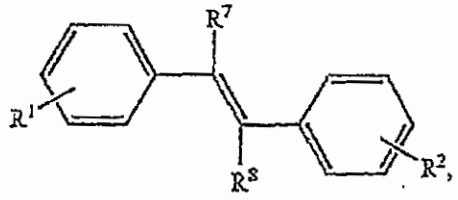
What is claimed is:

1. A compound of Formula II,



II

wherein,

R^1 is selected from the group consisting of:

a. NR^aR^b, wherein R^a and R^b are independently hydrogen, C_{1-4} alkyl, $(CH_2)_dX$, where X is ^{18}F, and d is an integer between 1 and 4, or R^a and R^b are both oxygen to form a nitro;

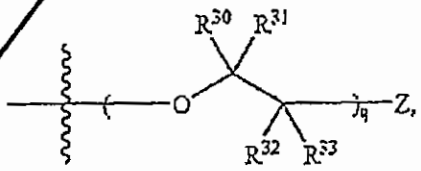
b. hydroxy,

c. C_{1-4} alkoxy, and

d. hydroxy(C_{1-4})alkyl;

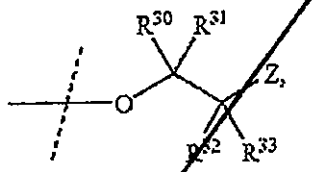
R^2 is selected from the group consisting of:

i.



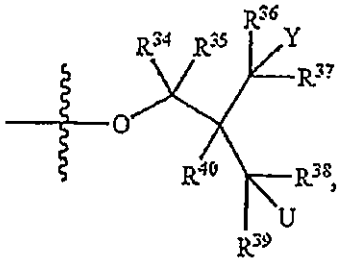
wherein q is an integer from 2 to 10; Z is selected from the group consisting of ^{18}F, ^{18}F substituted benzoyloxy, ^{18}F substituted (C_{1-4})alkoxy, ^{18}F substituted benzyloxy, ^{18}F substituted phenyl(C_{1-4})alkyl, ^{18}F substituted aryloxy, and a ^{18}F substituted C_{6-10} aryl; and R^{30}, R^{31}, R^{32} and R^{33} are in each instance independently selected from the group consisting of hydrogen, hydroxy, C_{1-4} alkoxy, C_{1-4} alkyl and hydroxy(C_{1-4})alkyl;

ii.



wherein Z, R^{30}, R^{31}, R^{32} and R^{33} are as described above, and

iii.



wherein Y is selected from the group consisting of ^{18}F, ^{18}F substituted benzoyloxy, ^{18}F substituted phenyl (C_{1-4})alkyl, ^{18}F substituted aryloxy, and ^{18}F substituted C_{6-10} aryl;

U is selected from the group consisting of hydrogen, hydroxy, ^{18}F, ^{18}F substituted benzoyloxy, ^{18}F substituted phenyl(C_{1-4})alkyl, ^{18}F substituted aryloxy, and ^{18}F substituted C_{6-10} aryl; and

R^{34}, R^{35}, R^{36}, R^{37}, R^{38}, R^{39} and R^{40} are in each instance independently selected from the group consisting of hydrogen, ^{18}F, hydroxy, C_{1-4} alkoxy, C_{1-4} alkyl, and hydroxy(C_{1-4})alkyl;

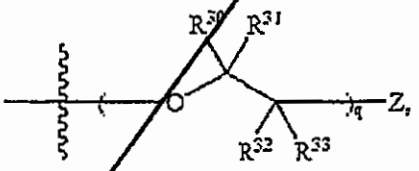
and

R^7 and R^8 are in each instance independently selected from the group consisting of hydrogen, hydroxy, amino, methylamino, dimethylamino, C_{1-4} alkoxy, C_{1-4} alkyl, and hydroxy(C_{1-4})alkyl.

