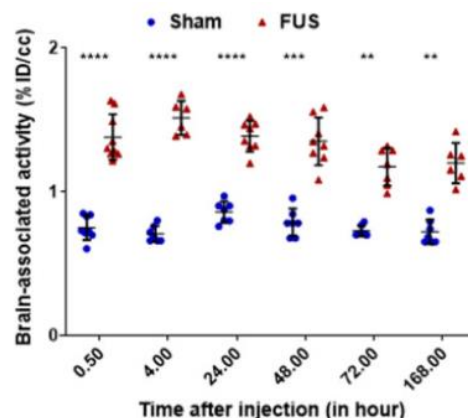
- Significant increase of the uptake and the transfer rate of CTX using FUS
- CTX stayed at the proximity of the FUS field for up to 72 h

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)