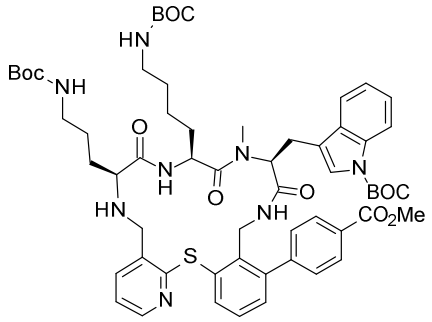
CLAIMS

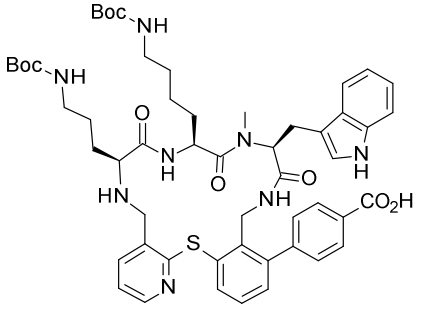
1. A compound, which is tert-butyl 3-[[(11S,14S,17S)-14-[4-(tert-butoxycarbonylamino)butyl]-11-[3-(tert-butoxycarbonylamino)propyl]-22-(4-methoxycarbonylphenyl)-16-methyl-12,15,18-trioxo-2-thia-4,10,13,16,19-pentazatricyclo[19.4.0.03,8]pentacosa-1(25),3,5,7,21,23-hexaen-17-yl]methyl]indole-1-carboxylate (**3**), or a salt thereof



3

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2. A compound, which is 4-[(11S,14S,17S)-14-[4-(tert-butoxycarbonylamino)butyl]-11-[3-(tert-butoxycarbonylamino)propyl]-17-(1H-indol-3-ylmethyl)-16-methyl-12,15,18-trioxo-2-thia-4,10,13,16,19-pentazatricyclo[19.4.0.03,8]pentacosa-1(25),3,5,7,21,23-hexaen-22-yl]benzoic acid (**4**), or a salt thereof

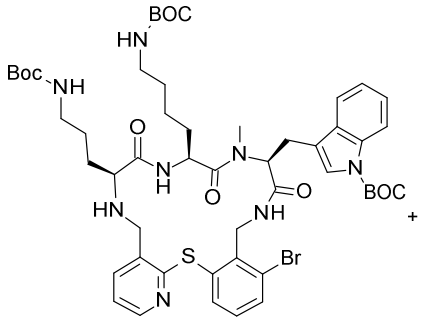


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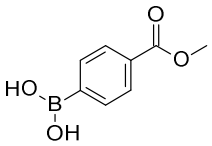
3. A process for manufacturing compound **3** according to claim 1, or a salt thereof, comprising:

(a) reacting aryl bromide **1**



1

with (4-carbomethoxyphenyl)boronic acid (**2**)



2

in the presence of a palladium catalyst and a base in an aromatic solvent, to afford said compound **3**; wherein said palladium catalyst is selected from:

i) a preformed catalyst selected from $Pd(PPh_3)_4$, $Pd(L^1)_2$, $[Pd(L^1)XCl]$, $[Pd(L^1)X]$trifluoromethanesulfonate, $[Pd(L^1)$(2-(2′-amino-1,1′-biphenyl)Cl]; $[Pd(L^1)$(2-(2′-amino-1,1′-biphenyl)]methanesulfonate, $[Pd(L^1)$(2-(2′-methylamino-1,1′-biphenyl)]methanesulfonate, $[Pd(L^1)$(2-(2-aminoethyl)phenyl)Cl], $Pd(L^2)Cl_2$, $Pd(L^2)_2Cl_2$, and $[PdI(L^3)]_2$; wherein X is selected from allyl, 2-butenyl, 2-methylallyl, 1-phenylallyl, *p-tert*-butylindenyl; L^1 is selected from PBu_3, AmPhos, CPhos, RuPhos, and SPhos; L^2 is selected from $PtBu_3$, AmPhos, $PtBu_2Bu$, $PtBu_2Ph$, $PtBu_2$-*p*-$C_6H_4CF_3)_2$, dppf, dcypf, dippf, and dtbpf; and L^3 is selected from $PtBu_3$, AmPhos; and

