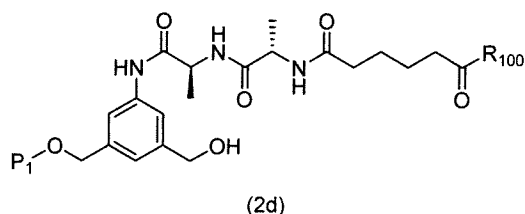
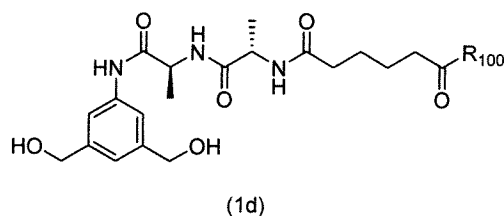


CLAIMS

1. A method of preparing a compound of formula (2d),

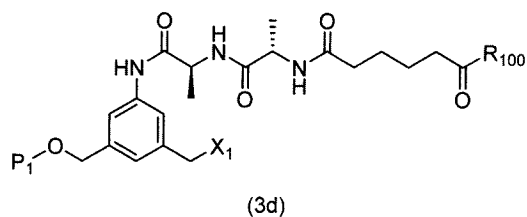


- 5 or a salt thereof, said method comprising introducing an alcohol protecting group onto one of the primary alcohols of a compound of formula (1d) by reacting the compound of formula (1d) with an alcohol protecting reagent,

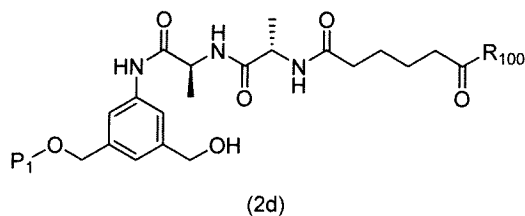


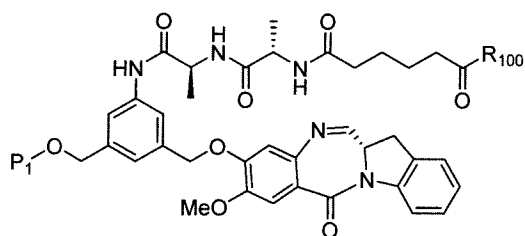
wherein P_1 is the alcohol protecting group; and R_{100} is (C_1-C_3) alkoxy.

- 10 2. A method of preparing a compound of formula (3d),



or a salt thereof, said method comprising reacting a halogenating reagent, a sulfonating reagent or an esterification reagent with a compound of formula (2d),

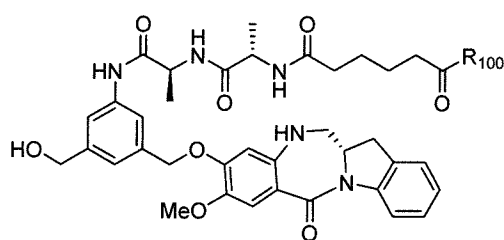




(4d)

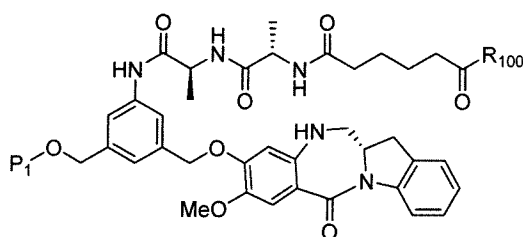
with an imine reducing agent, wherein P₁ is an alcohol protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

5. A method of preparing a compound of formula (6d),



(6d)

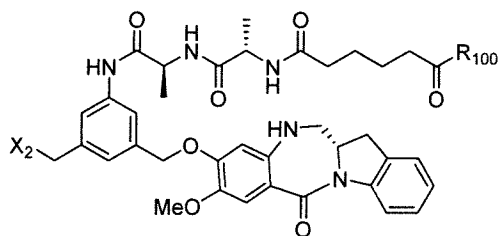
or a salt thereof, said method comprising reacting a compound of formula (5d),



(5d)

with an alcohol deprotecting reagent, wherein P₁ is an alcohol protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

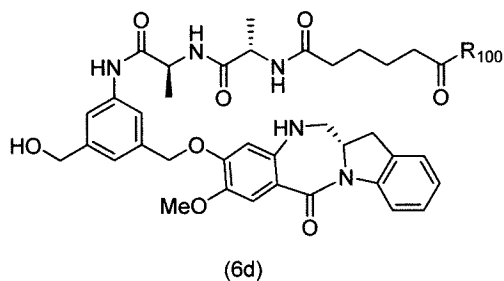
- 10 6. A method of preparing a compound of formula (7d),



(7d)

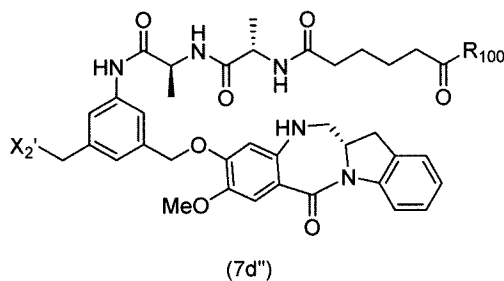
or a salt thereof, said method comprising reacting a halogenating reagent, a sulfonating

reagent or an esterification reagent with the primary alcohol compound of formula (6d),

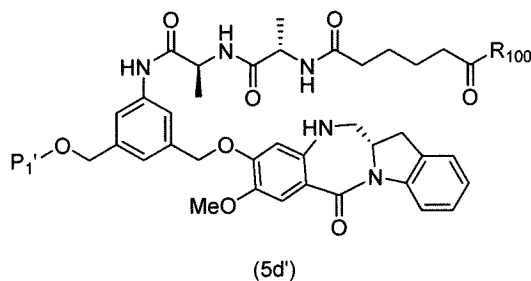


wherein X₂ is a leaving group selected from the group consisting of: -Br, -I, -Cl, a sulfonate ester, and an activated ester (preferably, X₂ is -Br, -I, a sulfonate ester); and R₁₀₀ is (C₁-C₃)alkoxy.

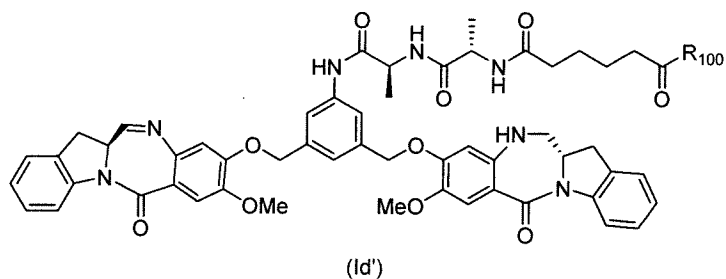
7. A method of preparing a compound of formula (7d'')



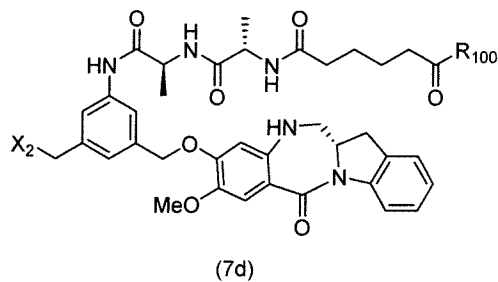
or a salt thereof, said method comprising reacting a compound of formula (5d')



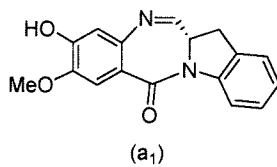
- 10 with an alcohol deprotecting reagent and a halogenating reagent, wherein P₁' is an acid labile alcohol protecting group; X₂' is -Br or -I; and R₁₀₀ is (C₁-C₃)alkoxy.
8. A method of preparing a compound of formula (Id'),



or a pharmaceutically acceptable salt thereof, said method comprising reacting a compound of formula (7d)

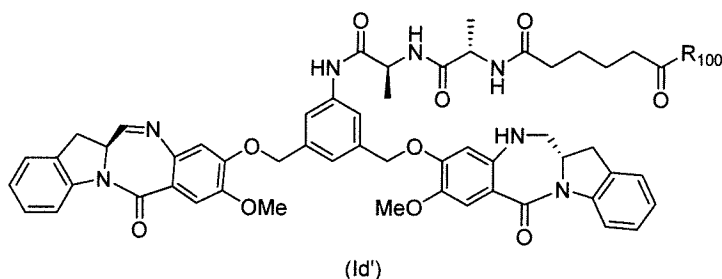


5 with a monomer compound of the formula (a₁),

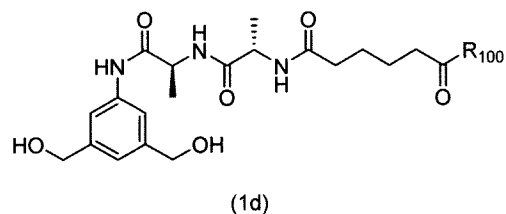


wherein R₁₀₀ is (C₁-C₃)alkoxy; and, X₂ is a leaving group selected from the group consisting of: -Br, -I, -Cl, a sulfonate ester and an activated ester (preferably, X₂ is -Br, -I, or a sulfonate ester).

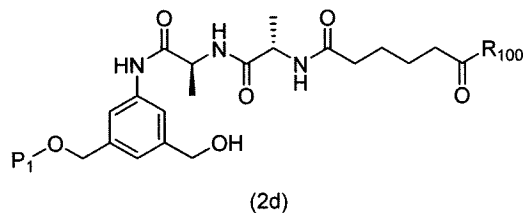
10 9. A method of preparing a compound of formula (Id'),



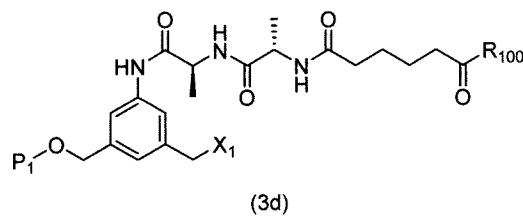
or a pharmaceutically acceptable salt thereof, said method comprising the steps of:
 (1) introducing an alcohol protecting group onto one of the primary alcohols of a compound of formula (1d),



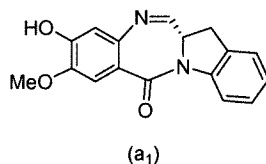
to form a compound of formula (2d),



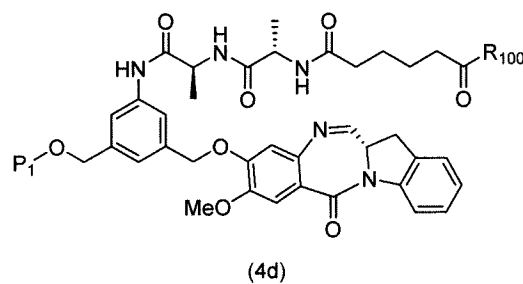
5 (2) reacting the compound of formula (2d) with a halogenating reagent, a sulfonating reagent or an esterification reagent to form a compound of formula (3d),



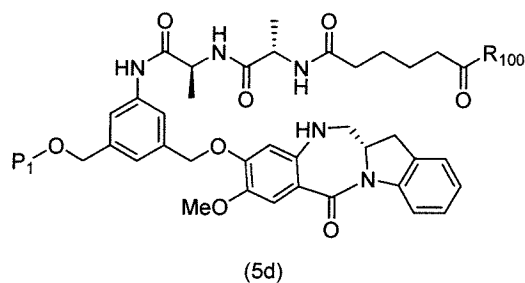
(3) reacting the compound of formula (3d) with a monomer compound of the formula (a₁),



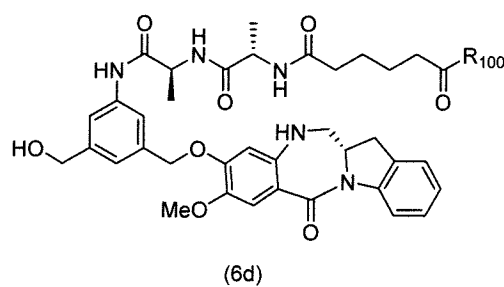
to form a compound of formula (4d),



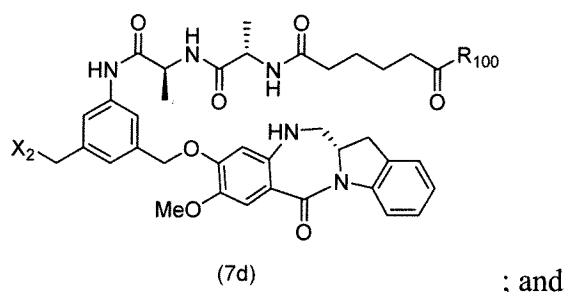
10 (4) reacting the compound of formula (4d) with an imine reducing agent to form a compound of formula (5d),



