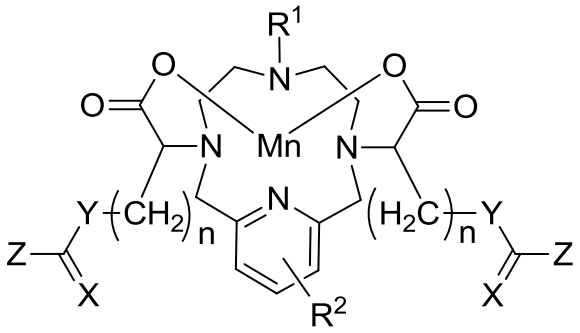
Claims

1. A compound of Formula I or a salt or solvate thereof:



(I)

wherein:

X is O or S;

Y is O, S or Q-R^3 where Q is N and R^3 is selected from the group comprising C_{1-20} hydroxyalkyl, C_{1-6} alkyl or hydrogen;

Z is O-L-R^4, S-L-R^4, CH(R^3)(L-R^4) or Q(R^3)(L-R^4) where Q and R^3 are as defined for Y and L is an optional linker selected from the groups comprising C_{1-6} alkylene, C_{1-6} hydroxyalkylene and a PEG linker, R^4 is selected from the group comprising C_{1-6} alkyl-R^5, C_{3-6} aryl-R^5, hydroxy, -O-C_{1-3} alkyl-R^5, sulfonyl, a C_{1-12} hydroxyalkyl, a chelate moiety, an amino acid moiety, wherein R^5 represents one or more optional substituents selected from hydroxy, amino, oxo, halo, C_{1-3} alkyl, sulfonamide or -C(=O)-NH-C_{1-6} hydroxyalkyl; or Z is a C_{1-12} hydroxyalkyl;

R^1 is C_{1-3} alkyl or -$(CH_2)_m$-Y^1-C(=X^1)-Z^1 wherein X^1, Y^1 and Z^1 are as defined for X, Y and Z and m is an integer from 2-5;

R^2 represents 0-3 substituents independently selected from the group comprising hydroxy, halo, amino, amido, C_{1-6} alkyl and C_{1-6} hydroxyalkyl; and,

each n is an integer from 0-15;

wherein the compound of Formula I bears at least one hydroxyl group at the end of the Z substituent; and,

wherein said chelate moiety comprises manganese coordinated to a

cheland having 2-4 donor atoms selected from amines, thiols, amides, oximes, and phosphines.

2. The compound as defined in Claim 1 wherein X is O, Y is Q-R^3 wherein Q is N and Z is Q(R^3)(L-R^4) wherein Q is N.

3. The compound as defined in Claim 1 wherein X is S, Y is Q-R^3 wherein Q is N and Z is Q(R^3)(L-R^4) wherein Q is N.

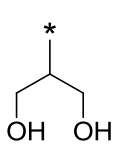
4. The compound as defined in Claim 1 wherein X is O, either Y is O or Z is O-L-R^4 and when Y is not O it is Q-R^3 wherein Q is N and when Z is not O-L-R^4 it is Q(R^3)(L-R^4) wherein Q is N.

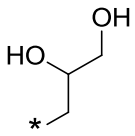
5. The compound as defined in Claim 1 wherein X is S, either Y is O or Z is O-L-R^4 and when Y is not O it is Q-R^3 wherein Q is N and when Z is not O-L-R^4 it is Q(R^3)(L-R^4) wherein Q is N.

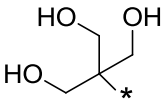
6. The compound as defined in Claim 1 wherein X is O, Y is Q-R^3 wherein Q is N and Z is CH(R^3)(L-R^4).

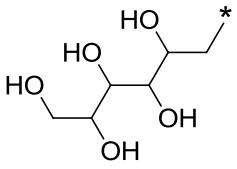
7. The compound as defined in Claim 1 wherein X is O, either Y is O or Z is CH(R^3)(L-R^4).

