

Zirconium-89 PET Imaging Agent for Cancer

Summary (1024-character limit)

This technology is a new generation of rationally designed chelating agents that improve the complexation of Zirconium-89 for PET imaging of cancers.

NIH Reference Number

E-111-2013

Product Type

- Diagnostics
- Research Tools

Keywords

- PET
- imaging agent
- zirconium-89

Collaboration Opportunity

This invention is available for licensing and co-development.

Contact

- John D. Hewes
NCI - National Cancer Institute

240-276-5515

John.Hewes@nih.gov

Description of Technology

Researchers at the NCI [Radiation Oncology Branch](#) and NIH CIT [Center for Molecular Modeling](#) developed a tetrahydroxamate chelation technology that provides a more-stable Zr-89 complex as an immuno-PET cancer imaging agent. In either the linear or the macrocyclic form, the tetrahydroxamate complexes exhibit greater stability as chelating agents compared to Zr-89 complexed to the siderophore desferrioxamine B (DFB), a trihydroxamate, which represents the current state of the art chemistry and the agent currently in clinical use.

In the Zr-89-DFB imaging agents, Zr-89 dissociates from the chelate, resulting in an increasing radioisotope accumulation in the bone 2-3 days after injection. *In vitro* studies demonstrate the tetrahydroxamate-chelated Zr-89 remained kinetically inert for seven or more days, thereby reducing the amount of Zr-89 that is released compared to the complex containing DFB.

Potential Commercial Applications

- PET imaging, especially for cancer and in particular Immuno-PET imaging

Competitive Advantages

- High stability with low toxicity

Inventor(s)

Francois Guerard (NCI), Yong Sok Lee (CIT), [Martin Brechbiel Brechbiel \(NCI\)](#)

Development Stage

- Prototype

Publications

Guerard F, et al. [[PMID 23250287](#)]

Guerard F, et al. [[PMID 2470517](#)]

Patent Status

- **U.S. Patent Filed:** U.S. Patent Application Number 61/779,016, Filed 13 Mar 2013
- **Foreign Filed:** EP - Patent Application 14779019

Related Technologies

- E-194-2007
- E-226-2006
- E-067-1990

Therapeutic Area

- Cancer/Neoplasm