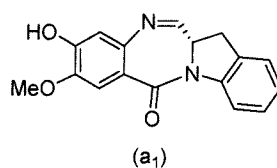
(5) reacting the compound of formula (5d) with an alcohol deprotecting reagent to form a compound of formula (6d),



5 (6) reacting the compound of formula (6d) with a second halogenating reagent, a second sulfonating reagent or a second esterification reagent to form a compound of formula (7d),

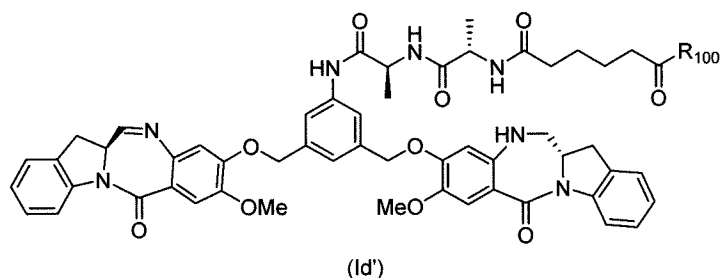


(7) reacting the compound of formula (7d) with a monomer compound of the formula (a₁),

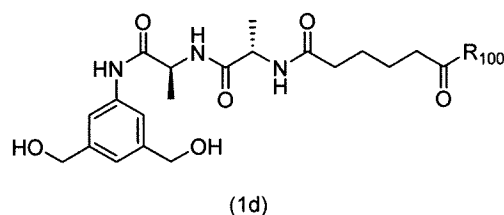


10 to form the compound of formula (Id'); wherein P₁ is an alcohol protecting group; X₁ and X₂ are each independently a leaving group selected from the group consisting of: -Br, -I, -Cl, a sulfonate ester and an activated ester (preferably, X₁ and X₂ are each independently -Br, -I, or a sulfonate ester); and R₁₀₀ is (C₁-C₃)alkoxy.

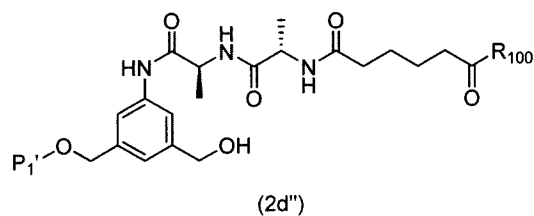
15 10. A method of forming a compound of formula (Id'),



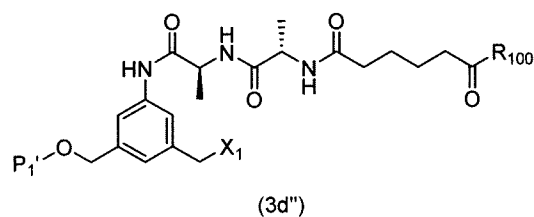
or a pharmaceutically acceptable salt thereof, said method comprising the steps of:
 (1) introducing an alcohol protecting group onto one of the primary alcohols of a compound of formula (1d),



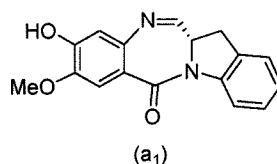
to form a compound of formula (2d''),



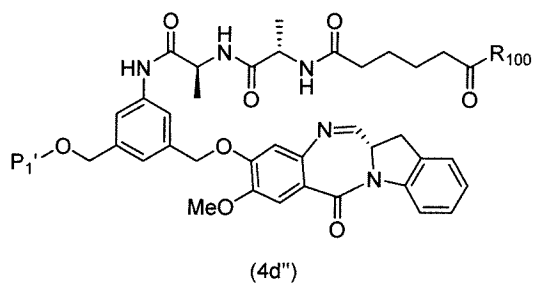
(2) reacting the compound of formula (2d'') with a halogenating reagent, a sulfonating reagent or an esterification reagent to form a compound of formula (3d''),



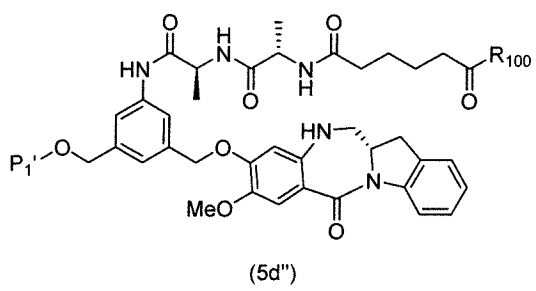
(3) reacting the compound of formula (3d'') with a monomer compound of the formula (a₁),



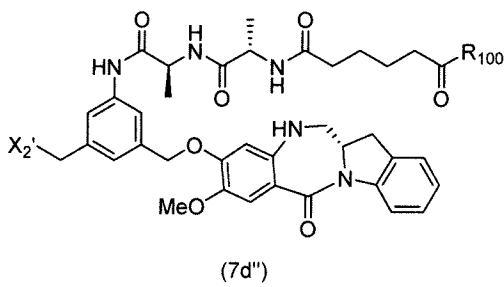
to form a compound of formula (4d''),



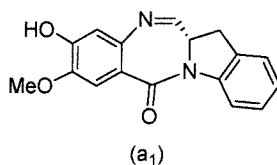
(4) reacting the compound of formula (4d'') with an imine reducing agent to form a compound of formula (5d''),



5 (5) reacting the compound of formula (5d'') with an alcohol deprotecting reagent and a halogenating reagent to form a compound of formula (7d''),

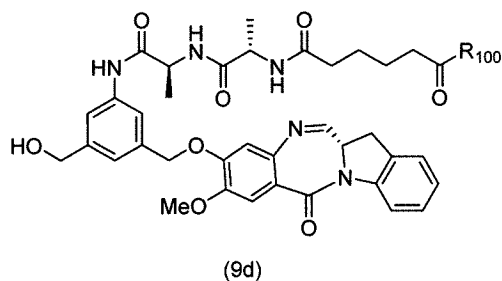


(6) reacting a compound of formula (7d'') with a monomer compound of the formula (a₁),

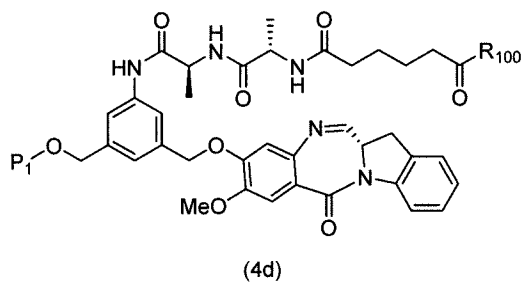


10 to form the compound of formula (Id'), wherein P₁' is an acid labile alcohol protecting group; X₁ is a leaving group selected from the group consisting of: -Br, -I, -Cl, a sulfonate ester and an activated ester (preferably, -Br, -I, a sulfonate ester); X₂' is -Br or -I; and R₁₀₀ is (C₁-C₃)alkoxy.

11. A method of preparing a compound of formula (9d),

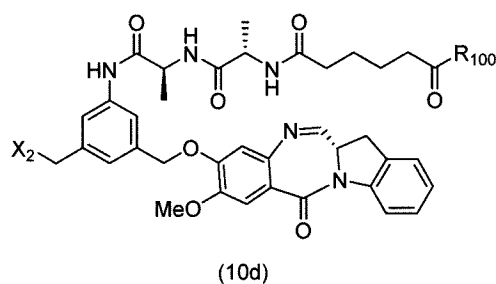


or a salt thereof, said method comprising reacting a compound of formula (4d),

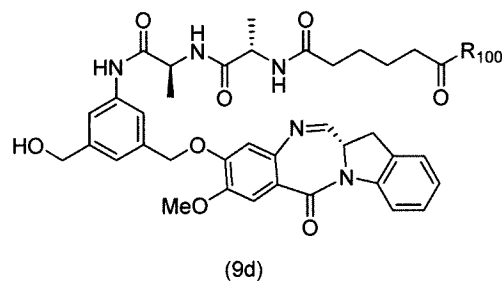


with an alcohol deprotecting reagent; wherein P₁ is an alcohol protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

12. A method of preparing a compound of formula (10d),

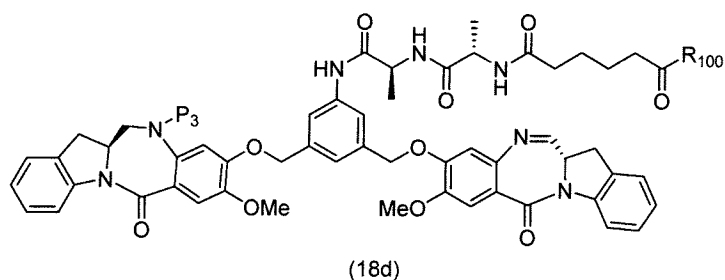


or a salt thereof, said method comprising reacting a halogenating reagent, a sulfonating reagent or an esterification reagent with the compound of formula (9d),



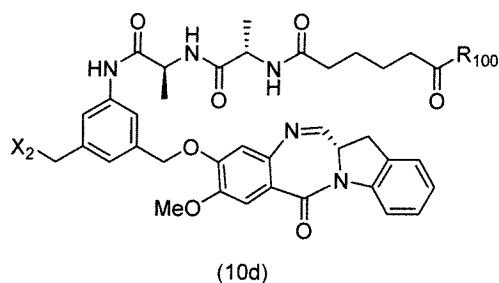
wherein X_2 is a leaving group selected from the group consisting of -Br, -I, -Cl, a sulfonate ester, and an activated ester (preferably, X_2 is -Br, -I, or a sulfonate ester); and R_{100} is (C₁-C₃)alkoxy.

13. A method of preparing a compound of formula (18d),

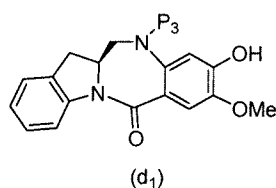


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or a salt thereof, said method comprising reacting a compound of formula (10d)

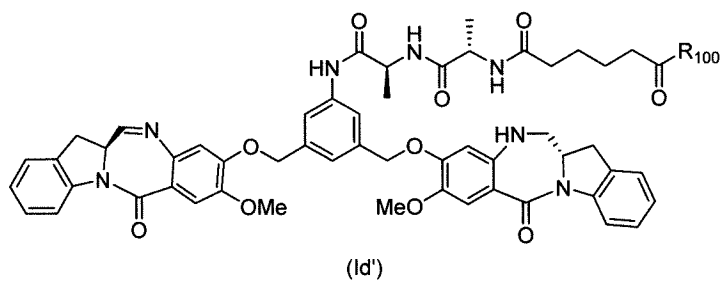


with a monomer compound of the formula (d₁),

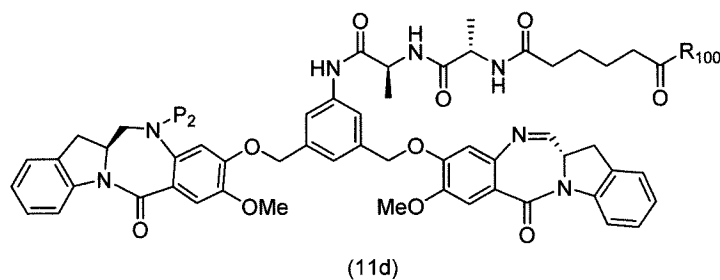


- 10 wherein X_2 is a leaving group selected from the group consisting of: -Br, -I, -Cl, a sulfonate ester, and an activated ester (preferably, X_2 is -Br, -I, or a sulfonate ester); P_3 is H or P_2 ; P_2 is an amine protecting group; and R_{100} is (C₁-C₃)alkoxy.

