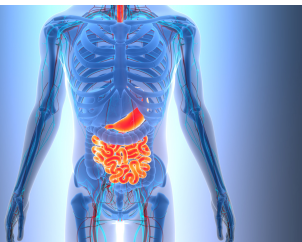


Theranostic Somatostatin Receptor Ligands

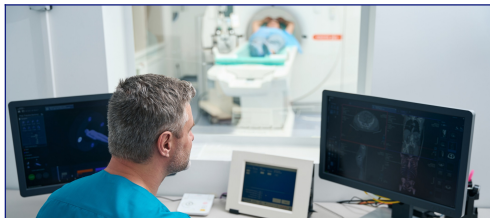
One of the intrinsic properties of neuroendocrine tumors (NETs) is the overexpression of somatostatin receptors (SSTRs) that mediates reduced sensitivity to growth inhibitory factors and thus, provides the basis for imaging and therapy using radiolabeled SST analogs. Here an innovation is described following the successful radiohybrid concept: The compounds offer both diagnostic and therapeutic solutions for neuroendocrine neoplasms.



(SiFA)SeFe-based somatostatin receptor ligands

A key aspect is the unique meta-position substitution to the SiFA group, ensuring enhanced hydrophilicity and specific chemical properties. The advantageous biodistributions and the high tumor/organ ratios show that this class of ligands has all the prerequisites for a successful clinical evaluation.

- 01 Advantageous biodistributions and high tumor/organ ratios
- 02 Enhanced Hydrophilicity: Increased solubility
- 03 Radiohybrids: Seamless adaptation between diagnostics and therapy for medical applications

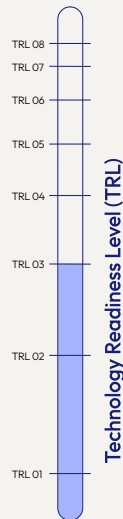


CHALLENGE

The currently used theranostic pairs such as [68Ga]Ga-DOTA-TATE and [177Lu]Lu DOTA-TATE have different chemical and pharmacological properties due to the different metals incorporated, which has increased the interest in "true theranostic compounds" where one compound can be labeled with a diagnostic and therapeutic radionuclide with the same pharmacological properties. In addition, a shift from Ga-68- to F-18-labeled compounds has occurred in recent years.

INNOVATION

With the development of the new SiFA building block (SiFA)SeFe, a silicon-based fluoride acceptor is now available for the first time that provides sufficient hydrophilicity directly to the aromatic through the use of a carboxylate group in one meta-position and an amide group in the other meta-position to the Si function. The innovative radiohybrids that can be labeled with fluorine-18 (F-18) for precise diagnostic purposes and lutetium-177 (Lu-177) for effective therapeutic applications.



01 Basic principles observed · 02 Technology concept formulated · 03 Experimental proof of concept · 04 Technology validated in lab · 05 Technology validated in relevant environment · 06 Technology demonstrated in relevant environment · 07 System prototype demonstrated in operational environment · 08 System complete and qualified



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