2. The compound of claim 1, wherein R^1 is NR^aR^b, wherein R^a and R^b are independently hydrogen or C_{1-4} alkyl.

3. The compound of claim 2, wherein R^2 is

i.



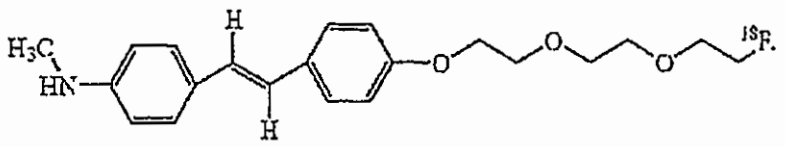
where Z, R^{30}, R^{31}, R^{32} and R^{33} are as described above.

4. The compound of claim 3, wherein q is an integer from 2 to 5.

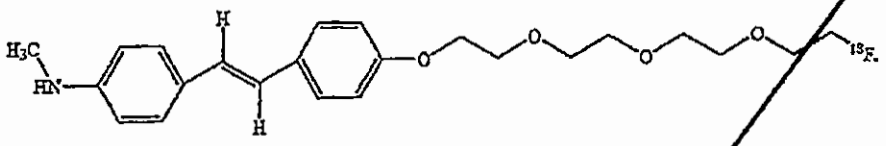
5. The compound of claim 4, wherein R^7 and R^8 are each hydrogen.

6. The compound of claim 5, wherein R^{30}, R^{31}, R^{32} and R^{33} are, in each instance, hydrogen.

7. The compound of claim 6, having the following formula:

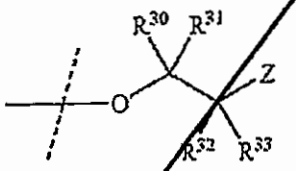


8. The compound of claim 6, having the following formula:



9. The compound of claim 2, wherein R^2 is

ii.



wherein Z, R^{30}, R^{31}, R^{32} and R^{33} are as described above.

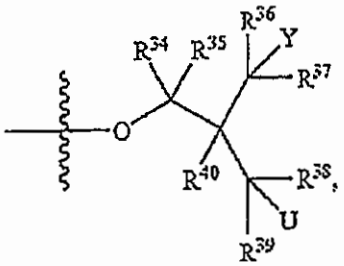
10. The compound of claim 9, wherein Z is ^{18}F.

11. The compound of claim 10, wherein R^7 and R^8 are each hydrogen.

12. The compound of claim 11, wherein R^{30}, R^{31}, R^{32} and R^{33} are, in each instance, hydrogen.

13. The compound of claim 2, wherein R^2 is

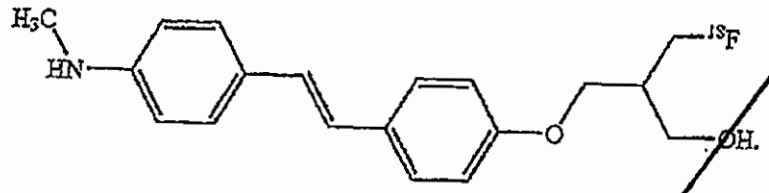
iii.



wherein U is hydroxy.

14. The compound of claim 13, wherein R^{34}, R^{35}, R^{36}, R^{37}, R^{38}, R^{39} and R^{40} are, in each instance, hydrogen.

15. The compound of claim 14, having the following structure:



16. A pharmaceutical composition comprising a compound of claim 1.

17. A diagnostic composition for imaging amyloid deposits, comprising a radiolabeled compound of claim 1.

18. A method of imaging amyloid deposits, comprising:

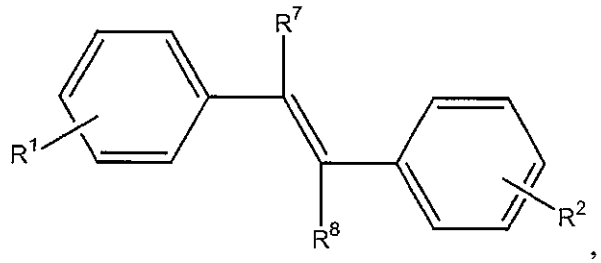
a. introducing into a mammal a detectable quantity of a diagnostic composition of claim 17,

b. allowing sufficient time for the labeled compound to be associated with amyloid deposits; and

c. detecting the labeled compound associated with one or more amyloid deposits.

