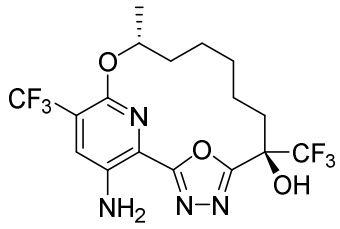
CLAIMS:

1. A crystalline Compound **I**



I.

wherein the crystalline Compound **I** is selected from substantially pure Compound **I** neat Form A, Compound **I** neat Form B, Compound **I** hemihydrate Form C, Compound **I** neat Form D, Compound **I** neat Form E, Compound **I** acetic acid solvate, Compound **I** heptane solvate Form B, Compound **I** heptane solvate Form C, Compound **I** octane solvate, Compound **I** cyclohexane solvate Form A, Compound **I** cyclohexane solvate Form B, Compound **I** cyclohexane solvate Form C, Compound **I** ethanol solvate, Compound **I** solvate/hydrate (dry), Compound **I** solvate/hydrate (wet), Compound **I** L-lysine cocrystal, Compound **I** L-arginine cocrystal, Compound **I** L-phenylalanine cocrystal, Compound **I** succinic acid cocrystal hydrate, Compound **I** succinic acid cocrystal, and Compound **I** methanol solvate/hydrate.

2. The crystalline Compound **I** according to claim 1, wherein less than 5% of Compound **I** is in amorphous form.

3. Amorphous Compound **I** neat amorphous form.

4. The amorphous Compound **I** according to claim 3, wherein less than 5% of Compound **I** is in crystalline form.

5. A pharmaceutical composition comprising the Compound **I** according to any one of claims 1-4.

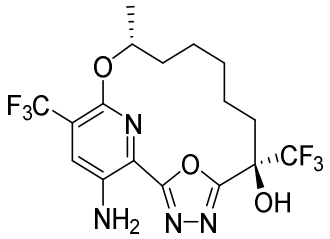
6. The pharmaceutical composition according to claim 5, further comprising one or more additional therapeutic agents.

7. The Compound **I** according to any one of claims 1-4, or the pharmaceutical composition according to claim 5 or claim 6, for use in the treatment of cystic fibrosis.

8. Use of the Compound **I** according to any one of claims 1-4, or the pharmaceutical composition according claim 5 or claim 6, in the manufacture of a medicament for the treatment of cystic fibrosis.

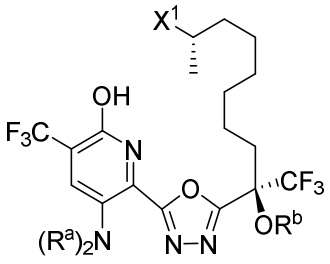
9. The compound or composition for use of claim 7, or the use of claim 8, wherein the Compound **I** according to any one of claims 1-4 or the composition according to claim 5 or claim 6 is to be administered in combination with one or more additional therapeutic agents.

10. A method of preparing Compound **I**:



Compound **I**,

or a stereoisomer of Compound **I**, or a deuterated derivative of Compound **I** or a stereoisomer thereof, or pharmaceutically acceptable salts of any of the foregoing, wherein the method comprises converting a compound of Formula (**1**):



Formula (**1**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**1**) or its stereoisomer, or a salt of any of the foregoing, into Compound **I**, or a stereoisomer thereof or a deuterated derivative of Compound **I** or its stereoisomer, or pharmaceutically acceptable salt of any of the foregoing,

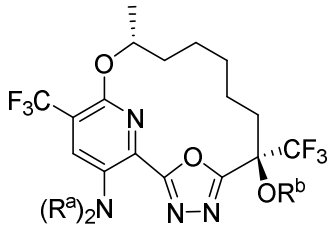
wherein:

- X^1 is selected from OH, OTs, OMs, ONs, and OTf;

- each R^a is independently selected from H, *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns), or $N(R^a)_2$ is NO_2; and

- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

11. The method according to claim 10, wherein the method comprises converting a compound of Formula (**2**),



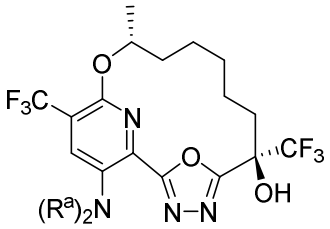
Formula (**2**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**2**) or its stereoisomer, or a salt of any of the foregoing, into Compound **I**, or a stereoisomer thereof, or a deuterated derivative of Compound **I** or its stereoisomer, or a pharmaceutically acceptable salt of any of the foregoing,
wherein:

- each R^a is independently selected from H, *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns), or $N(R^a)_2$ is NO_2; and

- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

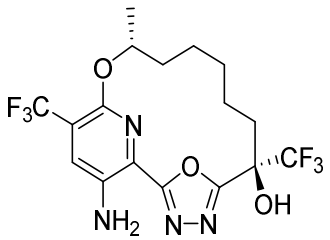
12. The method according to claim 10, wherein the method comprises converting a compound of Formula (**3**):



Formula (**3**),

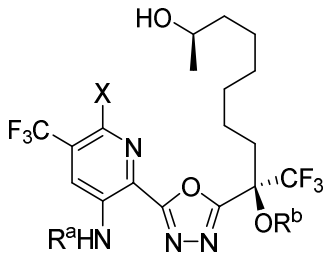
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**3**) or its stereoisomer, or a salt of any of the foregoing, into Compound **I**, or a stereoisomer thereof, or a deuterated derivative of Compound **I** or its stereoisomer, or a pharmaceutically acceptable salt of any of the foregoing, wherein R^a is selected from *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns).

13. A method of preparing Compound **I**:



Compound **I**,

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**1**) or its stereoisomer, or a salt of any of the foregoing, comprising converting a compound of Formula (**18**):



Formula (**18**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**18**) or its stereoisomer, or a salt of any of the foregoing, into Compound **I**, or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**1**) or its stereoisomer, or a salt of any of the foregoing,

wherein:

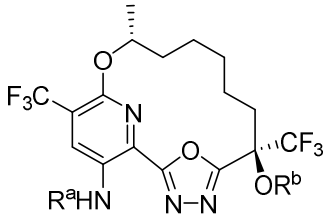
- X is selected from Cl, Br, I, $-OSO_2R$, and -SR,

-R is selected from Me, $-CF_3$, Ph, and 4-MePh;

- R^a is selected from *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns); and

- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz;

14. The method according to claim 13, wherein the method comprises converting a compound of Formula (**2a**):



Formula (**2a**),

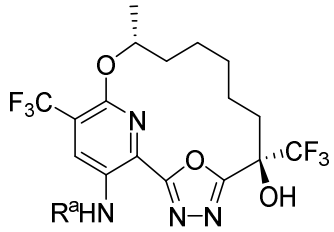
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**2a**) or its stereoisomer, or a salt of any of the foregoing, into Compound **I**, or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**1**) or its stereoisomer, or a salt of any of the foregoing,

wherein:

- R^a is selected from *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns); and

- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz;

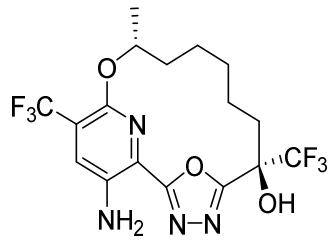
15. The method according to claim 14, wherein the method comprises converting a compound of Formula (**3a**):



Formula (**3a**),

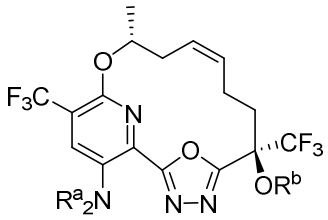
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**3a**) or its stereoisomer, or a salt of any of the foregoing, into Compound **I**, or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**1**) or its stereoisomer, or a salt of any of the foregoing, wherein R^a is selected from *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns).