14. A method of preparing a compound of formula (Id'),

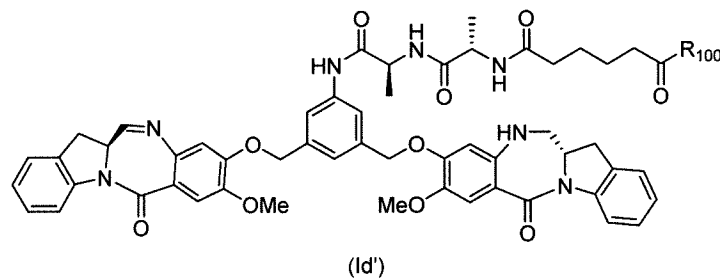


or a pharmaceutically acceptable salt thereof, said method comprising reacting a compound of formula (11d),



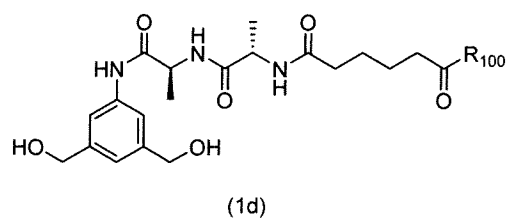
5 with an amine deprotecting reagent; wherein P₂ is an amine protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

15. A method of preparing a compound of formula (Id'),

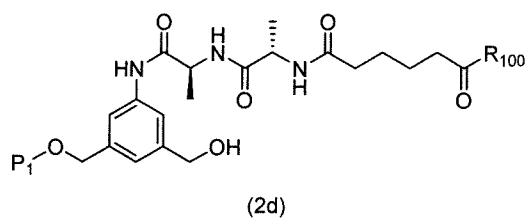


or a pharmaceutically acceptable salt thereof, said method comprising the steps of:

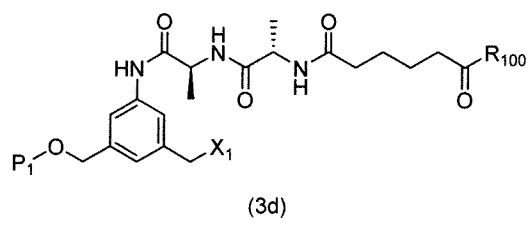
10 (1) introducing an alcohol protecting group onto one of the primary alcohols of the compound of formula (1d),



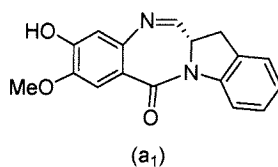
to form a compound of formula (2d),



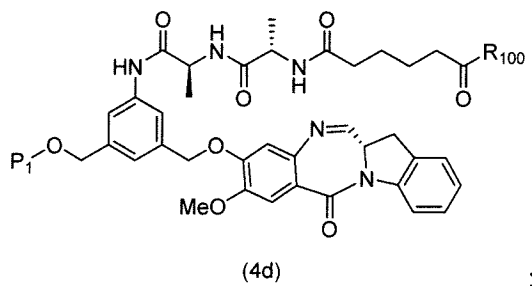
5 (2) reacting a halogenating reagent, a sulfonating reagent or an esterification reagent with the compound of formula (2d) to form a compound of formula (3d),



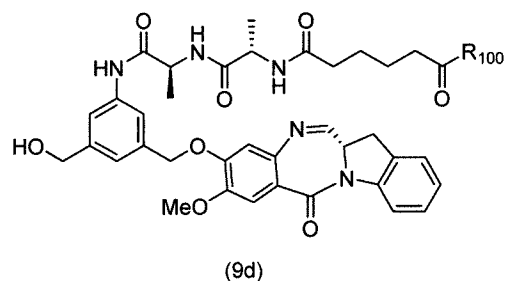
(3) reacting the compound of formula (3d) with a monomer compound of the formula (a₁),



to form a compound of formula (4d),

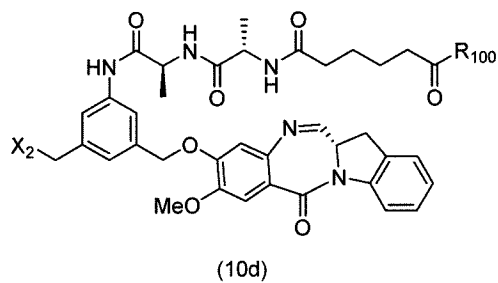


(4) reacting the compound of formula (4d) with an alcohol deprotecting reagent to form a compound of formula (9d),



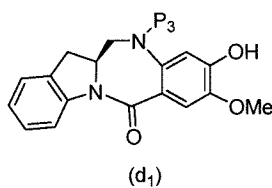
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(5) reacting a second halogenating reagent, a second sulfonating reagent or a second esterification reagent with the compound of formula (9d) to form a compound of formula (10d),



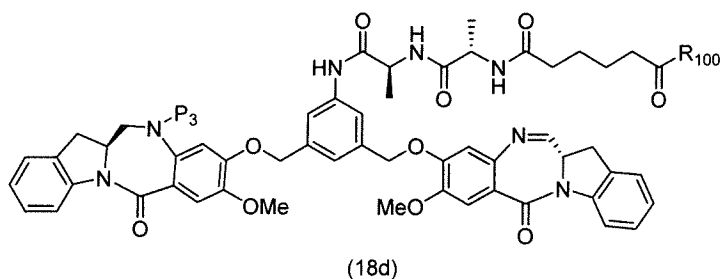
;

(6) reacting the compound of formula (10d) with a monomer compound of the formula (d₁)



10

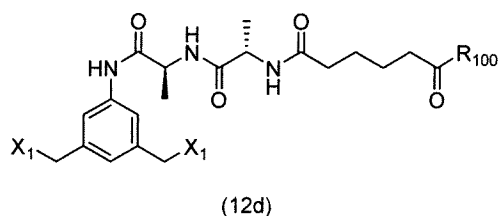
to form a compound of formula (18d),



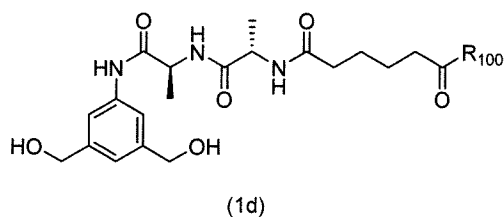
(7) when P_3 is an amine protecting group; reacting the compound of formula (18d) with an amine deprotecting reagent to form the compound of formula (Id'),

wherein P_1 is an alcohol protecting group; X_1 and X_2 are each independently a leaving group selected from the group consisting of: -Br, -I, -Cl, a sulfonate ester, and an activated ester (preferably, -Br, -I, a sulfonate ester); P_2 is an amine protecting group; P_3 is H or P_2 ; and R_{100} is (C_1-C_3) alkoxy.

16. A method of preparing a compound of formula (12d),

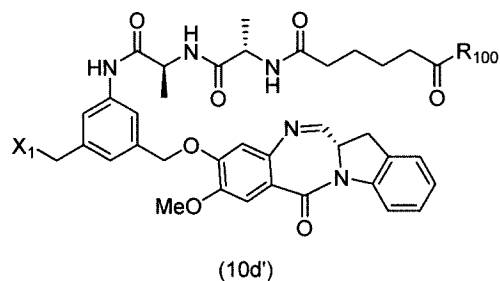


or a salt thereof, said method comprising reacting a compound of formula (1d),

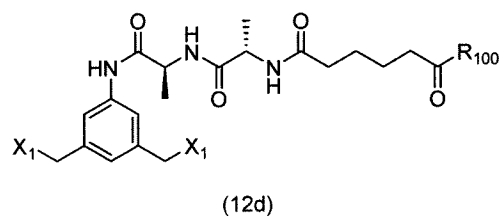


with a halogenating reagent, a sulfonating reagent or an esterification reagent, wherein X_1 is -I, -Cl, a sulfonate ester, or an activated ester (preferably, X_1 is -I, or a sulfonate ester); and R_{100} is (C_1-C_3) alkoxy.

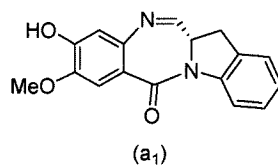
17. A method of preparing a compound of formula (10d'),



or a salt thereof, said method comprising reacting a compound of formula (12d),



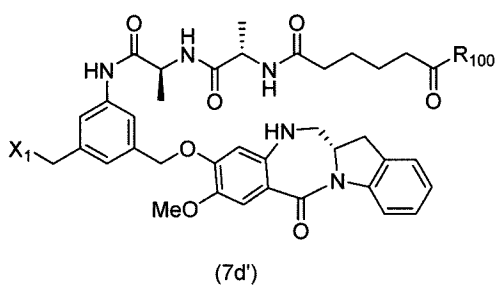
with a monomer compound of the formula (a₁),



5

wherein X₁ is -I, -Cl, a sulfonate ester, or an activated ester (preferably, X₁ is -I, or a sulfonate ester); and R₁₀₀ is (C₁-C₃)alkoxy.

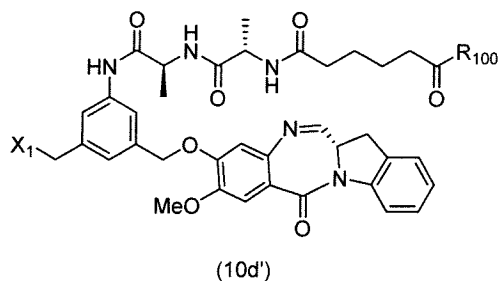
18. A method of preparing a compound of formula (7d'),



,

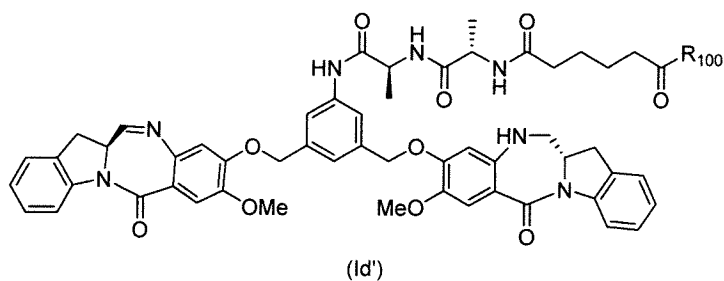
10

or a salt thereof, said method comprising reacting a compound of formula (10d'),



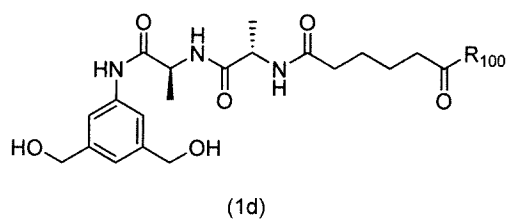
or a salt thereof, with an imine reducing agent, wherein X_1 is -Br, -I, -Cl, a sulfonate ester, or an activated ester (preferably, X_1 is -Br, -I, a sulfonate ester); and R_{100} is (C₁-C₃)alkoxy.

- 5 19. A method of preparing a compound of formula (Id'),



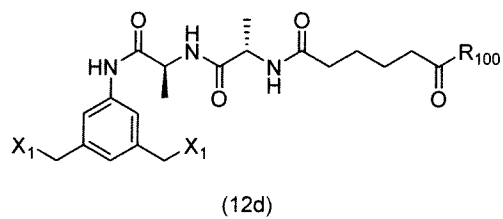
or a pharmaceutically acceptable salt thereof, said method comprising the steps of:

- (1) reacting a halogenating reagent, a sulfonating reagent or an esterification reagent with a compound of formula (1d),



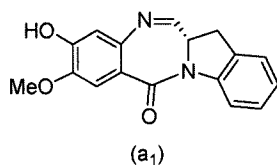
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to form a compound of formula (12d),

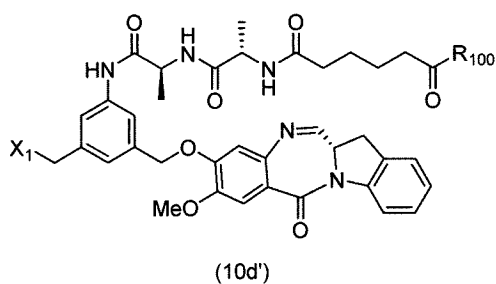


;

(2) reacting the compound of formula (12d) with a monomer compound of the formula (a₁),



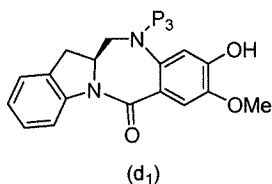
to form a compound of a formula (10d'),



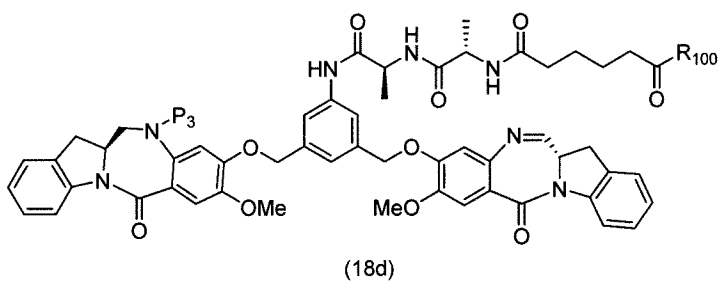
5

;

(3) reacting the compound of formula (10d') with a monomer compound of the formula (d₁),



to form a compound of formula (18d),

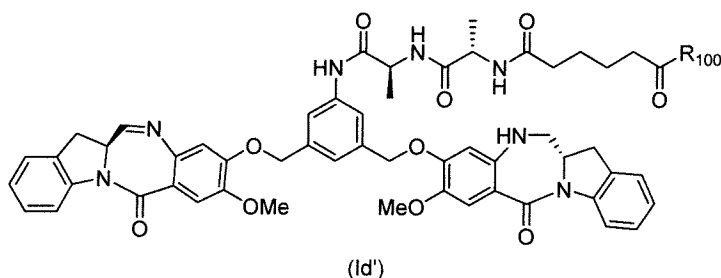


; and

(4) when P₃ is an amine protecting group, reacting the compound of formula (18d) with an amine deprotecting reagent to form the compound of formula (Id'); wherein X₁ is -Br,

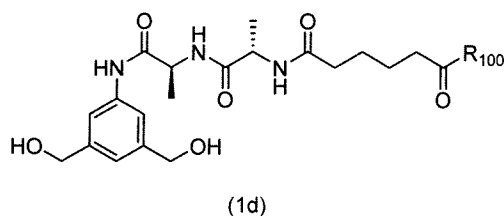
-I, -Cl, a sulfonate ester, or an activated ester (preferably, X_1 is -Br, -I, or a sulfonate ester); P_3 is H or an amine protecting group; and R_{100} is (C_1-C_3) alkoxy.