CLAIMS

1. A compound of Formula II,



II

,

whercin,

R^1 is selected from the group consisting of:

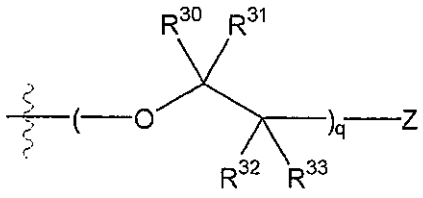
a. NR^aR^b, wherein R^a and R^b are independently hydrogen, C_{1-4} alkyl, $(CH_2)_dX$, where X is ^{18}F, and d is an integer between 1 and 4, or R^a and R^b are both oxygen to form a nitro;

b. hydroxy,

c. C_{1-4} alkoxy, and

d. hydroxy(C_{1-4})alkyl;

R^2 is



,

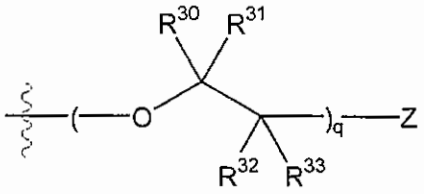
wherein q is an integer from 2 to 10; Z is selected from the group consisting of ^{18}F, and ^{18}F substituted (C_{1-4})alkoxy; and R^{30}, R^{31}, R^{32} and R^{33} are in each instance independently selected from the group consisting of hydrogen, hydroxy, C_{1-4} alkoxy, C_{1-4} alkyl and hydroxy(C_{1-4})alkyl;

and

R^7 and R^8 are in each instance independently selected from the group consisting of hydrogen, hydroxy, amino, methylamino, dimethylamino, C_{1-4} alkoxy, C_{1-4} alkyl, and hydroxy(C_{1-4})alkyl.

2. The compound of claim 1, wherein R^1 is NR^aR^b, wherein R^a and R^b are independently hydrogen or C_{1-4} alkyl.

3. The compound of claim 2, wherein R^2 is

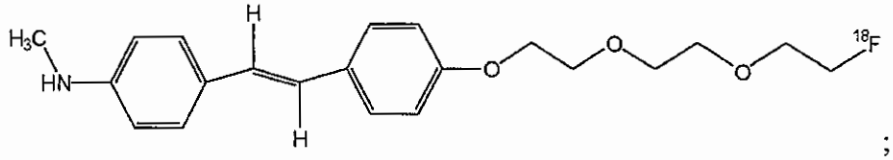


wherein Z, R^{30}, R^{31}, R^{32} and R^{33} are as described above.

4. The compound of claim 3, wherein q is an integer from 2 to 5.

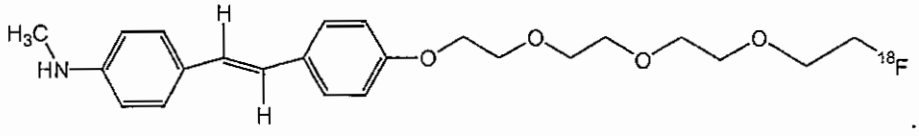
5. The compound of claim 4, wherein R^7 and R^8 are each hydrogen; and wherein optionally R^{30}, R^{31}, R^{32} and R^{33} are, in each instance, hydrogen.

6. The compound of claim 5, having the following formula:



;

or



.

7. A pharmaceutical composition comprising a compound of claim 1.

8. A diagnostic composition for imaging amyloid deposits, comprising a radiolabeled compound of claim 1.

9. A method of imaging amyloid deposits, comprising:

a. introducing into a mammal a detectable quantity of a diagnostic composition of claim 8;

b. allowing sufficient time for the labeled compound to be associated with amyloid deposits; and

c. detecting the labeled compound associated with one or more amyloid deposits.

