

Novel ^{18}F -labeled PET tracers targeting RAS for cardiology and oncology

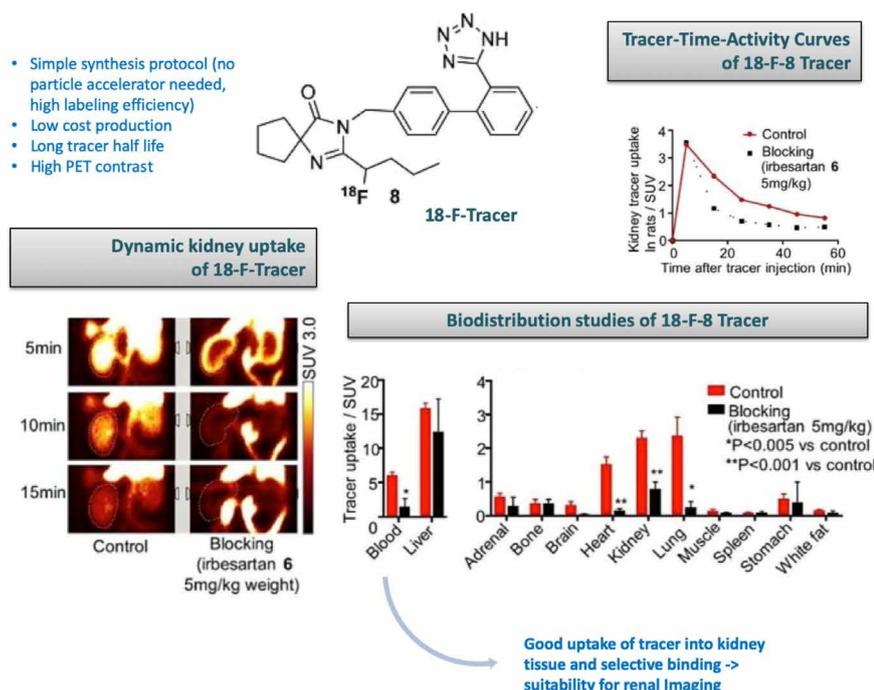
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CHALLENGE

The **Renin-Angiotensin-Aldosteron-System (RAS)** is a hormone system regulating blood pressure as well as the water and electrolyte metabolism. Furthermore RAS is also involved in cell proliferation. Dysfunctional RAS is associated with e.g. cardiovascular and renal diseases and tumor pathogenesis. Sartan-based Antagonists targeting the RAS-system are well established in therapy and exhibit desirable properties. In the diagnostic applications PET tracers targeting RAS are ideal for the diagnosis of those diseases as they can indicate changes of metabolism on a cell level before macroscopic changes can be diagnosed. However, so far only few sartan-based tracers are available. The most developed compound is a carbon 11-labeled PET tracer. Carbon-11 labeling is however linked to several disadvantages including the short half-life time and the requirement of an on-site cyclotron production facility. The challenge is to find a RAS-specific PET tracer that combines a long half-life, moderate production costs and favorable tracing properties.

INNOVATION

The innovation describes a new generation of ^{18}F -labeled PET tracers (**^{18}F -Tracer**) based on a derivation from clinically used drug Valsartan. The compound has been tested in vivo showing fast and clear kidney uptake showing great potential in the diagnostic use.



COMMERCIAL OPPORTUNITIES

The innovative Valsartan-derived PET tracers are ideally suited for RAS-associated disease diagnosis (e.g. hypertonia, cardiomyopathy, myocardial infarct).

DEVELOPMENT STATUS

Proof of concept in animal model.

REFERENCES:

- Hoffmann, M.; Chen, X.; Hirano, M.; Arimitsu, K.; Kimura, H.; Higuchi, T.; Decker, M. ^{18}F -Labeled Derivatives of Irbesartan for Angiotensin II Type 1 Receptor PET Imaging. *ChemMedChem* **2018**, *13*, 2546-2557.
- Chen, X.; Hirano, M.; Werner, R.-A.; Decker, M.; Higuchi, T. Novel ^{18}F -Labeled PET Imaging Agent FV45 Targeting the Renin-Angiotensin System. *ACS Omega* **2018**, *3*, 10460-10470.