20. A method of preparing a compound of formula (Id'),

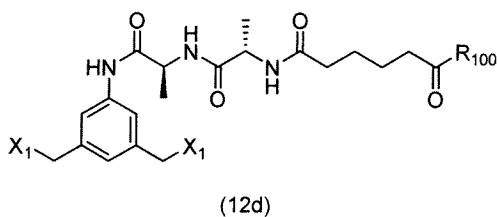


- 5 or a pharmaceutically acceptable salt thereof, said method comprising the steps of:

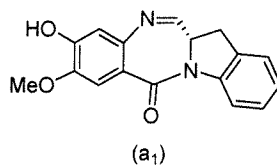
(1) reacting a halogenating reagent, a sulfonating reagent or an esterification reagent with a compound of formula (1d),



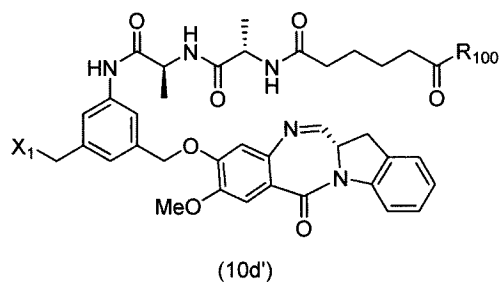
to form a compound of formula (12d),



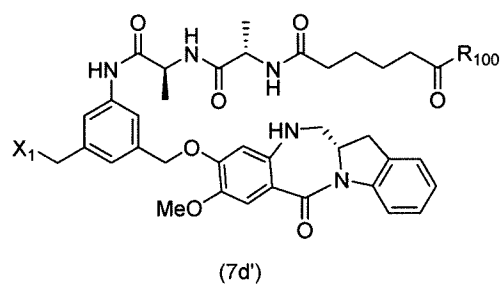
- 10 (2) reacting the compound of formula (12d) with a monomer compound of the formula (a₁),



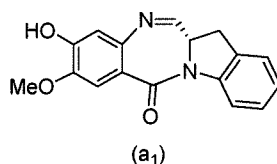
to form a compound of a formula (10d'),



(3) reacting the compound (10d') with an imine reducing reagent to form a compound (7d'),



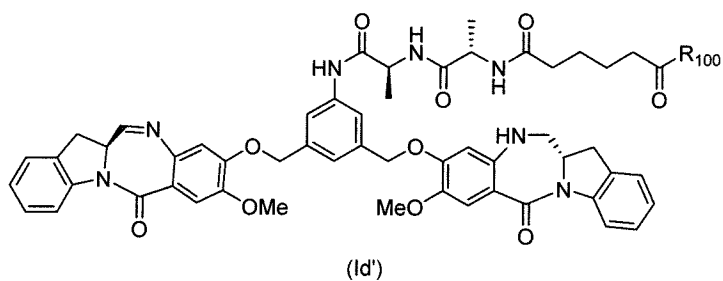
(4) reacting the compound of formula (7d') with a monomer compound of the formula (a₁),



to form a compound of formula (Id'), or a pharmaceutically acceptable salt thereof,

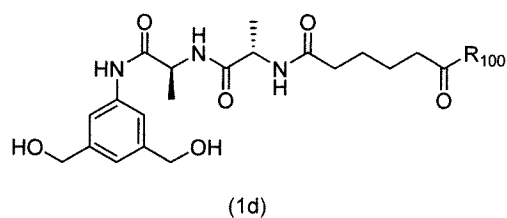
wherein X₁ is -Br, -I, -Cl, a sulfonate ester, or an activated ester (preferably, X₁ is -Br, -I, or a sulfonate ester); and R₁₀₀ is (C₁-C₃)alkoxy.

21. A method of preparing a compound of formula (Id'),



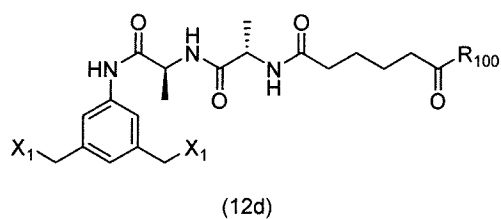
or a pharmaceutically acceptable salt thereof, said method comprising the steps of:

(1) reacting a halogenating reagent, a sulfonating reagent or an esterification reagent with a compound of formula (1d),



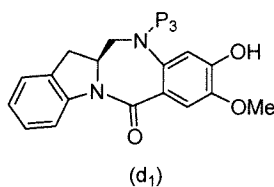
5

to form a compound of formula (12d),



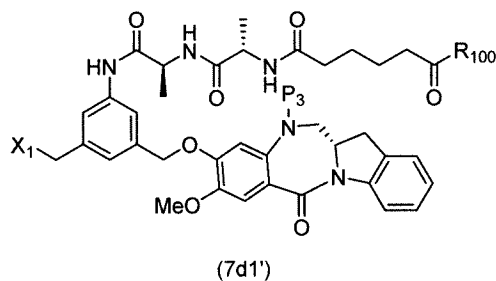
;

(2) reacting the compound of formula (12d) with a monomer compound of the formula (d₁),



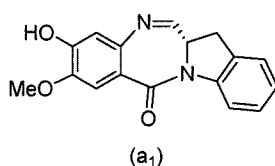
10

to form a compound of a formula (7d1'),

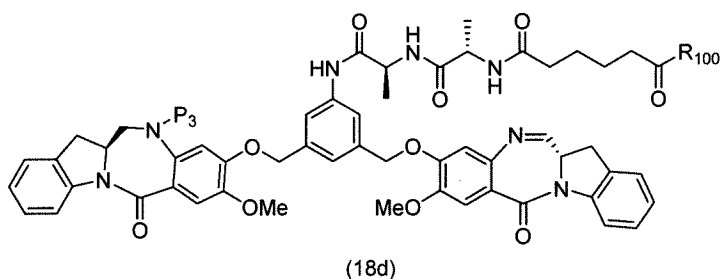


;

(3) reacting the compound of formula (7d1') with a monomer compound of the formula (a₁),



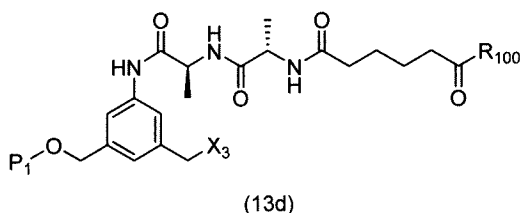
5 to form a compound of formula (18d),



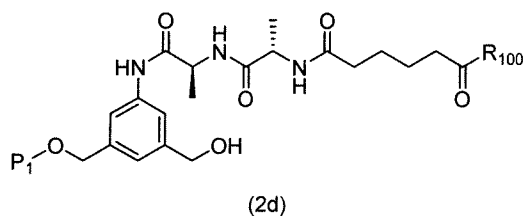
; and

(4) when P₃ is an amine protecting group, reacting the compound of formula (18d) with an amine deprotecting reagent to form the compound of formula (Id'); wherein X₁ is -Br, -I, -Cl, a sulfonate ester, or an activated ester (preferably, X₁ is -Br, -I, or a sulfonate ester); P₃ is H or an amine protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

22. A method of preparing a compound of formula (13d),

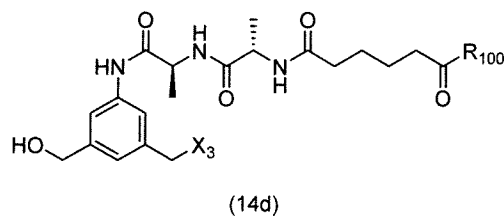


or a salt thereof, said method comprising reacting a chlorinating reagent with a compound of formula (2d),

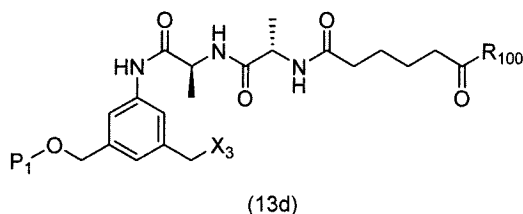


wherein P₁ is an alcohol protecting group; X₃ is -Cl; and R₁₀₀ is (C₁-C₃)alkoxy.

- 5 23. A method of preparing a compound of formula (14d),



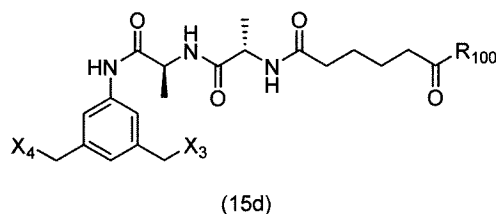
or a salt thereof, said method comprising reacting a compound of formula (13d)



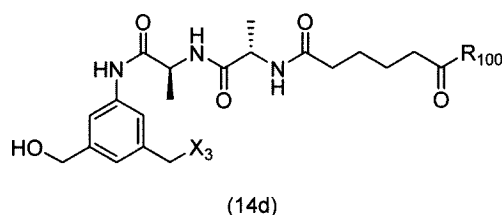
with an alcohol deprotecting reagent, wherein P₁ is an alcohol protecting group; X₃ is -Cl; and R₁₀₀ is (C₁-C₃)alkoxy.

- 10 24. The method of claim 23, wherein the alcohol protecting group is a silyl protecting group.
- 15 25. The method of claim 24, the silyl protecting group is the silyl protecting group is dimethylisopropylsilyl, diethylisopropylsilyl, dimethylhexylsilyl, trimethylsilyl, triisopropylsilyl, tribenzylsilyl, triphenylsilyl, 2-norbornyldimethylsilyl, *tert*-butyldimethylsilyl, *tert*-butyldiphenylsilyl, 2-trimethylethylsilyl (TEOC), or [2-(trimethylsilyl)ethoxy]methyl.

26. The method of claim 25, wherein the silyl protecting group is triethylsilyl, triisopropylsilyl, or tert-butyldimethylsilyl.
27. The method of claim 26, wherein the silyl protecting group is tert-butyldimethylsilyl.
28. The method of any one of claims 23-27, wherein the alcohol deprotecting reagent is tetra-
 5 n-butylammonium fluoride, tris(dimethylamino)sulfonium difluorotrimethylsilicate, hydrogen fluoride or a solvate thereof, hydrogen fluoride pyridine, silicon tetrafluoride, hexafluorosilicic acid, cesium fluoride, hydrochloric acid, acetic acid, trifluoroacetic acid, pyridinium p-toluensulfonate, p-toluenesulfonic acid (p-TsOH), formic acid, periodic acid.
- 10 29. The method of claim 28, wherein the alcohol deprotecting agent is hydrogen fluoride pyridine.
30. A method of preparing a compound of formula (15d):

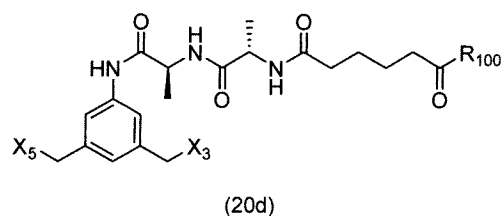


or a salt thereof, said method comprising reacting a sulfonating reagent or an
 15 esterification reagent with a compound of formula (14d),

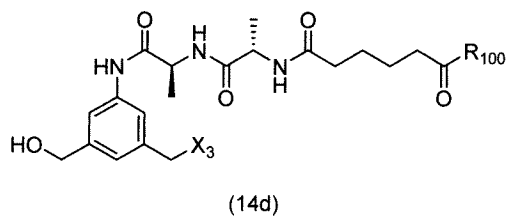


wherein X₃ is -Cl; X₄ is a sulfonate ester or an activated ester (preferably, a sulfonate ester); and R₁₀₀ is (C₁-C₃)alkoxy.