16. A method of preparing Compound **I**:



Compound **I**,

or a stereoisomer thereof, or a deuterated derivative of Compound **I** or its stereoisomer, or a salt of any of the foregoing, comprising converting a compound of Formula (**32**):



Formula (**32**),

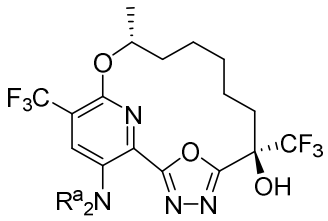
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**32**) or its stereoisomer, or a salt of any of the foregoing, into Compound **I**, or a stereoisomer thereof, or a deuterated derivative of Compound **I** or its stereoisomer, or a salt of any of the foregoing,

wherein:

- each R^a is independently selected from H, *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns) or $N(R^a)_2$ is NO_2; and

- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

17. The method according to claim 16, wherein the method comprises converting a compound of Formula (**33**):



Formula (**33**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**33**) or its stereoisomer, or a salt of any of the foregoing, into Compound **I**, or a stereoisomer thereof, or a deuterated derivative of Compound **I** or its stereoisomer, or a salt of any of the foregoing,

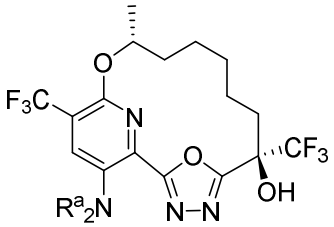
wherein:

- each R^a is independently selected from H, *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl

(TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns); and

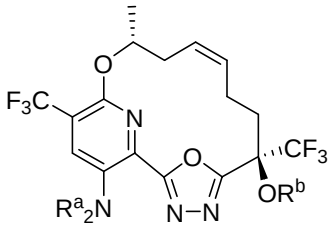
- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

18. The method according to claim 17, wherein the compound of Formula (**33**):



Formula (**33**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**33**) or its stereoisomer, or a salt of any of the foregoing, is prepared by converting a compound of Formula (**32**):



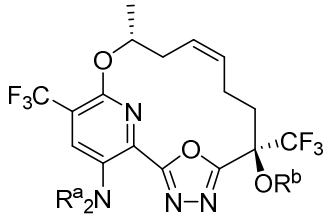
Formula (**32**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**32**) or its stereoisomer, or a salt of any of the foregoing, into the compound of Formula (**33**), or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**33**) or its stereoisomer, or a salt of any of the foregoing,
wherein:

- each R^a is independently selected from H, *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns); and

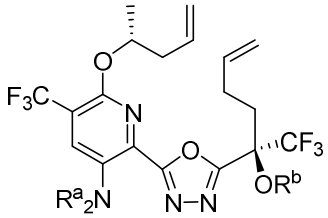
- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

19. The method according to claim 18, wherein the compound of Formula (**32**):



Formula (**32**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**32**) or its stereoisomer, or a salt of any of the foregoing, is prepared by converting a compound of Formula (**34**):



Formula (**34**),

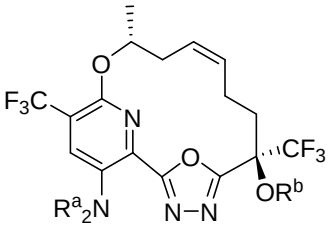
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**34**) or its stereoisomer, into the compound of Formula (**32**), or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**32**) or its stereoisomer, or a salt of any of the foregoing,

wherein:

- each R^a is independently selected from H, *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns), or $N(R^a)_2$ is NO_2; and

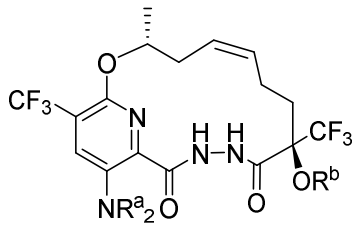
- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

20. The method according to claim 19, wherein the compound of Formula (**32**):



Formula (**32**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**32**) or its stereoisomer, or a salt of any of the foregoing, is prepared by converting a compound of Formula (**36a**):



Formula (**36a**),

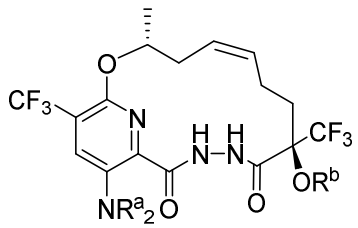
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**36a**) or its stereoisomer, into the compound of Formula (**32**), or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**32**) or its stereoisomer, or a salt of any of the foregoing,

wherein:

- each R^a is independently selected from H, *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns), or NR^a_2 is NO_2; and

