Rhenium Activated Reactions for Radiopharmaceutical Development Concerning Amyloid-β Pathologies

Abstract ID: LB1047

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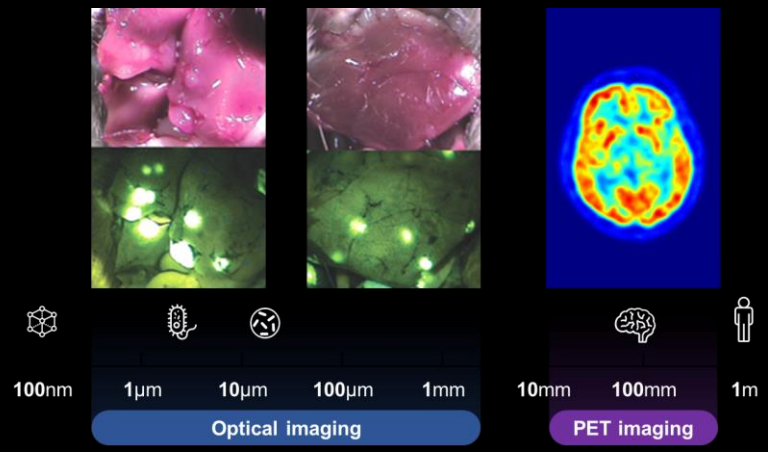
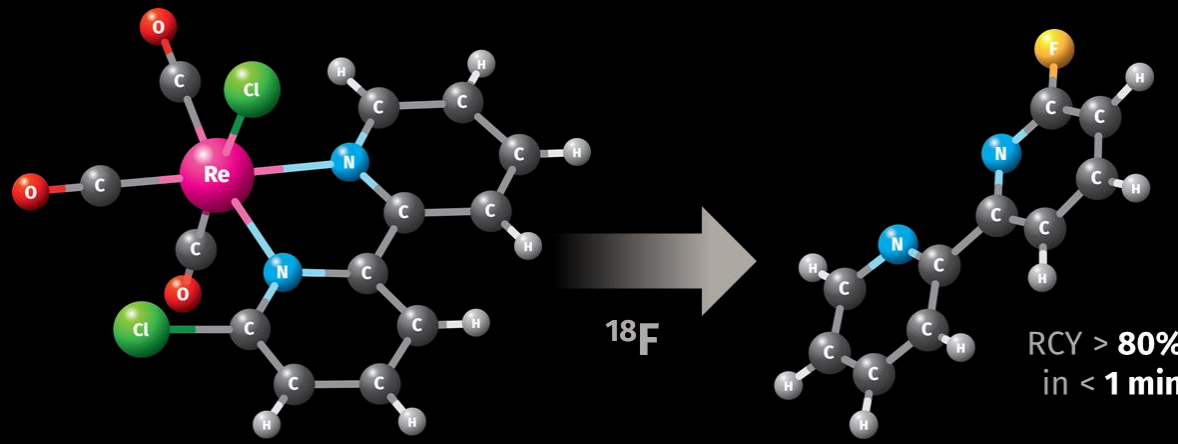
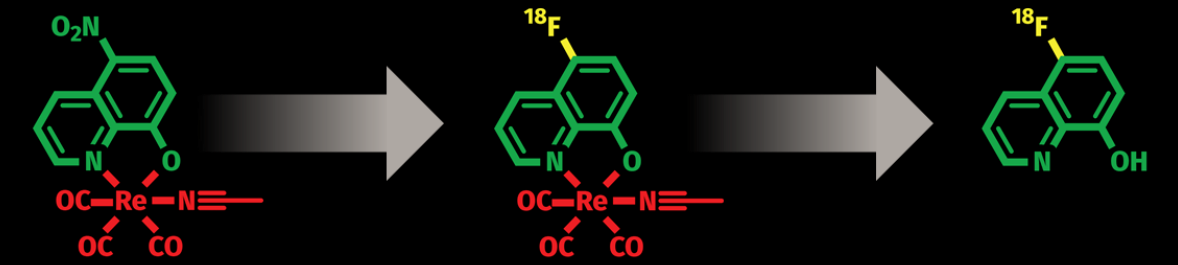


Fluorine-18 labelled rhenium complexes were originally synthesised as multimodal agents to provide complementary optical imaging (left) and PET imaging (right).



However, it was soon discovered that such rhenium complexes activate pyridinyl bidentate ligands for improved radiolabelling. Compounds which were previously unable to be radiolabelled were found to afford high radiochemical yields (RCY) in very fast reaction times.



[^{18}F]Re5NO$_2$8HQ

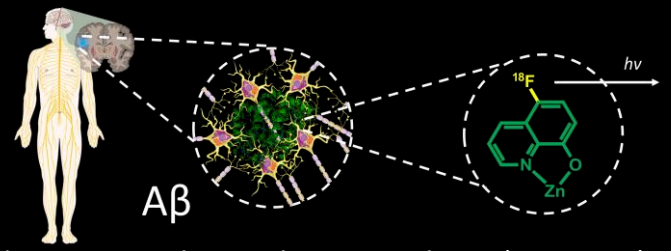
[^{18}F]Re5F8HQ

6% RCY

[^{18}F]5F8HQ

2% RCY

Thus, the rhenium method was applied to the synthesis of novel radiopharmaceuticals for preclinical evaluation as PET Alzheimer's disease diagnostic agents.



These radiopharmaceuticals complex to metal ions (Zn, Cu, Fe) involved in the aggregation of amyloid-β (Aβ) plaques characteristic of Alzheimer's disease.

For further information please read: [1] Klenner, M.A., *et al. Chem. Eur. J.* **2017**, *23*, 6499 – 6503. [2] Klenner, M.A., *et al. Aust. J. Chem.* **2018**, *72*, 288 – 294. [3] Klenner, M.A., *et al.* **2020**, *10*, 8853 – 8865. [4] Klenner, M.A., *et al. Chem. Eur. J.* **2020**, DOI:10.1002/chem/202001402. [5] Klenner, M.A., *et al. Eur. J. Inorg. Chem.* **2020**, DOI: 10.1002/ejic.202000433.

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