31. A method of preparing a compound of formula (20d):

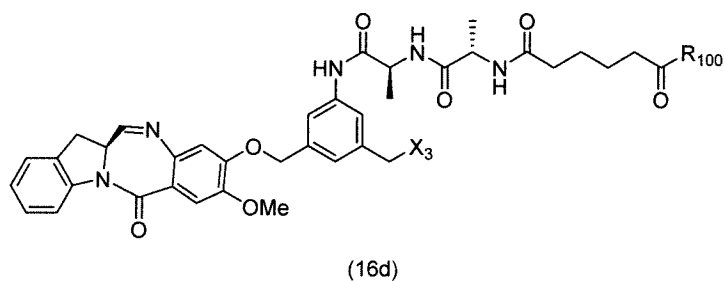


or a salt thereof, said method comprising reacting a brominating or iodinating reagent with a compound of formula (14d),

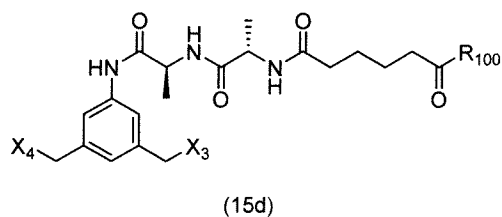


5 wherein X₃ is -Cl; X₅ is -Br or -I; and R₁₀₀ is (C₁-C₃)alkoxy.

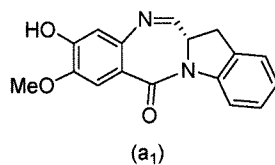
32. A method of preparing a compound of formula (16d):



or a salt thereof, said method comprising reacting a compound of formula (15d)

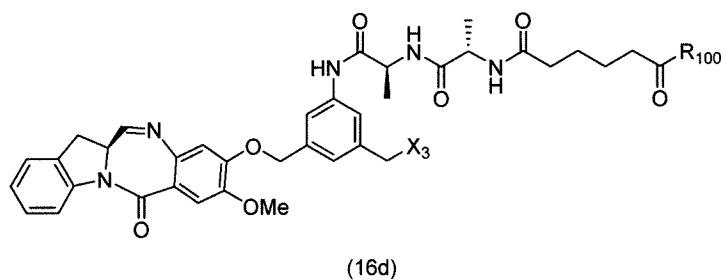


10 with a monomer compound of formula (a₁),

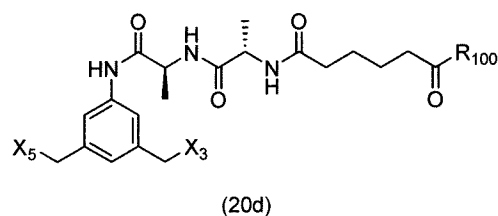


wherein X₃ is -Cl; X₄ is a sulfonate ester or an activated ester (preferably, a sulfonate ester); and R₁₀₀ is (C₁-C₃)alkoxy.

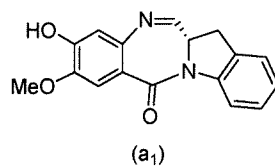
33. A method of preparing a compound of formula (16d):



or a salt thereof, said method comprising reacting a compound of formula (20d)

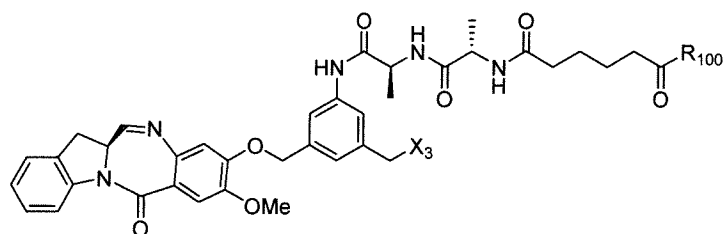


with a monomer compound of formula (a₁),



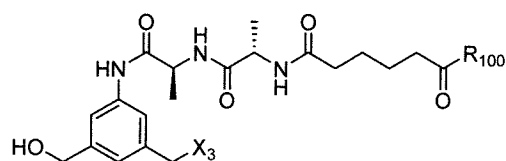
wherein X₃ is -Cl; X₅ is -Br or -I; and R₁₀₀ is (C₁-C₃)alkoxy.

34. A method of preparing a compound of formula (16d):



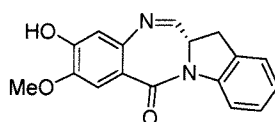
(16d)

or a salt thereof, said method comprising reacting a compound of formula (14d)



(14d)

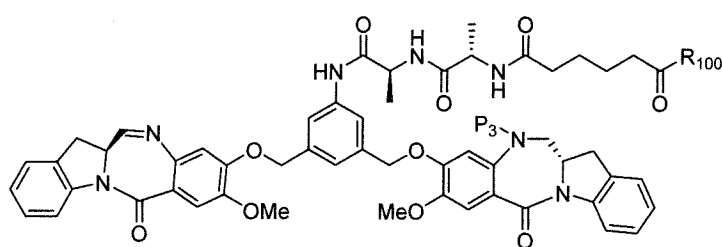
with a monomer compound of formula (a₁),



(a₁)

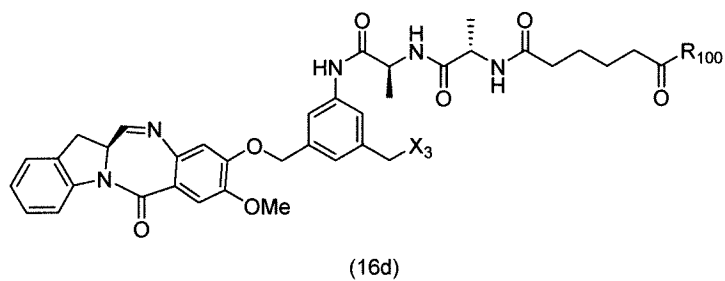
wherein X₃ is -Cl; and R₁₀₀ is (C₁-C₃)alkoxy.

35. A method of preparing a compound of formula (18d):

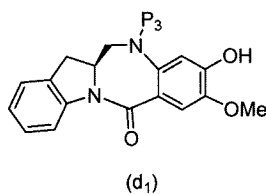


(18d)

or a pharmaceutically acceptable salt thereof, said method comprising reacting a compound of formula of (16d):

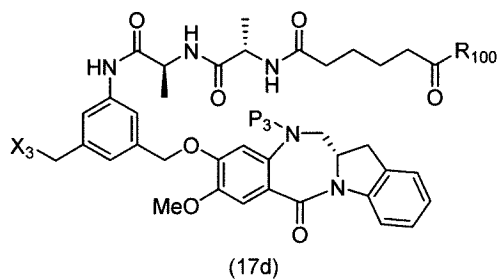


with a reduced monomer of formula (d₁):

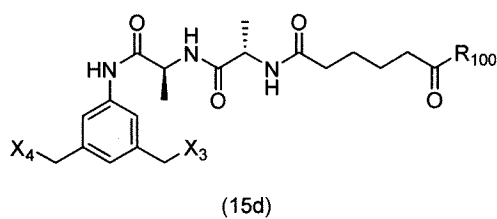


wherein X₃ is -Cl; P₃ is H or an amine protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

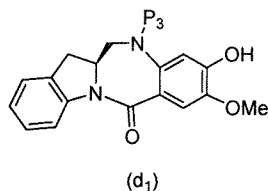
- 5 36. A method of preparing a compound of formula (17d):



or a salt thereof, said method comprising reacting a compound of formula (15d)

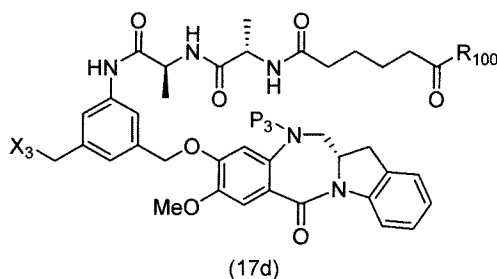


with a monomer compound of formula (d₁),

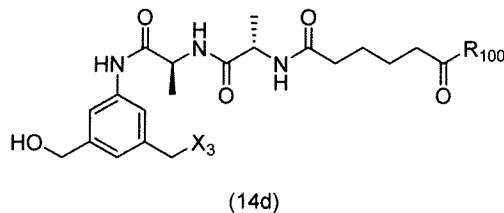


wherein X₃ is –Cl; X₄ is a sulfonate ester or an activated ester (preferably, a sulfonate ester); P₃ is H or an amine protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

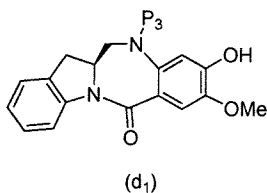
37. A method of preparing a compound of formula (17d):



or a salt thereof, said method comprising reacting a compound of formula (14d)



with a monomer compound of formula (d₁),



wherein X₃ is –Cl; P₃ is H or an amine protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

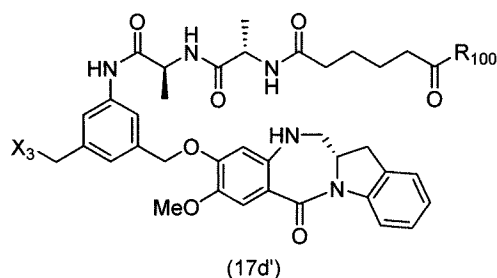
38. The method of claim 37, wherein the compound of formula (14d) is reacted with a monomer of formula (d₁) in the presence of an alcohol activating agent.

39. The method of claim 38, wherein the alcohol activating agent is triphenylphosphine.

40. The method of any one of claims 37-39, wherein the compound of formula (14d) is reacted with a monomer of formula (d₁) in the presence of an azodicarboxylate.

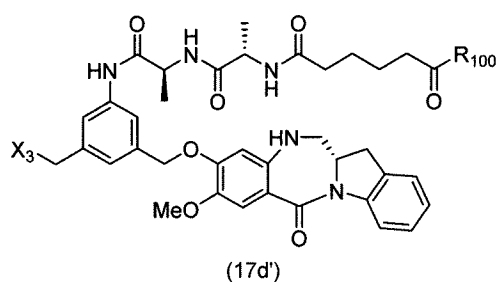
41. The method of claim 40, wherein the azodicarboxylate is selected from the group consisting of: diethyl azodicarboxylate (DEAD), diisopropyl azodicarboxylate (DIAD),
1,1'-(azodicarbonyl)dipiperidine (ADDP), and ditertbutyl azodicarboxylate (DTAD).

42. The method of any one of claims 37-41, wherein the compound of formula (14d) is reacted with the monomer compound of formula (d₁), wherein P₃ is H, to form a compound of formula (17d'):



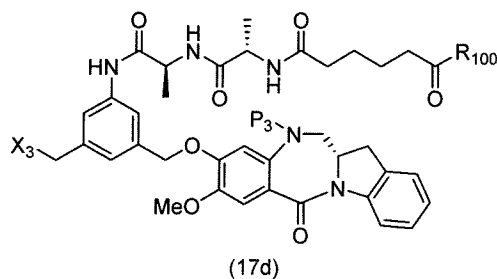
43. The method of any one of claims 37-41, wherein P₃ is an amine protecting group.

44. The method of claim 43, further comprising the step of reacting the compound of formula (17d) with an amine deprotecting reagent to form a compound of formula (17d'):

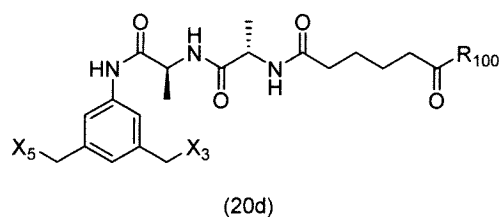


45. The method of claim 44, wherein the amine deprotecting reagent is selected from the group consisting of tetra-n-butylammonium fluoride, hydrogen fluoride pyridine, cesium fluoride, piperidine, morpholine, acetic acid, or trifluoroacetic acid.