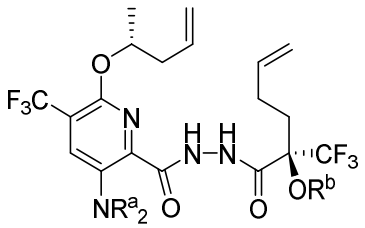
- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

21. The method according to claim 20, wherein the compound of Formula (**36a**):



Formula (**36a**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**36a**) or its stereoisomer, or a salt of any of the foregoing, is prepared by converting a compound of Formula (**36b**):



Formula (**36b**),

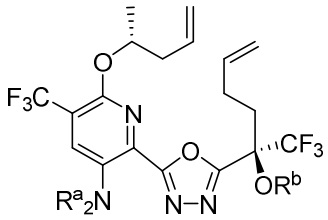
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**36b**) or its stereoisomer, into the compound of Formula (**36a**), or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**36a**) or its stereoisomer, or a salt of any of the foregoing,

wherein:

- each R^a is independently selected from H, *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns), or NR^a_2 is NO_2; and

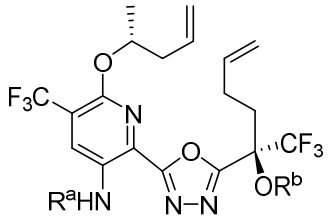
- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

22. The method according to claim 19, wherein the compound of Formula (**34**):



Formula (**34**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**34**) or its stereoisomer, is prepared by converting a compound of Formula (**35**):



Formula (**35**),

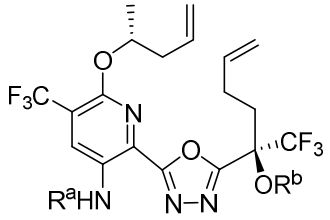
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**35**) or its stereoisomer, or a salt of any of the foregoing, into the compound of Formula (**34**), or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**34**) or its stereoisomer,

wherein:

- each R^a is independently selected from H, *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns); and

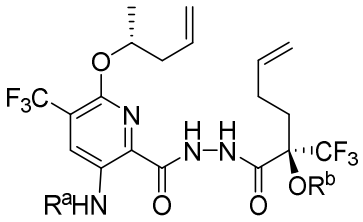
- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

23. The method according to claim 22, wherein the compound of Formula (**35**):



Formula (**35**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**35**) or its stereoisomer, or a salt of any of the foregoing, is prepared by converting a compound of Formula (**36**):



Formula (**36**),

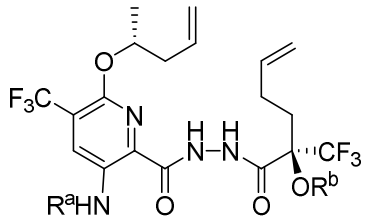
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**36**) or its stereoisomer, or a salt of any of the foregoing, into the compound of Formula (**35**), or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**35**) or its stereoisomer, or a salt of any of the foregoing,

wherein:

- R^a is selected from *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns); and

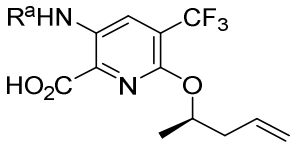
- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

24. The method according to claim 23, wherein the compound of Formula (**36**):



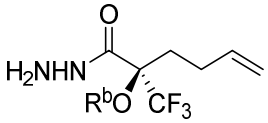
Formula (**36**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**36**) or its stereoisomer, or a salt of any of the foregoing, is prepared by combining a compound of Formula (**37**):



Formula (**37**),

or a deuterated derivative or salt thereof, with a compound of Formula (**38**):



Formula (**38**),

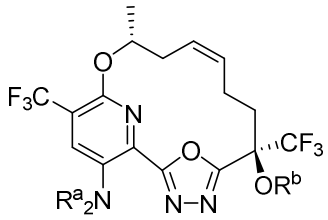
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**38**) or its stereoisomer, or a salt of any of the foregoing, to produce the compound of Formula (**36**), or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**36**) or its stereoisomer, or a salt of any of the foregoing, wherein:

- R^a is selected from *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv),

benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns); and

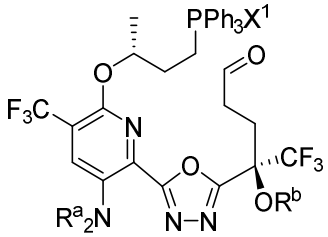
- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

25. The method according to claim 16 or claim 18, wherein the compound of Formula (**32**):



Formula (**32**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**32**) or its stereoisomer, or a salt of any of the foregoing, is prepared by converting a compound of Formula (**42**):



Formula (**42**),

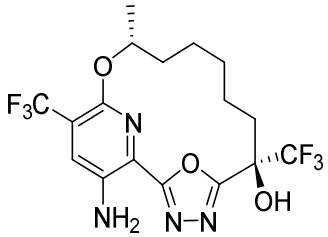
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**42**) or its stereoisomer, or a salt of any of the foregoing, into the compound of Formula (**32**), or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**32**) or its stereoisomer, or a salt of any of the foregoing,
wherein:

- X^1 is selected from Cl, Br, and I;

- each R^a is independently selected from H, *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns); and

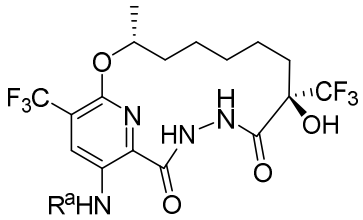
- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

26. A method of preparing Compound **I**:



Compound **I**,

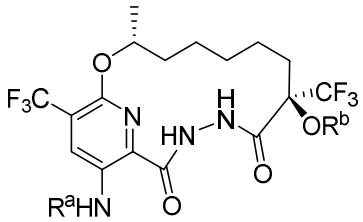
or a stereoisomer thereof, or a deuterated derivative of the Compound **I** or its stereoisomer, or a salt of any of the foregoing, comprising converting a compound of Formula (**51**):



Formula (**51**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**51**) or its stereoisomer, or a salt of any of the foregoing, into Compound **I**, or a stereoisomer thereof, or a deuterated derivative of the Compound **I** or its stereoisomer, or a salt of any of the foregoing, wherein R^a is selected from *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns).

27. The method according to claim 26, wherein the method comprises converting a compound of Formula (**52**):



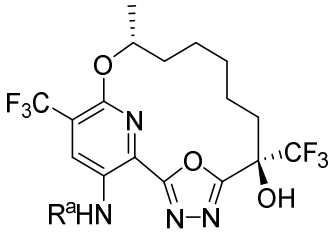
Formula (**52**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**52**) or its stereoisomer, or a salt of any of the foregoing, into Compound **I**, or a stereoisomer thereof, or a deuterated derivative of the Compound **I** or its stereoisomer, or a salt of any of the foregoing, wherein:

- R^a is selected from *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns); and

- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

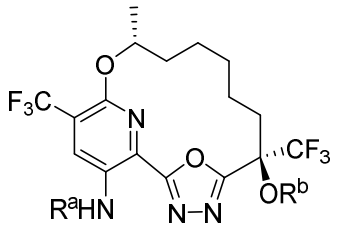
28. The method according to claim 26, wherein the method comprises converting a compound of Formula (**3a**):



Formula (**3a**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**3a**) or its stereoisomer, or a salt of any of the foregoing, into Compound **I**, or a stereoisomer thereof, or a deuterated derivative of the Compound **I** or its stereoisomer, or a salt of any of the foregoing, wherein R^a is selected from *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns).

29. The method according to claim 26, wherein the method comprises converting a compound of Formula (**2a**):



Formula (**2a**),

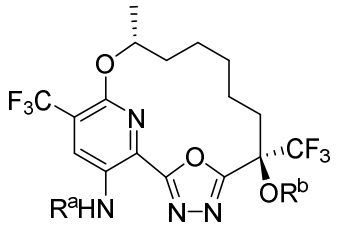
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**2a**) or its stereoisomer, or a salt of any of the foregoing, into Compound **I**, or a stereoisomer thereof, or a deuterated derivative of the Compound **I** or its stereoisomer, or a salt of any of the foregoing,

wherein:

- R^a is selected from *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns); and

