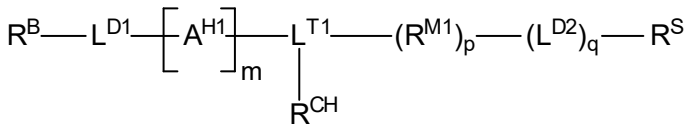
affinity towards the target. Through adjustment of the SiFA-building block (e.g. addition of a positive charge) the affinity of SiFA to HSA can be lowered distinctively. All those parameters – lipophilicity, affinity to target and HSA-binding – affect the tumor uptake of such radiopharmaceuticals and therefore the diagnostic accuracy or therapeutic effect. In addition, the above described design not only allows the development of ^{18}F-labeled diagnostic radiopharmaceuticals, but also allows for the development of therapeutic tracers labelled at the chelator with a radiometal (such as Lu-177, Y-90 or Ac-225, to mention only a few) to form a chelate. While in such therapeutic tracers the SiFA moiety is not radioactive (…Si-^{19}F), the ^{18}F-labelled/not radioactive chelate of a therapeutic tracer can be used for pretherapeutic dosimetry by means of PET imaging by using a tracer with exactly the same chemical structure and thus in vivo properties.

In addition, the combination of SiFA, chelator and additional hydrophilic building blocks makes it possible to modulate the pharmacokinetic properties, suited best for the imaging or therapy of SST expressing tumors. The compounds of the invention are thus particularly suitable for medical applications such as preclinical and clinical imaging, therapeutic applications, such as endoradiotherapy as well as pretherapeutic dosimetry.

SUMMARY

In one aspect, the present disclosure refers to a compound of formula (I) or a salt thereof:



(I)

wherein:

R^B is a binding motif which is able to bind to a somatostatin receptor;

L^{D1} is a divalent linking group;

m is an integer of 2 to 6;

A^{H1} is, independently for each occurrence, an amino acid unit derived from a hydrophilic amino acid which comprises, in addition to its -NH_2 and its -COOH functional group, a further hydrophilic functional group,

and wherein one of the m units A^{H1} may further carry a hydrophilic unit other than an amino acid bound to its hydrophilic functional group;

L^{T1} is a trivalent linking group;

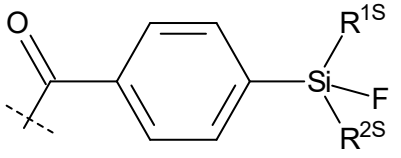
R^{CH} is a chelating group which optionally contains a chelated radioactive or non-radioactive cation;

R^{M1} is a hydrophilic modifying group, and p is 0 or 1;

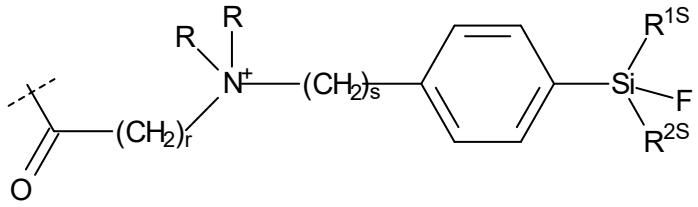
L^{D2} is a divalent linking group, and q is 0 or 1; and

R^S is a silicon-fluoride acceptor (SiFA) group of one of the following formulae, which comprises a silicon atom and a fluorine atom, and which can be labeled with ^{18}F by isotopic exchange of ^{19}F by ^{18}F or which is labeled with ^{18}F:

if p is 1, R^S is a group of formula (S-3) or a group of formula (S-4):



(S-3)



(S-4)

wherein

r is 1, 2 or 3, s in $-(CH_2)_s-$ is an integer of 1 to 6,

the groups R are, independently, H or C1 to C6 alkyl, and

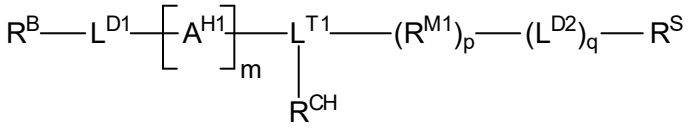
R^{1S} and R^{2S} are independently from each other a linear or branched C3 to C10 alkyl group; and wherein the dashed line marks a bond which attaches the group to the remainder of the compound; and

if p is 0, R^S is a group of formula (S-4) as defined above.

In another aspect, the present disclosure refers to a pharmaceutical or diagnostic composition comprising or consisting of one or more compounds or salts as described herein.

DETAILED DESCRIPTION

In particular, the invention provides a compound of formula (I) or a salt thereof:



(I)

wherein:

R^B is a binding motif which is able to bind to a somatostatin receptor;

L^{D1} is a divalent linking group;

m is an integer of 2 to 6, preferably 2 to 5, more preferably 2 or 3;

A^{H1} is, independently for each occurrence, an amino acid unit derived from a hydrophilic amino acid which comprises, in addition to its $-NH_2$ and its -COOH functional group, a further hydrophilic functional group,

and one of the m units A^{H1} may further carry a hydrophilic unit other than an amino acid bound to its hydrophilic functional group;

L^{T1} is a trivalent linking group;

R^{CH} is a chelating group which optionally contains a chelated radioactive or non-radioactive cation;

R^{M1} is a hydrophilic modifying group, and p is 0 or 1;