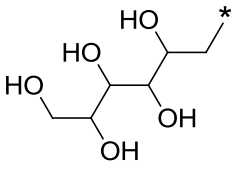
8. The compound as defined in any one of Claims 1-7 wherein each -L-R^4 is independently selected from the group comprising:

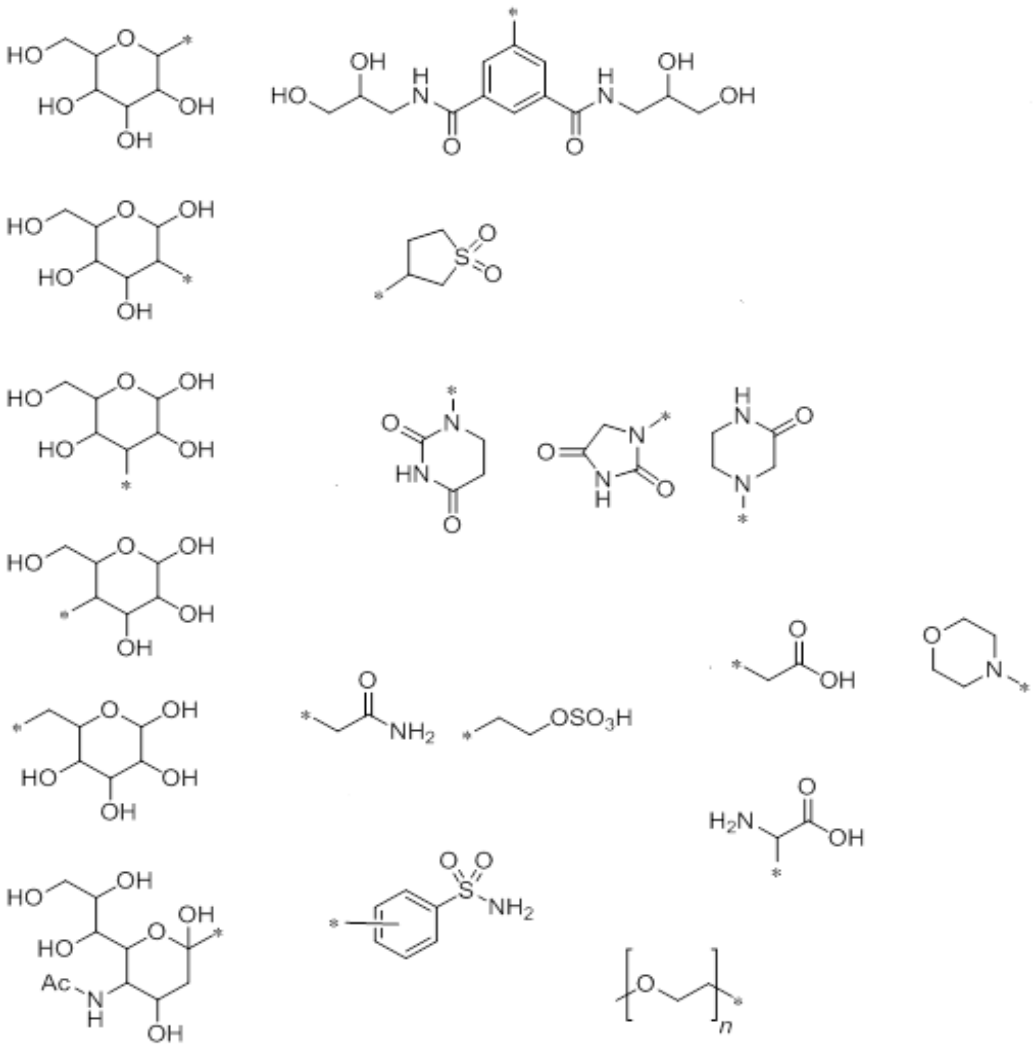












wherein in each case the asterisk denotes the point of attachment to the rest of the compound of Formula I.