10. The composition of claim 7 or the radiolabeled compound of claim 1 for use for inhibiting amyloid plaque aggregation in a mammal.

11. A compound selected from the group consisting of:

methanesulfonic acid 2-[2-(4-{2-[4-(tert-butoxycarbonyl-methyl-amino)-phenyl]-vinyl}-phenoxy)-ethoxy]-ethyl ester (**10a**);

methanesulfonic acid 2-{2-[2-(4-{2-[4-(tert-butoxycarbonyl-methyl-amino)-phenyl]-vinyl}-phenoxy)-ethoxy]-ethoxy}-ethyl ester (**10b**);

methanesulfonic acid 2-(2-{2-[2-(4-{2-[4-(tert-butoxycarbonyl-methyl-amino)-phenyl]-vinyl}-phenoxy)-ethoxy]-ethoxy}-ethoxy)-ethyl ester (**10c**);

methanesulfonic acid 2-[2-(2-{2-[2-(4-{2-[4-(tert-butoxycarbonyl-methyl-amino)-phenyl]-vinyl}-phenoxy)-ethoxy]-ethoxy}-ethoxy]-ethoxy)-ethyl ester (**10d**);

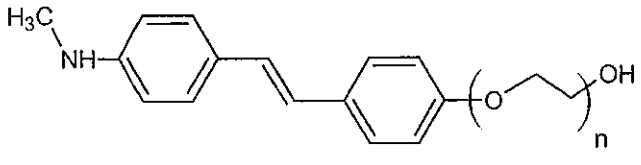
[4-(2-{4-[2-(2-Hydroxy-ethoxy)-ethoxy]-phenyl}-vinyl)-phenyl]-methyl-carbamic acid tert-butyl ester (**9a**);

{4-[2-(4-{2-[2-(2-Hydroxy-ethoxy)-ethoxy]-ethoxy}-phenyl)-vinyl]-phenyl}-methyl-carbamic acid tert-butyl ester (**9b**);

(4-{2-[4-(2-{2-[2-(2-Hydroxy-ethoxy)-ethoxy]-ethoxy}-ethoxy)-phenyl]-vinyl}-phenyl)-methyl-carbamic acid tert-butyl ester (**9c**); and

[4-(2-{4-[2-(2-{2-[2-(2-Hydroxy-ethoxy)-ethoxy]-ethoxy}-ethoxy)-ethoxy]-phenyl}-vinyl)-phenyl]-methyl-carbamic acid tert-butyl ester (**9d**).

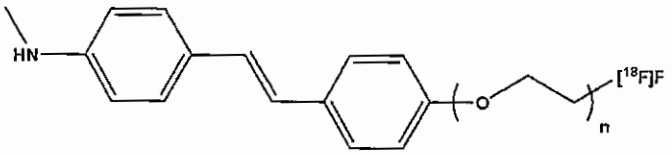
12. A compound having the following formula:



(3a-d)

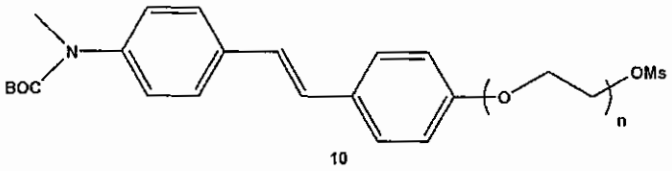
wherein n is an integer from 2 to 5.

13. A process of making a compound of claim 1, wherein the compound is of Formula [^{18}F]12:



[18F]12

wherein n = 2, 3, 4 or 5, comprising reacting a compound of Formula 10:



10

with $[^{18}F]F^-$/Kryptofix 222 ("K222") and K_2CO_3 in DMSO and treating the resulting mixture with aqueous HCl.