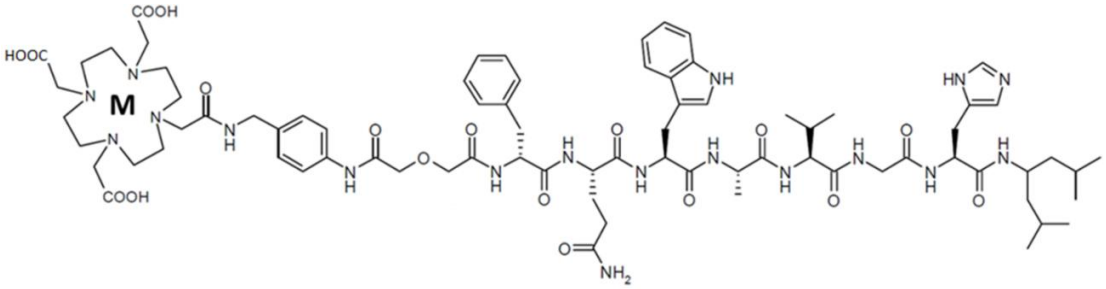
CLAIMS

1. Use of a pharmaceutical composition, in the manufacture of a medicament for the treatment of GRPR-positive tumors in a human subject, wherein said pharmaceutical composition comprises

a compound of formula (I):



(I)

wherein:

M is a radiometal suitable for therapy, selected from ^{169}Er, ^{212}Pb, ^{64}Cu, ^{67}Cu, ^{186}Re, ^{188}Re, ^{90}Y, ^{177}Lu, ^{161}Tb, ^{175}Yb, ^{105}Rh, ^{166}Dy, ^{166}HO, ^{1} ^{53}Sm, ^{149}Pm, ^{151}Pm, ^{121}Sn, ^{213}Bi, ^{21}Bi, ^{142}Pr, ^{143}Pr, ^{198} Au, ^{199} Au, ^{225} Ac, and ^{47}Sc, typically 177-Lutetium; and,

- one or more pharmaceutically acceptable excipients.

wherein said subject has been selected for the treatment by evaluating uptake of a compound of formula (I) wherein M is ^{68}Ga, in the tumors as determined by positron emitting tomography (PET) / computed tomography (CT) or PET/ magnetic resonance imaging (MRI) , and wherein at least 30% of the tumors as detected by imaging in said subject without a compound of formula (I) by MRI, CT, SPECT or PET, are also identified by uptake of a compound of formula (I) wherein M is ^{68}Ga, as determined by PET/MRI or PET/CT imaging in said subject.

2. The use according to claim 1; wherein the radiometal suitable for therapy is ^{177}Lu.

3. The use according to claim 1 or 2 wherein the pharmaceutical composition is a solution for infusion.

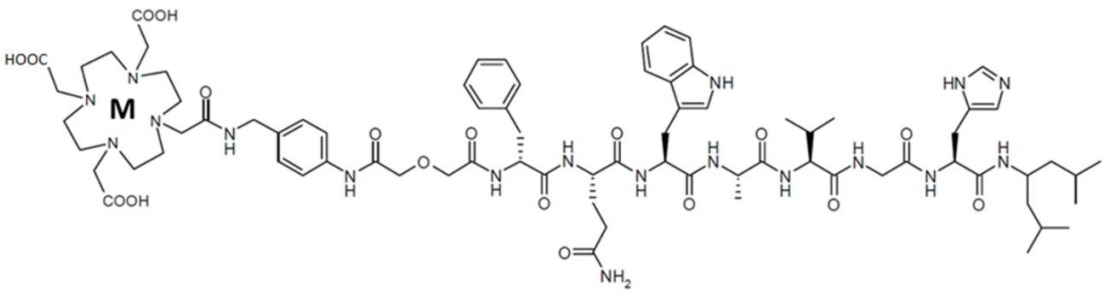
4. The use according to any of claims 1 to 3, wherein, a subject has been selected for the treatment by evaluating uptake of a compound of formula (I) wherein M is ^{68}Ga in the lesions as determined by PET/MRI or PET/CT imaging in said subject.

5. The use according to Claim 4, wherein a subject selected for the treatment fulfils at last the following condition: at least 50% of the lesions as detected by imaging in said subject by MRI, CT, SPECT or PET, are also identified by of a compound of formula (I) wherein M is ^{68}Ga as determined by PET/MRI or PET/CT imaging in said subject.

6. The use according to any of claims 1 to 5, wherein said subject has GRPR-positive solid tumors selected from the group consisting of gastrointestinal stromal tumor (GIST), neuroblastoma, glioblastoma, breast, prostate, lung (small cell and non-small cell), colon-rectum, and renal cancer.