9. The compound as defined in any one of Claims 1-8 wherein each R^4 is the same.

10. The compound as defined in any one of Claims 1-9 wherein each R^3 is independently selected from the group comprising C_{1-3} alkyl or hydrogen.

11. The compound as defined in Claim 10 wherein each R^3 is C_{1-3} alkyl.

12. The compound as defined in Claim 10 wherein each R^3 is hydrogen.

13. The compound as defined in any one of Claims 1-12 wherein each R^3 is the same.

14. The compound as defined in any one of Claims 1-13 wherein each n is an

integer from 1-6.

15. The compound as defined in any one of Claims 1-14 wherein m is 3.

16. The compound as defined in any one of Claims 1-15 wherein R^1 is C_{1-3} alkyl.

17. The compound as defined in any one of Claims 1-15 wherein R^1 is $-(CH_2)_m$-Y-C(=X)-Z wherein X, Y, Z and m are as defined in any one of Claims 1-15.

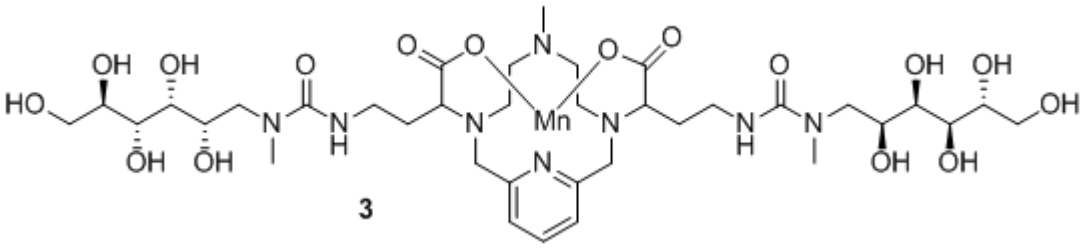
18. The compound as defined in any one of Claims 1-17 wherein R^2 represents 0 substituents.

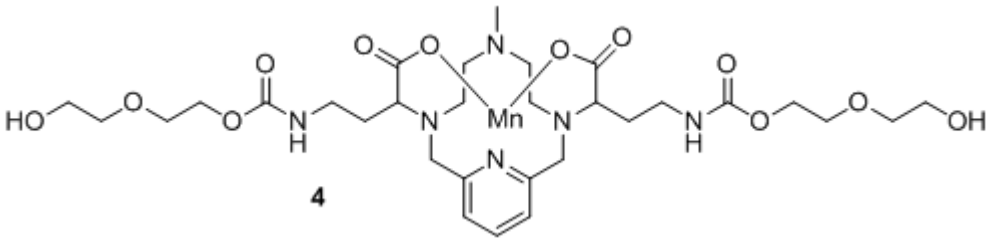
19. The compound as defined in any one of Claims 1-17 wherein R^2 represents 2 hydroxy groups.