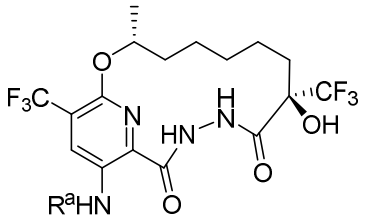
- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

30. The method according to claim 29, wherein the compound of Formula (**2a**):



Formula (**2a**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**2a**) or its stereoisomer, or a salt of any of the foregoing, is prepared by converting a compound of Formula (**51**):



Formula (**51**),

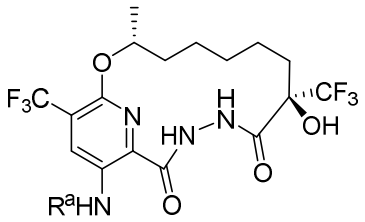
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**51**) or its stereoisomer, or a salt of any of the foregoing, into the compound of Formula (**2a**), or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**2a**) or its stereoisomer, or a salt of any of the foregoing,

wherein:

- R^a is selected from *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns); and

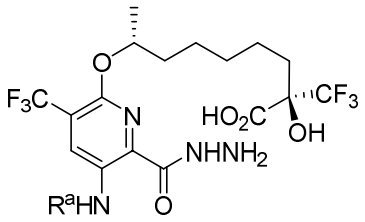
- R^b is selected from benzyl (Bn), naphthylmethyl (Nap), biphenylmethyl, Ac, TFA, and Bz.

31. The method according to claim 30, wherein the compound of Formula (**51**):



Formula (**51**),

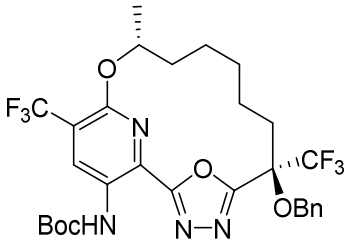
or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**51**) or its stereoisomer, or a salt of any of the foregoing, is prepared by converting a compound of Formula (**53**):



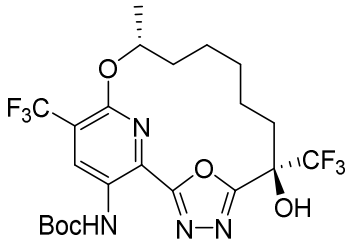
Formula (**53**),

or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**53**) or its stereoisomer, or a salt of any of the foregoing, into the compound of Formula (**51**), or a stereoisomer thereof, or a deuterated derivative of the compound of Formula (**51**) or its stereoisomer, or a salt of any of the foregoing, wherein R^a is selected from *tert*-butyloxycarbonyl (Boc), fluorenylmethoxycarbonyl (Fmoc), phthalimido (Phth), acetyl (Ac), trifluoroacetyl (TFA), pivaloyl (Piv), benzoyl (Bz), carbobenzyloxy (Cbz), methanesulfonyl (Ms), and nitrobenzenesulfonyl (Ns).

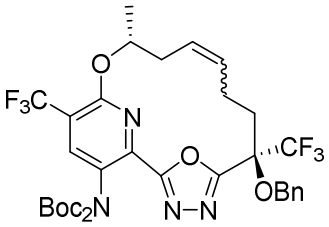
32. A compound selected from:



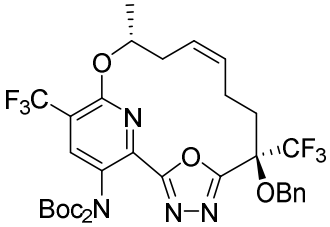
64,



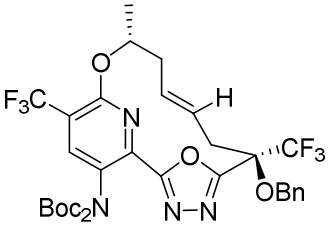
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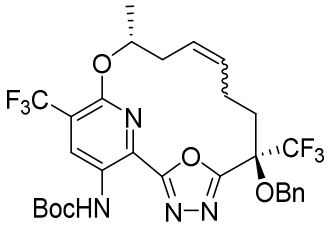
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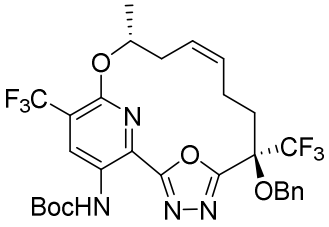
50a (cis olefin),