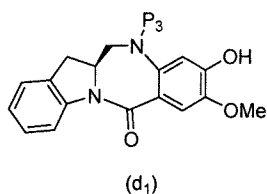
46. A method of preparing a compound of formula (17d):



or a salt thereof, said method comprising reacting a compound of formula (20d)

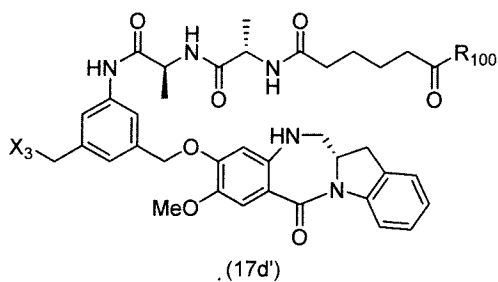


5 with a monomer compound of formula (d₁),

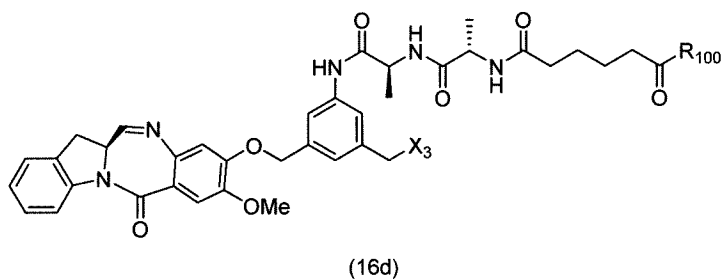


wherein X₃ is -Cl; X₅ is -Br or -I; P₃ is H or an amine protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

47. A method of preparing a compound of formula (17d'):

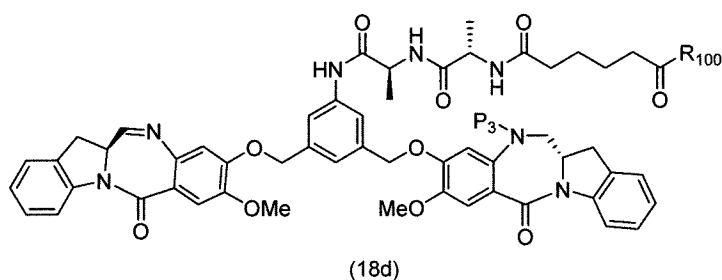


or a salt thereof, said method comprising reacting a compound of formula (16d)

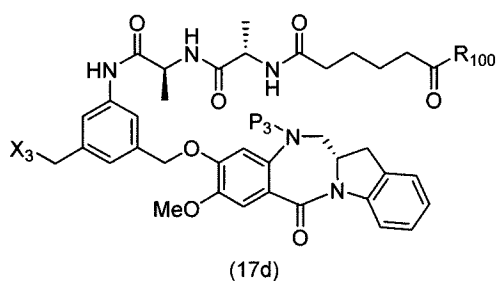


with an imine reducing agent, wherein X_3 is $-\text{Cl}$; and R_{100} is $(\text{C}_1\text{-C}_3)\text{alkoxy}$.

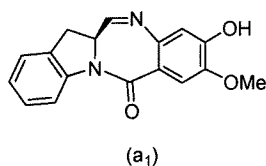
48. A method of preparing a compound of formula (18d),



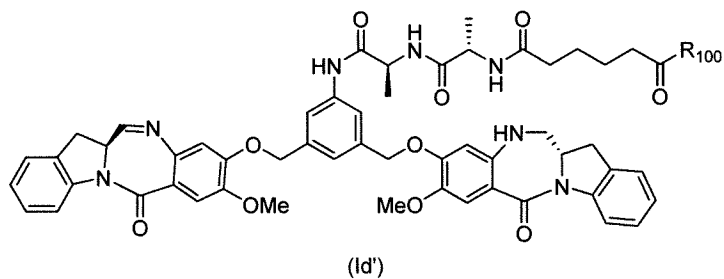
- 5 or a pharmaceutically acceptable salt thereof, said method comprising reacting a compound of formula of (17d):



with a monomer of formula (a₁):

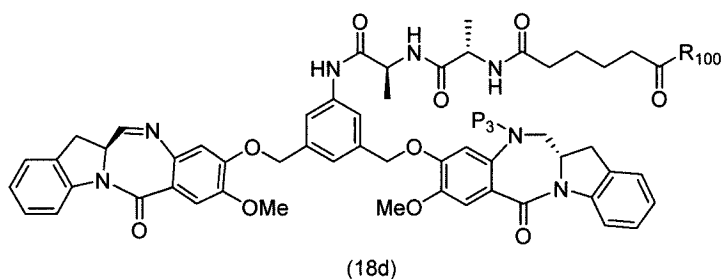


- 10 wherein X_3 is $-\text{Cl}$; P_3 is H or an amine protecting group; and R_{100} is $(\text{C}_1\text{-C}_3)\text{alkoxy}$.
49. The method of claim 48, wherein the compound of formula (17d) is reacted with a monomer compound of formula (a₁) in the presence of a base.



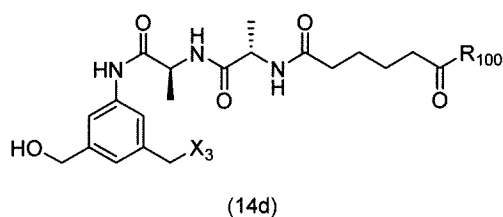
58. The method of claim 57, wherein the amine deprotecting reagent is selected from the group consisting of tetra-n-butylammonium fluoride, acetic acid, hydrogen fluoride pyridine, cesium fluoride, piperidine, morpholine, or trifluoroacetic acid.

59. A method of preparing a compound of formula (18d),

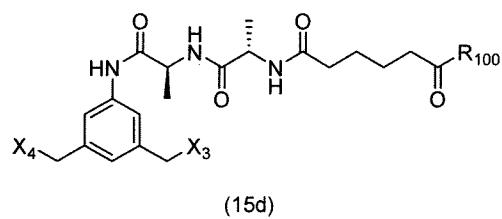


or a pharmaceutically acceptable salt thereof, said method comprising the steps of:

(1) reacting a sulfonating reagent or an esterification reagent with the compound of formula (14d):

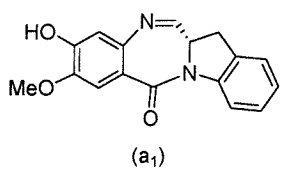


or a salt thereof, to form a compound of formula (15d):

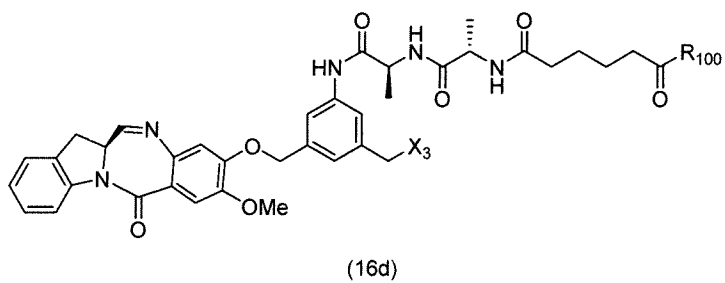


or a salt thereof;

(2) reacting the compound of formula (15d) with a monomer compound of formula (a₁),

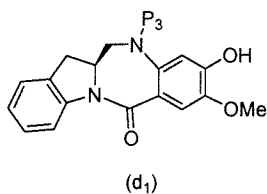


to form a compound of formula (16d):



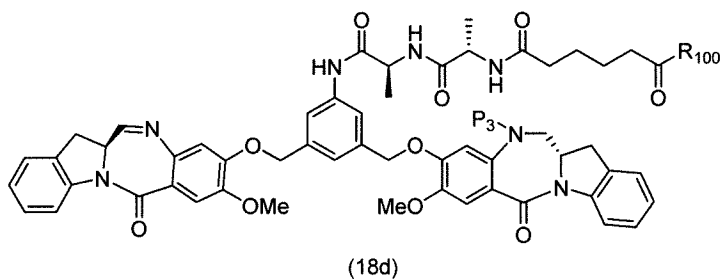
or a salt thereof; and

(3) reacting the compound of formula of (16d) with a reduced monomer of formula (d₁):



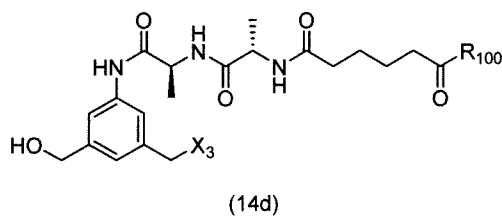
to form a compound of formula (18d), or a pharmaceutically acceptable salt thereof, wherein X_3 is $-Cl$; X_4 is a sulfonate ester or an activated ester (preferably, a sulfonate ester); P_3 is H or an amine protecting group; and R_{100} is (C_1-C_3) alkoxy.

60. A method of preparing a compound of formula (18d),

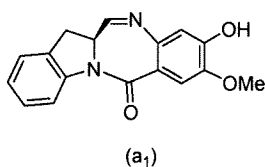


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or a pharmaceutically acceptable salt thereof, said method comprising the steps of:
(1) reacting the compound of formula (14d):

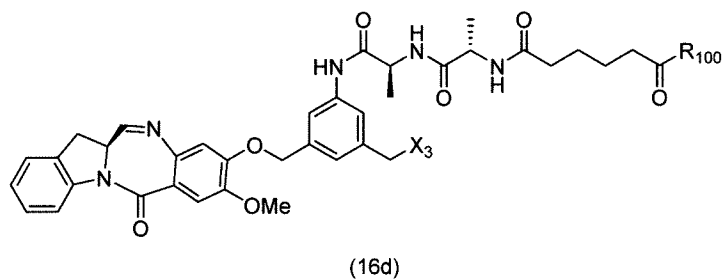


or a salt thereof, with a monomer compound of formula (a₁),



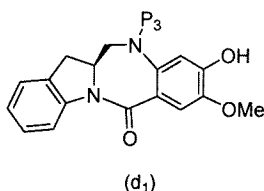
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to form a compound of formula (16d):



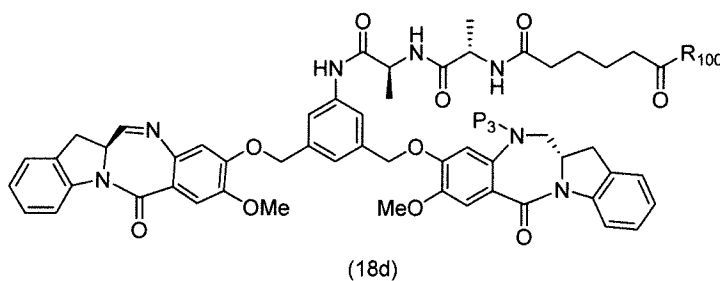
or a salt thereof; and

(2) reacting the compound of formula of (16d) with a reduced monomer of formula (d₁):



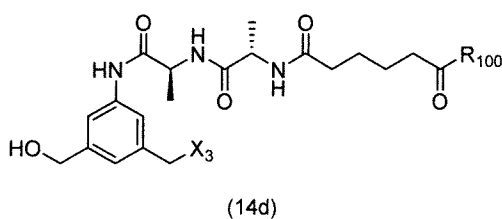
5 to form a compound of formula (18d), or a pharmaceutically acceptable salt thereof, wherein X₃ is -Cl; P₃ is H or an amine protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

61. A method of preparing a compound of formula (18d),

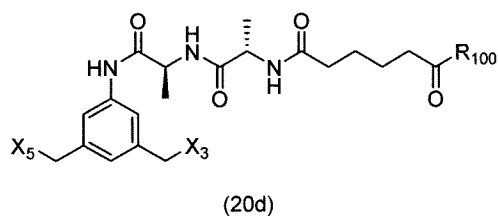


or a pharmaceutically acceptable salt thereof, said method comprising the steps of:

10 (1) reacting a halogenating reagent with the compound of formula (14d):

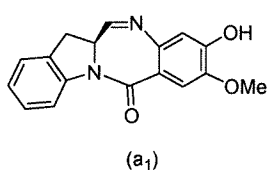


or a salt thereof, to form a compound of formula (20d):

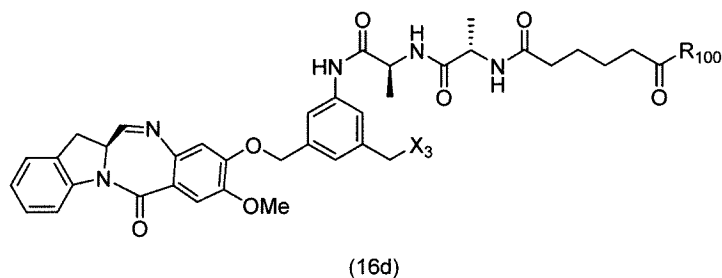


or a salt thereof;

(2) reacting a compound of formula (20d) or a salt thereof with a monomer compound of formula (a₁),

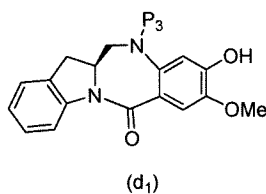


to form a compound of formula (16d):



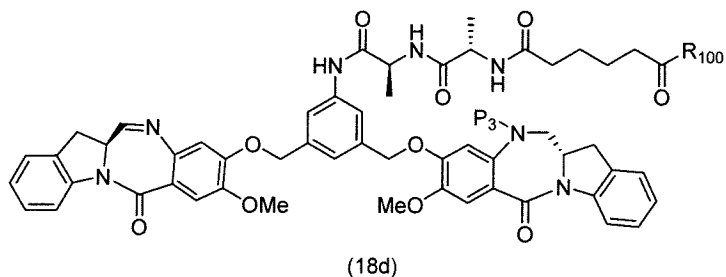
or a salt thereof; and

(3) reacting the compound of formula of (16d) with a reduced monomer of formula (d₁):