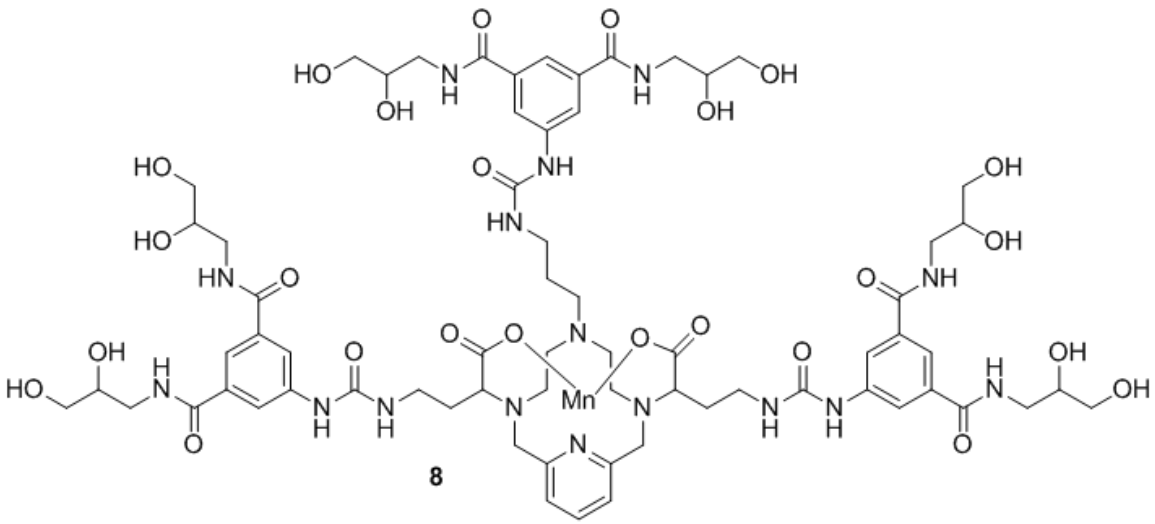
20. The compound as defined in Claim 19 wherein said hydroxyl groups are at the meta positions on the pyridyl ring.

21. The compound as defined in any one of Claims 1-20 which comprises at least 4 hydroxy groups.

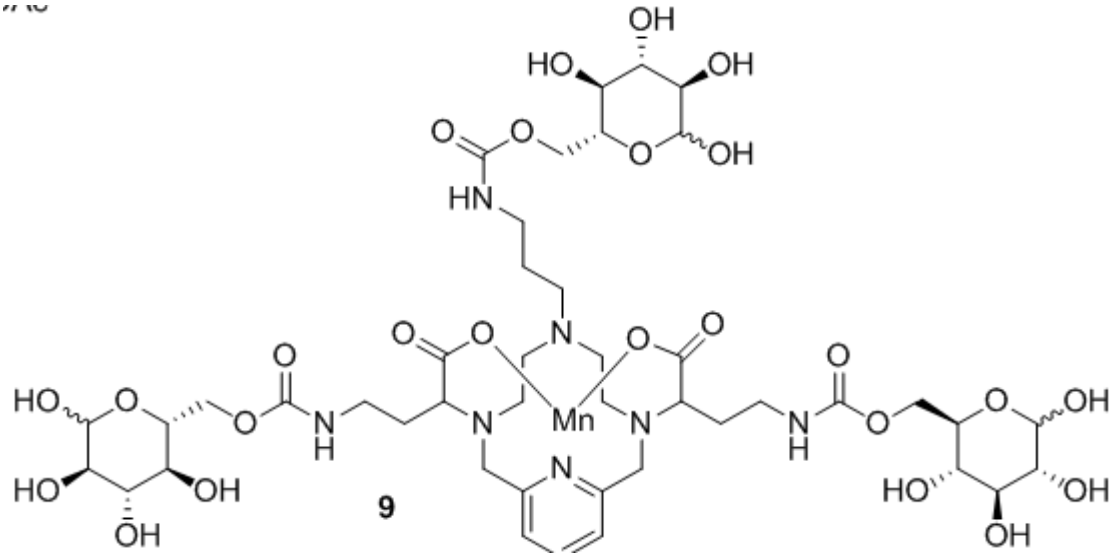
22. The compound as defined in Claim 1 which is selected from the following compounds:



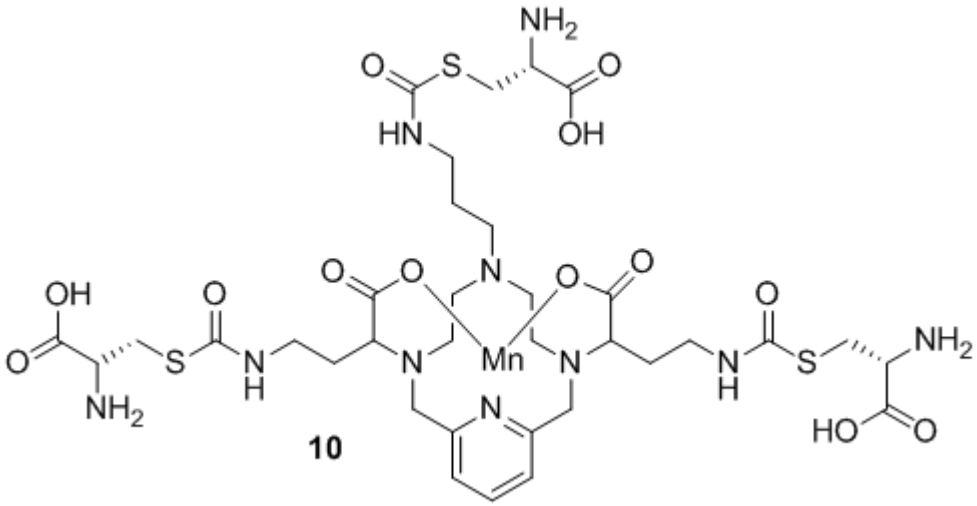




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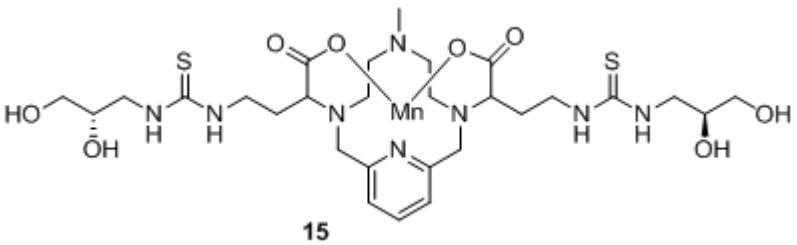


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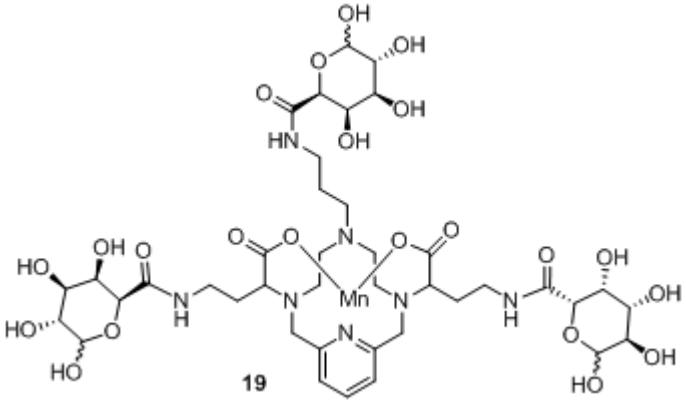


