CLAIMS

1. A composition comprising:

   N-benzyl guanidine; and

   a thyrointegrin αvβ3 receptor antagonist;

   wherein the N-benzyl guanidine and the thyrointegrin αvβ3 receptor antagonist are connected by a linker.

2. The composition of claim 1, wherein the linker comprises a polymer.

3. The composition of claim 2, wherein the polymer is polyethylene glycol (PEG).

4. The composition of claim 3, wherein the polyethylene glycol (PEG) has a molecular weight between 200 and 4,000 grams per mole.

5. The composition of claim 1, wherein the thyrointegrin αvβ3 receptor antagonist is selected from the group consisting of triiodothyroacetic acid, triiodothyroacetic acid derivatives, tetraiodothyroacetic acid, and tetraiodothyroacetic acid derivatives.

6. The composition of claim 1, wherein the composition has a utility for the treatment of a neuroendocrine tumor.

7. The composition of claim 6, wherein the neuroendocrine tumor is one of a neuroblastoma, pheochromocytoma, pancreatic neuroendocrine tumor, and carcinoid tumor.

8. The composition of claim 6, wherein the utility for the treatment of the neuroendocrine tumor is maximally provided by both the N-benzylguanidine and the thyrointegrin αvβ3 receptor antagonist.

9. The composition of claim 1, wherein the composition targets neuroendocrine tumor cells via a norepinephrine transporter.

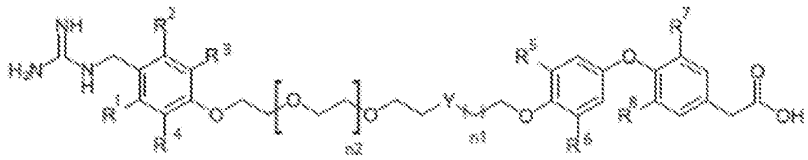
10. The composition of claim 1, wherein the composition targets neuroendocrine tumor cells via reaction with the integrin αvβ3 receptor.

11. The composition of claim 1, wherein the composition targets neuroendocrine tumor cells via both a) the norepinephrine transporter and b) reaction with the integrin αvβ3 receptor.

12. The composition of claim 11, wherein targeting via the norepinephrine transporter is provided by the N-benzyl guanidine and reaction with integrin αvβ3 is provided by the thyrointegrin αvβ3 receptor antagonist.

13. A composition comprising:

a general formula:

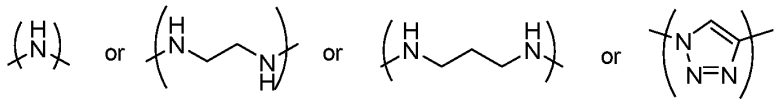


or a salt thereof;

wherein R1, R2, R3, and R4 are each independently selected from the group consisting of hydrogen, iodine, fluorine, bromine, a methoxy group, a nitro group, an amine group, and a nitrile group;

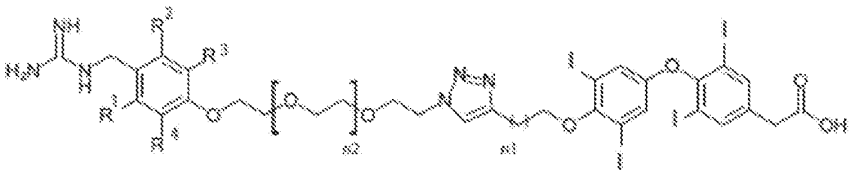
wherein R5, R6, R7, and R8 are each independently selected from the group consisting of hydrogen, iodine, and an alkane group; and

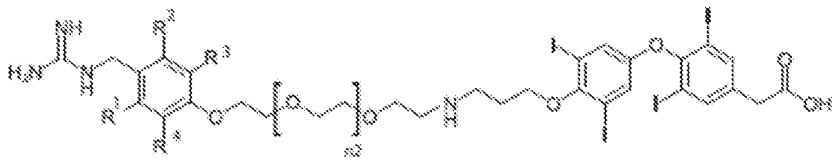
$n_1 \geq 0$;
$n_2 \geq 1$; and
Y =



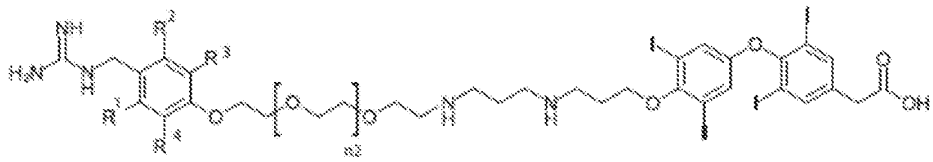
14. The composition of claim 13, wherein at least one of R5, R6, R7, and R8 are selected from the group consisting of an isopropyl group and a tert-butyl group.

15. The composition of claim 13, wherein the composition has a chemical formula selected from the group consisting of:

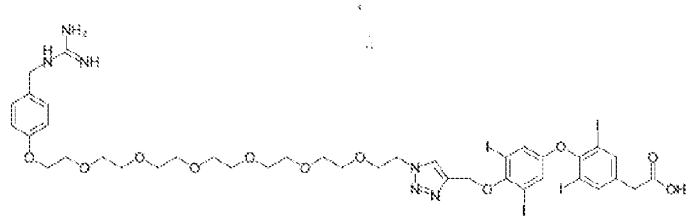




, and



16. The composition of claim 13, wherein the composition has a chemical formula given by



17. A composition for dual targeting of tumor cells, comprising:

a norepinephrine transporter target; and

a thyrointegrin αvβ3 receptor antagonist;

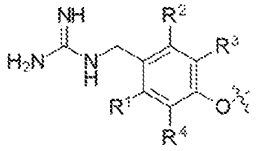
wherein the norepinephrine transporter target and the αvβ3 thyrointegrin receptor antagonist are connected by a linker;

further wherein the composition is configured to dual target tumor cells via a) the norepinephrine transporter and b) reaction with the integrin αvβ3 receptor.

18. The composition of claim 17, wherein the norepinephrine transporter target is one of N-benzyl guanidine and an N-benzyl guanidine derivative.

19. The composition of claim 17, wherein the thyrointegrin αvβ3 receptor antagonist is selected from the group consisting of triiodothyroacetic acid, triiodothyroacetic acid derivatives, tetraiodothyroacetic acid, and tetraiodothyroacetic acid derivatives.

20. The composition of claim 17, wherein the norepinephrine transporter target has a structure given by



wherein R1, R2, R3, and R4 are each independently selected from the group consisting of hydrogen, iodine, fluorine, bromine, a methoxy group, a nitro group, an amine group, and a nitrile group;

and at least one of R1, R2, R3, and R4 is selected from the group consisting of I(123), I(131), and F(18).

21. The composition of claim 20, wherein the composition is used for imaging a neuroendocrine tumor.

22. The composition of claim 20, wherein the composition is used for the treatment of a neuroendocrine tumor by administration in a therapeutic dose.

23. The composition of claim 20, wherein the composition is used for simultaneous imaging and treatment of a neuroendocrine tumor.