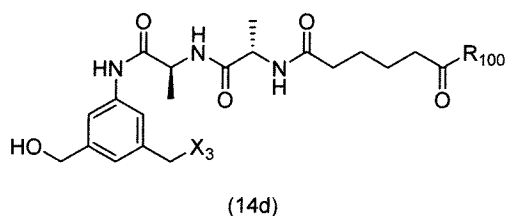
to form a compound of formula (18d), or a pharmaceutically acceptable salt thereof, wherein X₃ is -Cl; X₅ is -Br or -I; P₃ is H or an amine protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

62. A method of preparing a compound of formula (18d),

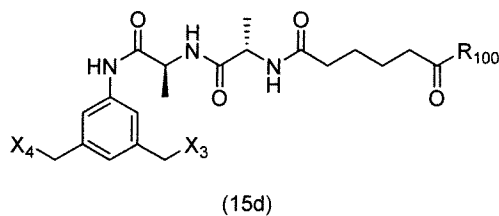


or a pharmaceutically acceptable salt thereof, said method comprising the steps of:

(1) reacting a sulfonating reagent or an esterification reagent with the compound of formula (14d):

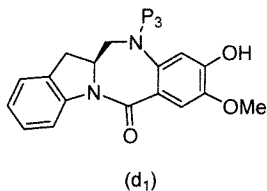


or a salt thereof, to form a compound of formula (15d):

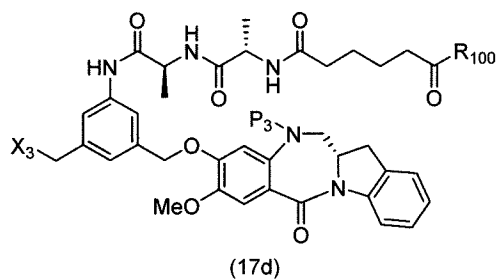


or a salt thereof;

(2) reacting the compound of formula (15d) with a reduced monomer compound of formula (d₁),

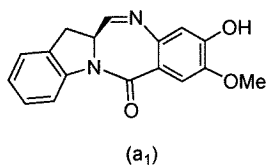


to form a compound of formula (17d):



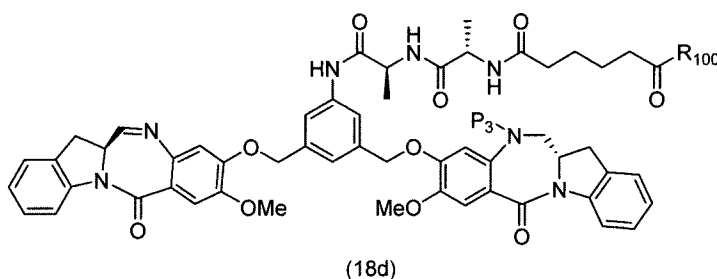
or a salt thereof; and

(3) reacting the compound of formula of (17d) with a monomer of formula (a₁):



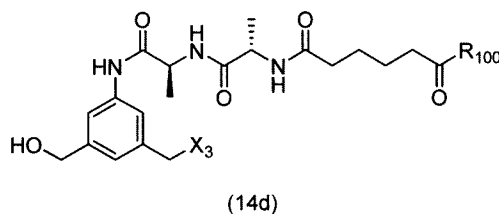
- 5 to form a compound of formula (18d), or a pharmaceutically acceptable salt thereof, wherein X₃ is -Cl; X₄ is a sulfonate ester or an activated ester (preferably, a sulfonate ester); P₃ is H or an amine protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

63. A method of preparing a compound of formula (18d),

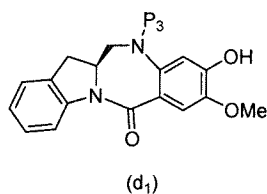


- 10 or a pharmaceutically acceptable salt thereof, said method comprising the steps of:

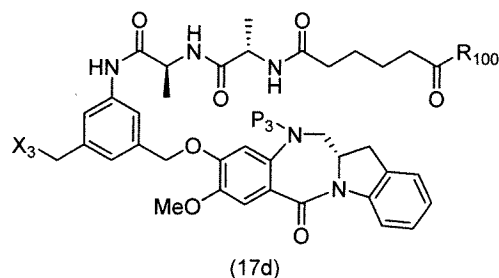
(1) reacting the compound of formula (14d):



or a salt thereof, with a reduced monomer compound of formula (d₁),

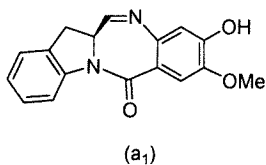


to form a compound of formula (17d):



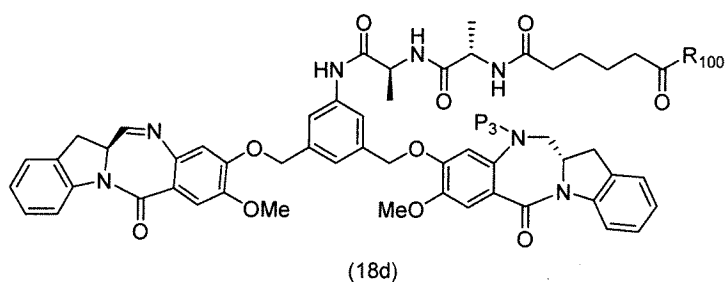
or a salt thereof; and

- 5 (2) reacting the compound of formula of (17d) with a monomer of formula (a₁):



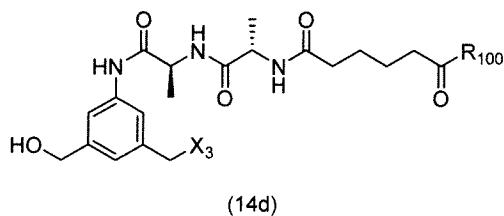
to form a compound of formula (18d), or a pharmaceutically acceptable salt thereof, wherein X₃ is -Cl; P₃ is H or an amine protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

64. A method of preparing a compound of formula (18d),

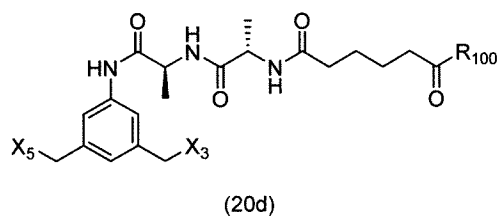


or a pharmaceutically acceptable salt thereof, said method comprising the steps of:

- (1) reacting a brominating or iodinating reagent with the compound of formula (14d):

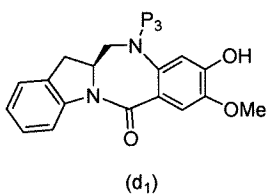


or a salt thereof, to form a compound of formula (20d):

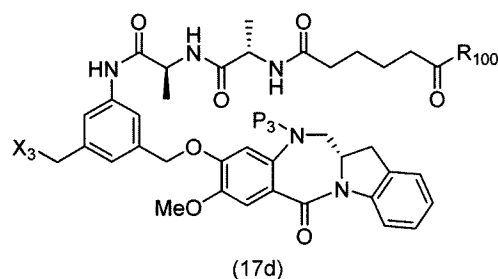


or a salt thereof;

(2) reacting the compound of formula (20d) with a reduced monomer compound of formula (d₁),

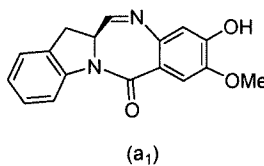


to form a compound of formula (17d):



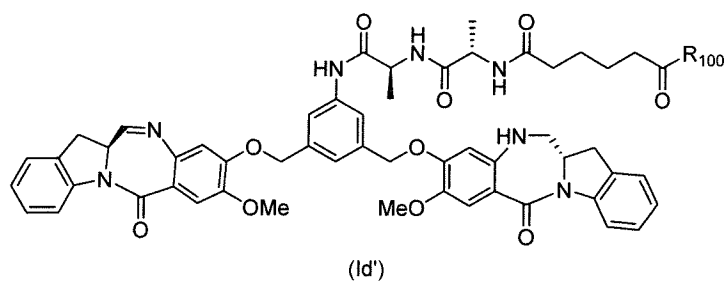
or a salt thereof; and

(3) reacting the compound of formula of (17d) with a monomer of formula (a₁):



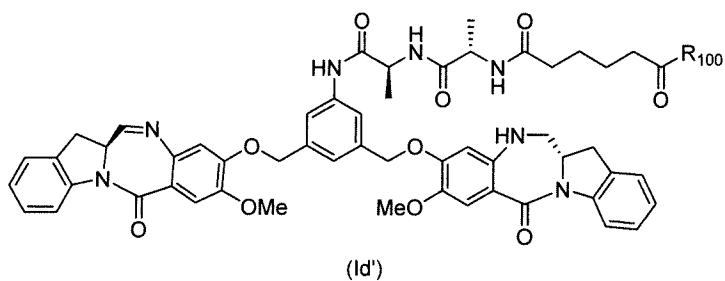
to form a compound of formula (18d), or a pharmaceutically acceptable salt thereof, wherein X_3 is $-Cl$; X_5 is $-Br$ or $-I$; P_3 is H or an amine protecting group; and R_{100} is (C_1-C_3) alkoxy.

65. The method of claim 62, 63, or 64, wherein the compound of formula (17d) is reacted with monomer of formula (a₁), wherien P_3 is H , to form a compound of formula (Id'):

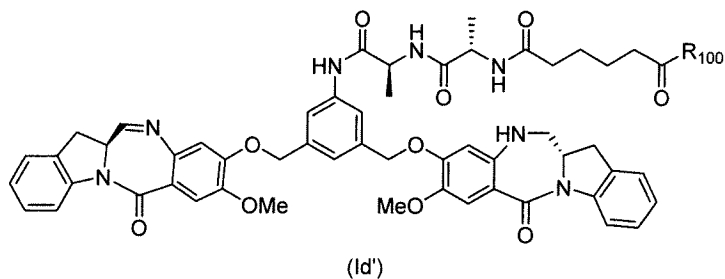


66. The method of any one of claims 62-65, wherein P₃ is an amine protecting group.

67. The method of claim 66, wherein the compound of formula (18d) is further reacted with an amine deprotecting reagent to form a compound of formula (Id'):

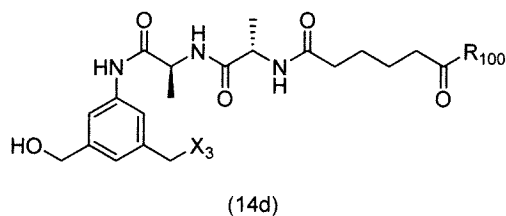


68. A method of preparing a compound of formula (Id'),

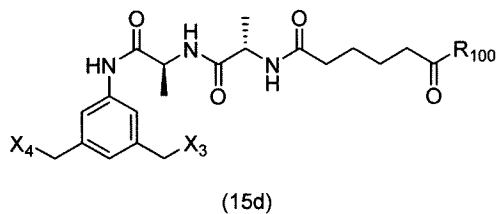


or a pharmaceutically acceptable salt thereof, said method comprising the steps of:

(1) reacting a sulfonating reagent or an esterification reagent with the compound of formula (14d):

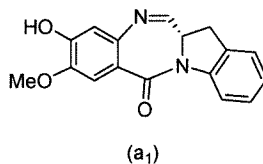


or a salt thereof, to form a compound of formula (15d):

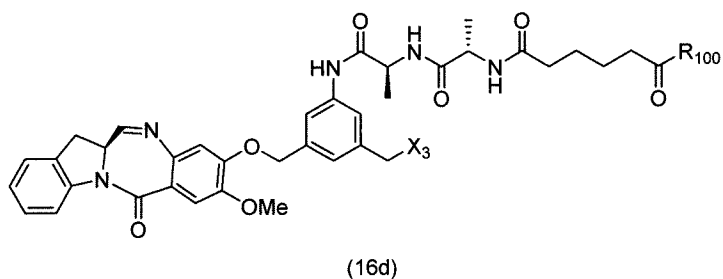


or a salt thereof;

(2) reacting the compound of formula (15d) with a monomer compound of formula (a₁),

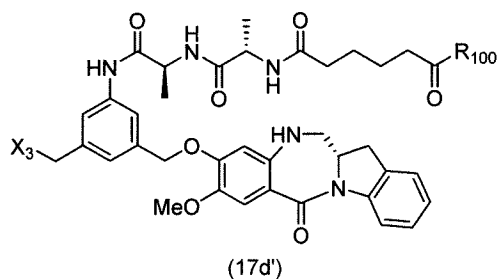


5 to form a compound of formula (16d):



or a salt thereof;

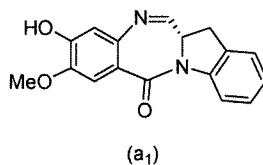
(3) reacting the compound of formula (16d) with an imine reducing agent to form a compound of formula (17d'):



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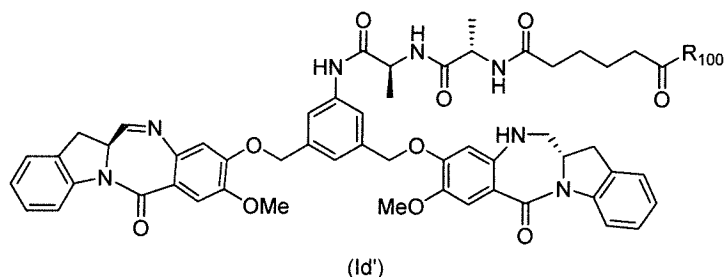
or a salt thereof; and

(4) reacting the compound of formula (17d') with a monomer of formula (a₁):



to form the compound of formula (Id'); wherein X₃ is -Cl; X₄ is a sulfonate ester or an activated ester (preferably, a sulfonate ester); P₂ is an amine protecting group; and R₁₀₀ is (C₁-C₃)alkoxy.