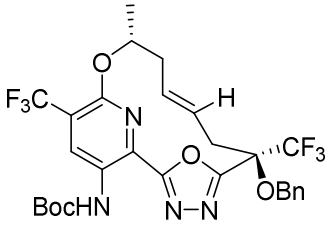
50b (trans olefin),



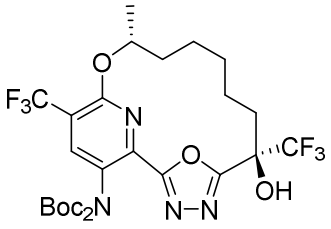
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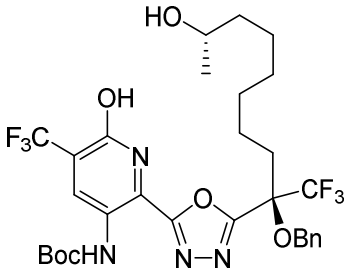
58a (cis olefin),



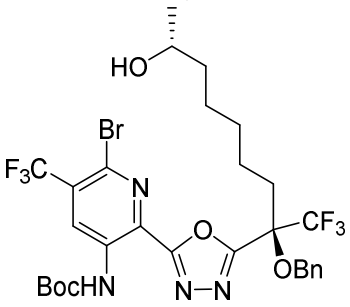
58b (trans olefin),



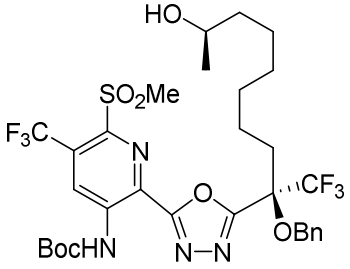
51,



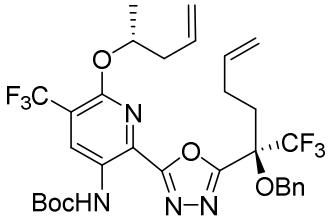
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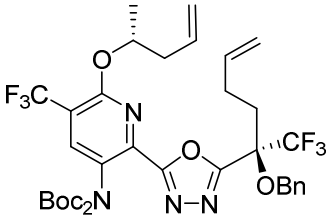
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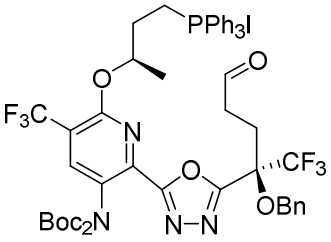
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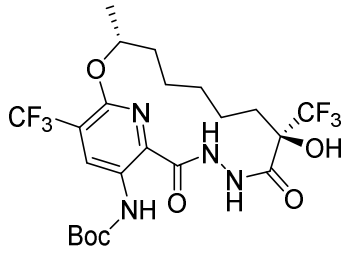
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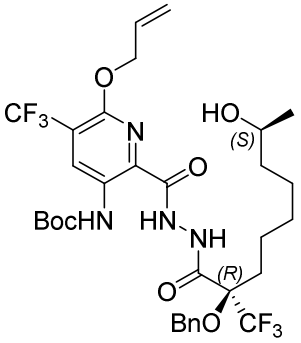
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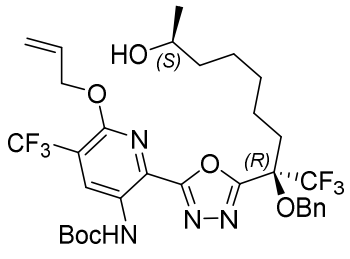


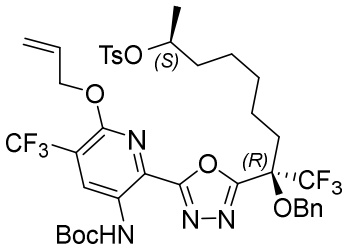
57,



86a,







stereoisomers thereof, deuterated derivatives of any of the foregoing, and salts of any of the foregoing.