7. A pharmaceutical composition, for use as a contrast agent for PET/CT or PET/MRI imaging in determining whether a subject can be selected for a treatment with radiolabelled GRPR-antagonist for treating GRPR-positive tumors, wherein said pharmaceutical composition comprises

- a compound of formula (I):



(I)

wherein:

M is a radiometal for use as contrast agent in PET imaging, selected from ^{1}In, ^{133m}In, ^{99m}Tc, ^{94m}Tc, ^{67}Ga, ^{66}Ga, ^{68}Ga, ^{52}Fe, ^{72} As, ^{97}Ru, ^{203}Pb, ^{62}Cu, ^{64}Cu, ^{86}Y, ^{51}Cr, ^{52m}Mn, ^{157}Gd, ^{169}Yb, ^{172}Tm, ^{117m}Sn, ^{89}Zr, ^{43} Sc, and ^{44}Sc, for example 68-Gallium and,

- one or more pharmaceutically acceptable excipients,

wherein said subject is selected for the treatment by evaluating uptake of said compound of formula (I) in GRPR-positive tumors by PET/CT or PET/MRI imaging in said subject, wherein at least 30% of the tumors as detected by imaging in said subject without a compound of formula (I) by MRI, CT, SPECT or PET, are also identified by uptake of a compound of formula (I) wherein M is ^{68}Ga, as determined by PET/MRI or PET/CT imaging in said subject.

8. The pharmaceutical composition for use according to claim 7 ; wherein M is ^{68}Ga.

9. The pharmaceutical composition for use according to claim 7 or 8, wherein a subject selected for the treatment fulfils the following condition: at least 50% of the lesions as detected by imaging in said subject by MRI, CT, SPECT or PET, are also identified by uptake of a compound of formula (I) wherein M is ^{68}Ga ,as determined by PET/MRI or PET/CT imaging in said subject.

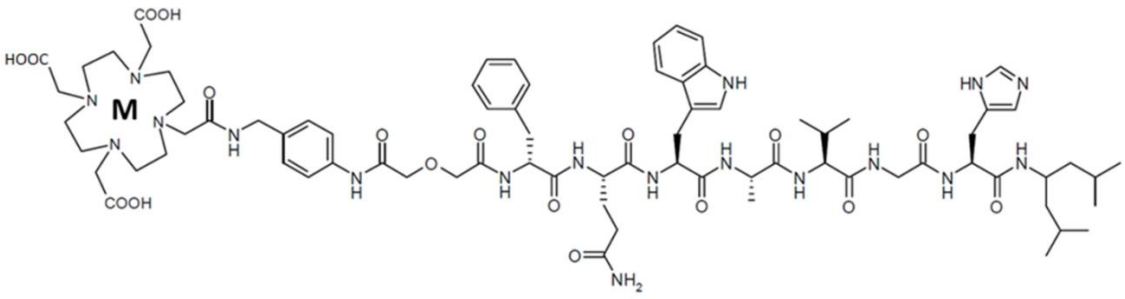
10. The pharmaceutical composition for use according to any of claims 7 to 9, wherein said subject has GRPR-positive solid tumors selected among gastrointestinal stromal tumor (GIST), neuroblastoma, glioblastoma, breast, prostate, lung (small cell and non-small cell), colon-rectum, and renal cancer.

11. A method for determining whether a human patient having tumors can be selected for a treatment with a radiolabelled GRPR antagonist, said method comprising the steps of :

(i) acquiring an image by PET/MRI or PET/CT of said patient, and

(ii) comparing with a control image,

wherein the patient is to be administered an efficient amount of a compound of formula (I)



(I)

wherein M is ^{68}Ga

as a contrast agent for imaging the uptake of said radiolabelled GRPR antagonist prior to step (i); wherein at least 30% of the tumors as detected by imaging in said subject without a compound of formula (I) by MRI, CT, SPECT or PET, are also identified by uptake of a compound of formula (I) wherein M is ^{68}Ga, as determined by PET/MRI or PET/CT imaging in said subject.

12. The method of Claim 11, further comprising a therapeutically efficient amount of a compound of formula (I) but having a radiometal suitable for therapy, selected from ^{169}Er, ^{212}Pb, ^{64}Cu, ^{67}Cu, ^{186}Re, ^{188}Re, ^{90}Y, ^{177}Lu, ^{161}Tb, ^{175}Yb, ^{105}Rh, ^{166}Dy, ^{166}HO, ^{1} ^{53}Sm, ^{149}Pm, ^{151}Pm, ^{121}Sn, ^{213}Bi, ^{21}Bi, ^{142}Pr, ^{143}Pr, ^{198} Au, ^{199} Au, ^{225} Ac, and ^{47}Sc, to be administered.

13. The method of Claim 12, wherein the radiometal suitable for therapy is 177-Lutetium.

14. The method of any one of Claims 11-13, wherein the therapeutic agent is to be administered at least two weeks after the administration of an efficient amount of a of a compound of formula (I) wherein M is ^{68}Ga as a contrast agent for imaging the uptake of said compound of formula (I).