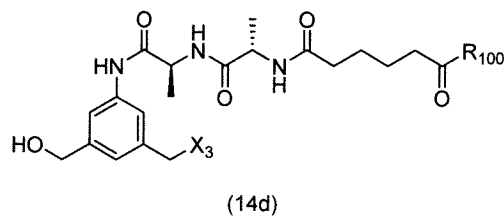
69. A method of preparing a compound of formula (Id'),



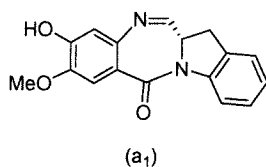
5

or a pharmaceutically acceptable salt thereof, said method comprising the steps of:

(1) reacting the compound of formula (14d):

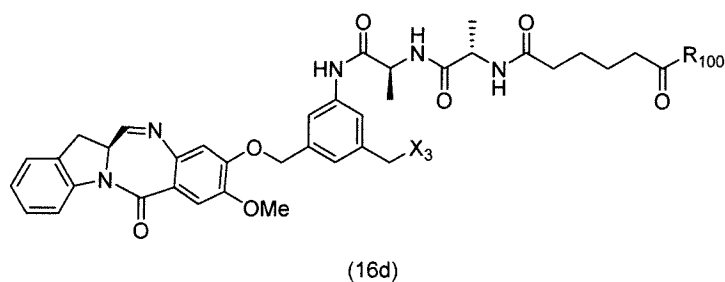


or a salt thereof, with a monomer compound of formula (a₁),



10

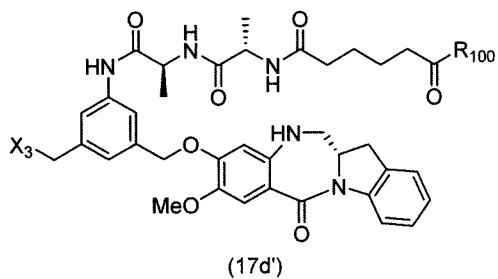
to form a compound of formula (16d):



or a salt thereof;

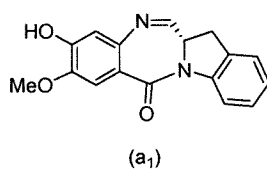
(2) reacting the compound of formula (16d) with an imine reducing agent to form a compound of formula (17d'):

15



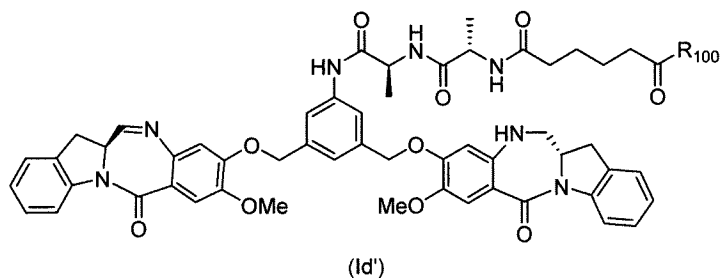
or a salt thereof; and

(3) reacting the compound of formula (17d') with a monomer of formula (a₁):



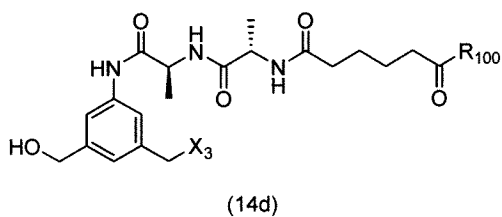
to form the compound of formula (Id'); wherein X₃ is -Cl; and R₁₀₀ is (C₁-C₃)alkoxy.

70. A method of preparing a compound of formula (Id'),

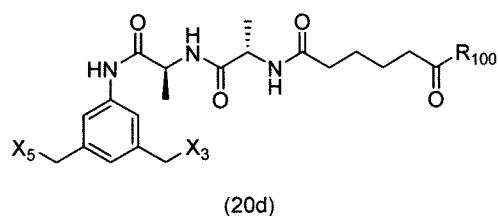


or a pharmaceutically acceptable salt thereof, said method comprising the steps of:

(1) reacting a halogenating reagent with the compound of formula (14d):

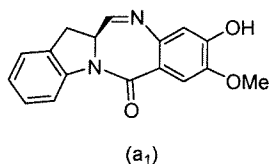


or a salt thereof, to form a compound of formula (20d):

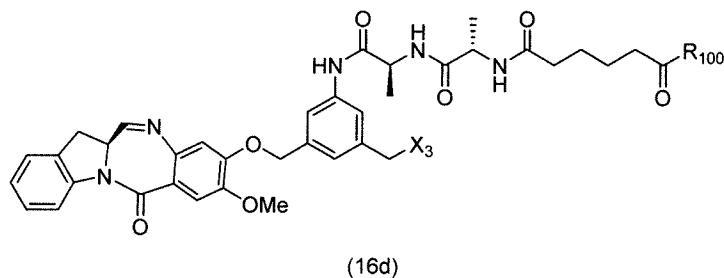


or a salt thereof;

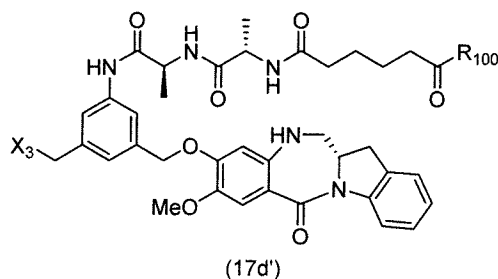
(2) reacting a compound of formula (20d) or a salt thereof with a monomer compound of formula (a₁),



5 to form a compound of formula (16d):

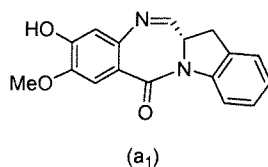


(3) reacting the compound of formula (16d) with an imine reducing agent to form a compound of formula (17d'):



10 or a salt thereof; and

(4) reacting the compound of formula (17d') with a monomer of formula (a₁):

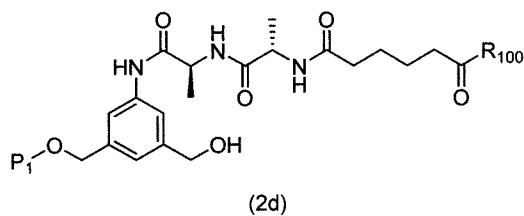


to form the compound of formula (Id'); wherein X₃ is -Cl; and R₁₀₀ is (C₁-C₃)alkoxy.

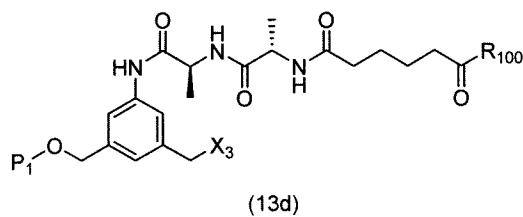
71. The method of any one of claims 59-70, wherein the compound of formula (14d) or a salt thereof is prepared a method comprising the following steps:

15

(1) reacting a chlorinating reagent with a compound of formula (2d),



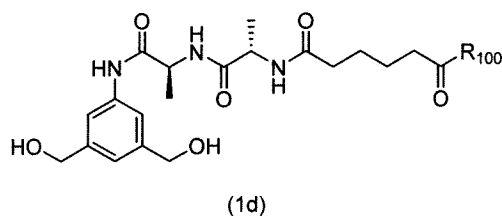
to form a compound a compound of formula (13d),



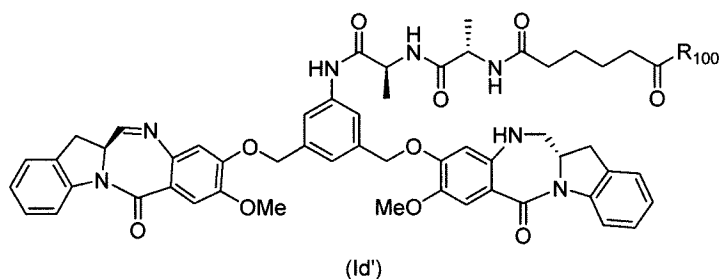
or a salt thereof; wherein P₁ is an alcohol protecting group;

5 (2) reacting the compound of formula (13d) with an alcohol deprotecting reagent to form the compound of formula (14d) or a salt thereof.

72. The method of claim 71, wherein the compound of formula (2d) is prepared by reacting a compound of formula (1d) with an alcohol protecting reagent

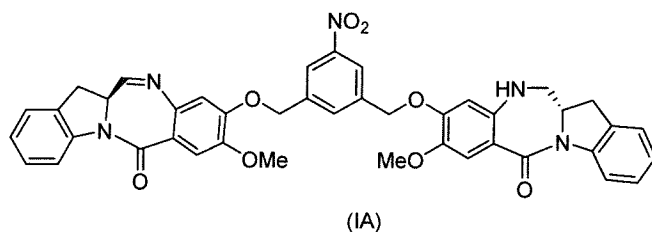


10 73. A method of preparing a compound of formula (Id'),

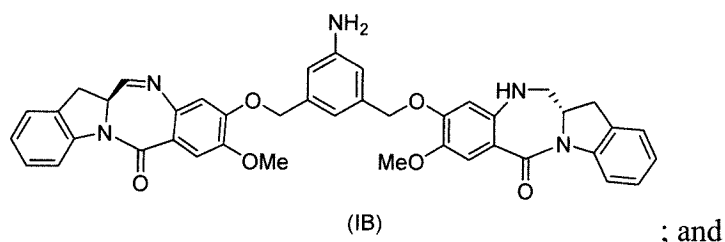


or a pharmaceutically acceptable salt thereof, said method comprising the steps of:

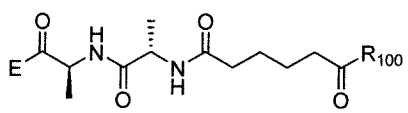
(1) reacting a compound of formula (IA):



with a reducing agent to form a compound of formula (IB):



5 (2) reacting the compound of formula (IB) with a compound of formula (L1):



to form the compound of formula (Id'), wherein E is -OH, halide or -C(=O)E is an activated ester; and R₁₀₀ is (C₁-C₃)alkoxy.

74. The method of claim 73, wherein E is -OH and the reaction of the compound of formula (IB) and the compound of formula (L1) is carried out in the presence of activating agent.
75. The method of claim 74, wherein the activating agent is a carbodiimide, a uronium, an active ester, a phosphonium, 2-alkyl-1-alkylcarbonyl-1,2-dihydroquinoline, 2-alkoxy-1-alkoxycarbonyl-1,2-dihydroquinoline, or alkylchloroformate.
76. The method of claim 74, wherein the activating agent is a carbodiimide.
77. The method of claim 76, wherein the carbodiimide is dicyclohexylcarbodiimide (DCC), 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide (EDC), or diisopropylcarbodiimide (DIC).

78. The method of claim 74, wherein the activating agent is *N*-ethoxycarbonyl-2-ethoxy-1,2-dihydroquinoline (EEDQ).
79. The method of any one of claims 73-78, wherein the reducing agent is selected from the group consisting of: hydrogen gas, sodium hydrosulfite, sodium sulfide, stannous chloride, titanium (II) chloride, zinc, iron and samarium iodide.
- 5
80. The method of claim 79, wherein the reducing agent is Fe/NH₄Cl or Zn/NH₄Cl.
81. The method of any one of claims 1-80, wherein R₁₀₀ is methoxy.