ii) a catalyst that is formed *in situ* from:

iia) a palladium source selected from palladium bis(dibenzylideneacetone) ($Pd(dba)_2$), ($Pd_2(dba)_3$), bis(triphenylphosphine)palladium(II) dichloride ($Pd(PPh_3)_2Cl_2$), palladium acetate ($Pd(OAc)_2$, palladium trifluoracetate ($Pd(TFA)_2$), palladium chloride ($PdCl_2$), palladium bromide ($PdBr_2$),palladium iodide (PdI_2), palladium bis acetylacetonate ($Pd(acac)_2$), ($Pd(PPh_3)_4$), bis(acetonitrile)-palladium(II) dichloride ($PdCl_2(CH_3CN)_2$), cyclopentadienyl allyl palladium, allylpalladium(II) chloride dimer ($Pd(allyl)Cl)_2$), (2-butenyl)chloropalladium dimer, (2-

methylallyl) palladium(II) chloride dimer, palladium(1-phenylallyl)chloride dimer,(*p-tert*-butylindenyl) palladium(II) chloride dimer, di-μ-chlorobis[2′-(amino-*N*)[1,1′-biphenyl]-2-yl-*C*]dipalladium(II), di-μ-mesylbis[2′-(amino-N)[1,1′-biphenyl]-2-yl-C]dipalladium(II), di-μ-mesylbis[2′-(methylamino-N)[1,1′-biphenyl]-2-yl-C]dipalladium(II), and di-μ-chlorobis[2-[(dimethylamino)methyl]phenyl-C,N]dipalladium(II); and

iib) a ligand selected from mono- and diphosphines, in particular a ligand selected from $PtBu_3$, PAd_3, AmPhos, cataCXiumA, $PtBu_2Bu$, $PtBu_2Ph$, $PtBu_2$-*p*-$C_6H_4CF_3$, cataCXium POMeCy, CPhos, RuPhos, SPhos, dppf, dcypf, dippf, and dtbpf; and

said base is selected from inorganic bases and alcoholates, preferably wherein said base is selected from Na_2CO_3, $Ba(OH)_2$, K_3PO_4, Cs_2CO_3, K_2CO_3, TlOH, KF, CsF, Bu_4F, and NaOH, more preferably wherein said base is K_3PO_4 or K_2CO_3.

4. The process according to claim 3, wherein said palladium catalyst is present in an amount of 1 mol% to 10 mol%, preferably 1 mol% to 5 mol%, more preferably 1 mol% to 3 mol%, most preferably 2 mol% relative to aryl bromide **1**.

5. The process according to claim 3 or 4, wherein 1 to 4 equivalents, preferably 1 to 3 equivalents, more preferably 1 to 2 equivalents, most preferably 1.5 equivalents of said base relative to aryl bromide **1** are used.

6. The process according to any one of claims 3 to 5, wherein said aromatic solvent is selected from toluene, xylenes (*o*-xylene, *p*-xylene, *m*-xylene or a mixture thereof), ethylbenzene, anisole, cumene, and cymene.

7. The process according to claim 6, wherein said aromatic solvent is toluene.

8. The process according to any one of claims 3 to 7, wherein the process is conducted in the further presence of water, preferably 1 to 30 equivalents, more preferably 5 to 25 equivalents, most preferably 10 to 25 equivalents, in particular 12.5 to 25 equivalents of water relative to aryl bromide **1**.

9. The process according to claim 8, wherein the water is continuously added over a period of 2-8 h, preferably over a period of 2-7 h, most preferably over a period of 3-6 h to the reaction mixture comprising aryl bromide **1**, boronic acid **2**, palladium catalyst and base.

10. The process according to any one of claims 3 to 9, wherein 1 to <1.5 equivalents, preferably 1 to 1.3 equivalents, more preferably 1 to 1.2 equivalents, more preferably 1.05 to 1.2 equivalents of boronic acid **2** are used relative to aryl bromide **1**.