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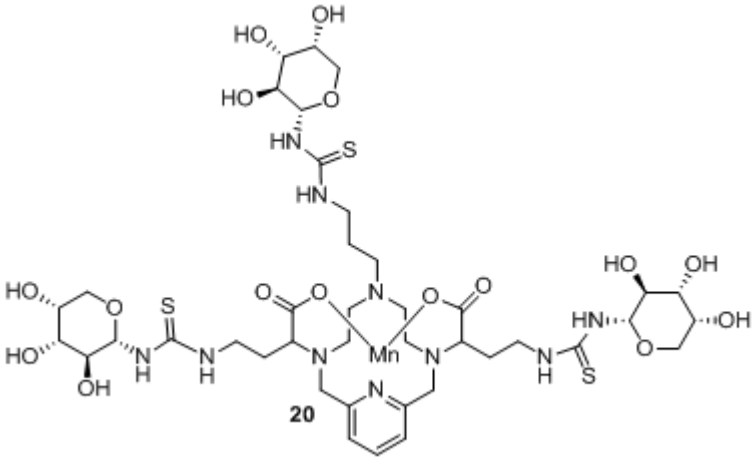
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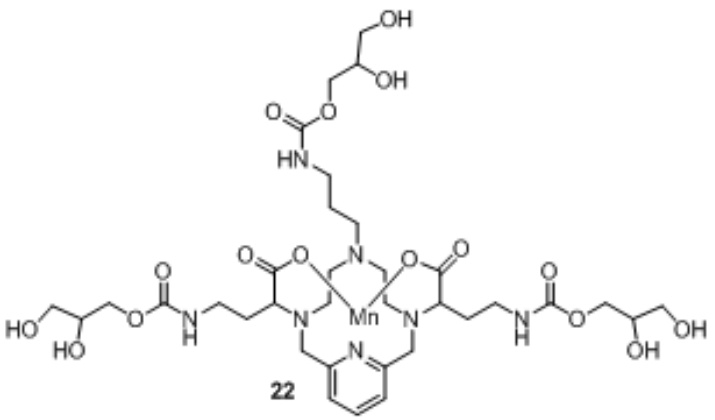
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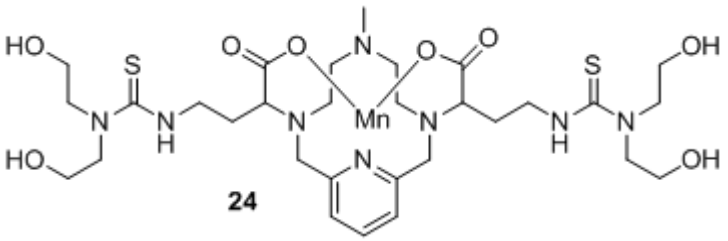
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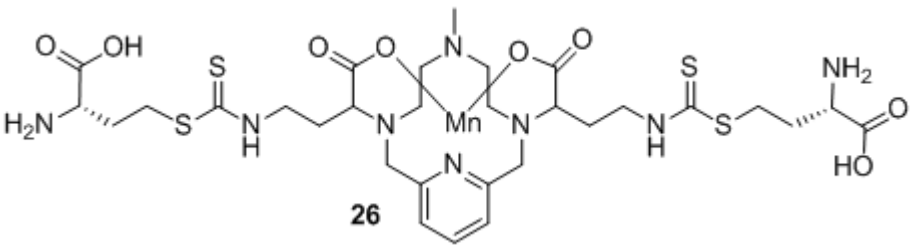
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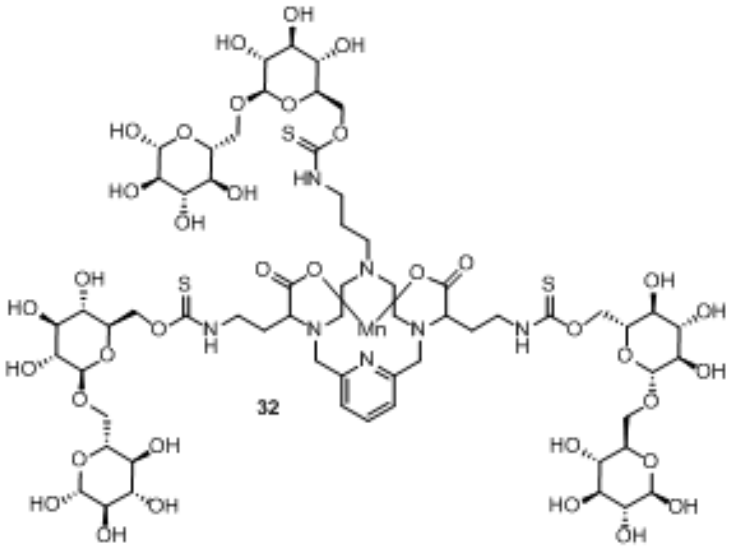