11. The process according to any one of claims 3 to 10, optionally further comprising:

(b) adding ammonium pyrrolidinedithiocarbamate or an aqueous solution of *N*-acetylcysteine to the reaction mixture obtained from step (a).

12. A process for manufacturing compound **4** according to claim 2, or a salt thereof, comprising the process according to any one of claims 3 to 11, and further comprising:

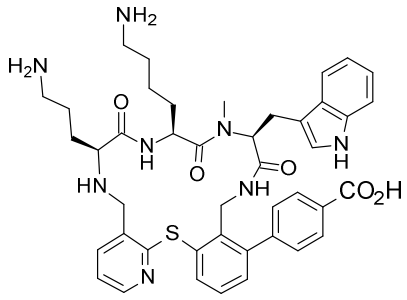
(c) reacting compound **3** according to claim 1 with 2 to 10 equivalents, preferably 3 to 8 equivalents, more preferably 4 to 7 equivalents, in particular 7 equivalents of sodium hydroxide to afford said compound **4**, wherein said sodium hydroxide is added as a 5% w/w to 30% w/w, preferably 10% w/w to 20% w/w, in particular a 16% w/w aqueous solution to a solution of compound **3** in an alcoholic solvent or a mixture of water and an alcoholic solvent.

13. The process according to claim 12, wherein said alcoholic solvent in step (c) is methanol.

14. The process according to claim 12 or 13, optionally further comprising:

(d) crystallizing said compound **4**, preferably from a mixture of 1-propanol and acetone.

15. A process for manufacturing the compound of formula (I), or a pharmaceutically acceptable salt thereof,



(I)

comprising the process according to any one of claims 12 to 14, and further comprising:

(e) reacting compound **4** according to claim 2 with an acid, preferably with hydrochloric acid, to afford said compound of formula (I).

16. The process according to claim 15, wherein step (e) is performed in a solvent mixture selected from acetone/water, THF/water, and acetonitrile/water.

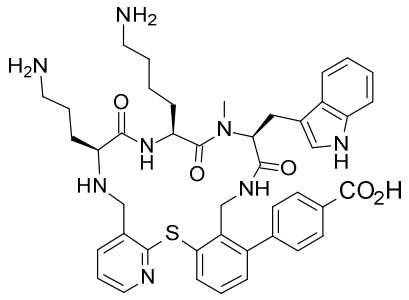
17. The process according to any one of claims 15 or 16, wherein 2 to 6 equivalents, preferably 3 to 5 equivalents, more preferably 4 to 5 equivalents, more preferably 3.5 to 4.5 equivalents, in particular 4.1 equivalents of acid relative to compound **4** are used in step (e).

18. The process according to any one of claims 15 to 17, wherein the process is performed between room temperature and reflux, preferably between 30 °C and reflux, more preferably between 35 °C and 65 °C, most preferably between 35 °C and 60 °C.

19. Compound **3** according to claim 1, or a salt thereof, when manufactured according to the process of any one of claims 3 to 11.

20. Compound **4** according to claim 2, or a salt thereof, when manufactured according to the process of any one of claims 12 to 14.

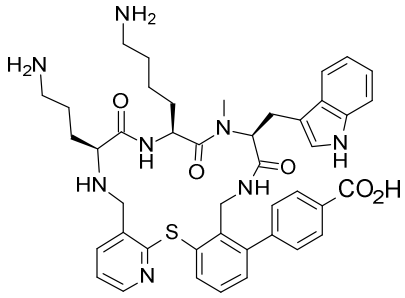
21. Compound of formula (I), or a pharmaceutically acceptable salt thereof,



(I)

when manufactured according to the process of any one of claims 15 to 18.

22. Use of the process according to any one of claims 3 to 14 in the manufacture of the compound of formula (I),



(I)

or a pharmaceutically acceptable salt thereof.

23. Use of compound **3** according to claim 1 in the manufacture of the compound of formula (I).

24. Use of compound **4** according to claim 2 in the manufacture of the compound of formula (I).