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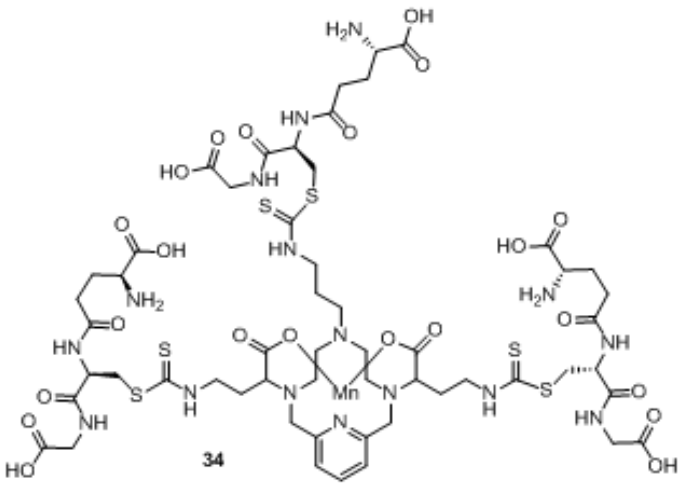


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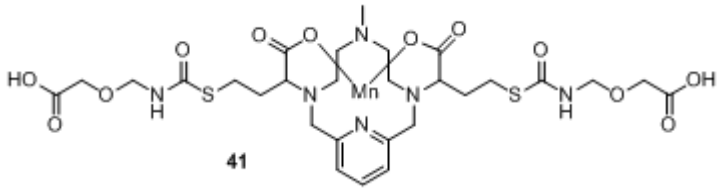
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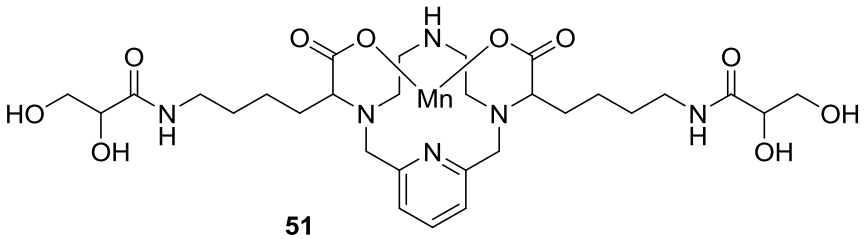
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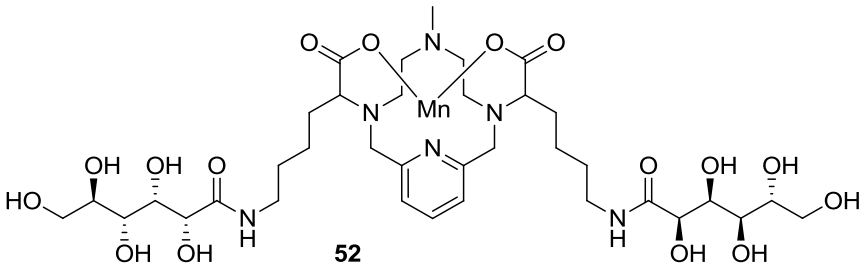
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23. The compound of Formula I as defined in any one of Claims 1-22 which is either a racemic mixture or diastereomerically pure.

24. A pharmaceutical composition comprising the compound of Formula I as defined in any one of Claims 1-23 together with a biocompatible carrier in a form suitable for mammalian administration.

25. The pharmaceutical composition as defined in Claim 24 further comprising one or more pharmaceutically-acceptable excipients.

26. The pharmaceutical composition as defined in Claim 25 wherein said pharmaceutically-acceptable excipients are selected from buffering agents, stabilizers, antioxidants, osmolality adjusting agents, pH adjusting agents, excess cheland and weak complexes of physiologically tolerable ions.

27. A method comprising:

(i) administration to a subject of the compound of Formula I as defined

in any one of Claims 1-23 or the pharmaceutical composition as defined in any one of Claims 24-26;

(ii) detection of magnetic resonance (MR) signals from said subject or parts of said subject in which said compound has distributed;

(iii) generation of MR images and/or MR spectra from said detected signals.

28. The compound of Formula I as defined in any one of Claims 1-23 for use in the method as defined in Claim 27.