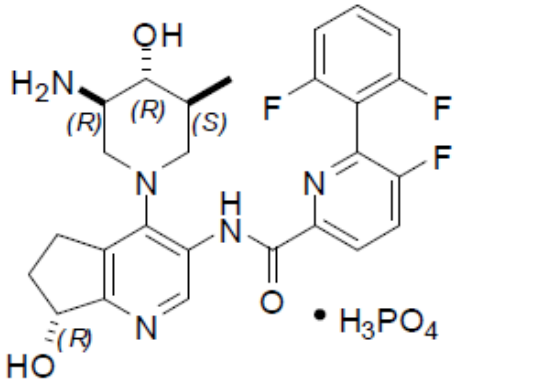
What is claimed is:

1. A solid form of a salt having the formula:



wherein the solid form is crystalline.

2. The solid form of claim 1 which is hydrated.

3. The solid form of claim 2 which is a hemihydrate.

4. The solid form of claim 1 having Form I and having:
(a) three or more characteristic XRPD peaks, in terms of 2-theta, selected from about 4.6, about 9.4, about 13.1, about 16.2, about 17.4, about 17.9, about 18.8, about 19.4, about 21.1, about 23.0, about 24.8, and about 25.2 degrees; or
(b) having an XRPD pattern substantially as depicted in Figure 1; or
(c) having a melting point of about 250 °C; or
(d) having a DSC thermogram substantially as depicted in Figure 2; or
(e) having a TGA thermogram substantially as depicted in Figure 3.

5. The solid form of claim 1 having Form II, and having:
(a) at least three characteristic XRPD peaks, in terms of 2-theta, selected from about 4.7, about 9.4, about 18.8, about 21.7, about 24.8, and about 33.3 degrees; or
(b) having XRPD pattern as substantially as depicted in Figure 7.

6. The solid form of claim 1 having Form III, and having:

(a) at least three characteristic XRPD peaks, in terms of 2-theta, selected from about 4.6, about 9.4, about 13.3, about 16.3, about 18.9, about 19.2, about 21.2, about 22.5, about 23.1, about 24.9, and about 26.7 degrees; or
(b) having an XRPD pattern substantially as depicted in Figure 10.

7. The solid form of claim 1 having Form IV, and having:
(a) at least three characteristic XRPD peaks, in terms of 2-theta, selected from about 4.1, about 13.3, about 16.4, about 17.7, about 18.6, about 19.8, about 21.4, and about 23.3 degrees; or
(b) having an XRPD pattern substantially as depicted in Figure 13.

8. The solid form of claim 1 having Form V, and having:
(a) at least three characteristic XRPD peaks, in terms of 2-theta, selected from about 7.3, about 10.9, about 16.4, about 18.5, about 19.8, about 22.6, and about 26.1 degrees; or
(b) having an XRPD pattern substantially as shown on Figure 16.

9. The solid form of claim 1 having Form VI, and having:
(a) at least three characteristic XRPD peaks, in terms of 2-theta, selected from about 6.5, about 8.3, about 10.7, about 13.2, about 17.3, and about 19.1 degrees; or
(b) having an XRPD pattern substantially as shown on Figure 19.

10. A pharmaceutical composition comprising the solid form of any one of claims 1 to 9 and at least one pharmaceutically acceptable carrier.

11. A solid oral dosage form comprising the pharmaceutical composition of claim 10.

12. A method of inhibiting a Pim kinase comprising contacting a Pim kinase *in vitro* with a solid form of any one of claims 1 to 9; optionally wherein the Pim is:
(a) Pim1 kinase; or (b) Pim 2 kinase; or (c) Pim 3 kinase; or
(d) wherein the activity of a Pim kinase (e.g., at least one of Pim1, Pim2 and Pim3) is upregulated in a cancer.

13. A solid form of any one of claims 1 to 9 for use in:
(a) the treatment of cancer; or
(b) the treatment of a myeloproliferative disorder; or
(c) the treatment of an immune disorder; or
(d) the treatment of atherosclerosis; or
(e) the reduction of angiogenesis or tumor metastasis.

14. A solid form of any one of claims 1 to 9 for use in the treatment of a cancer selected from prostate cancer, colon cancer, esophageal cancer, endometrial cancer, ovarian cancer, uterine cancer, renal cancer, hepatic cancer, pancreatic cancer, gastric cancer, breast cancer, lung cancer, cancer of the head or neck, thyroid cancer, glioblastoma, sarcoma, bladder cancer, lymphoma, leukemia, acute lymphoblastic leukemia, acute myelogenous leukemia, chronic lymphocytic leukemia, chronic myelogenous leukemia, diffuse large-B cell lymphoma, mantle cell lymphoma, non-Hodgkin lymphoma, Hodgkin lymphoma and multiple myeloma.

15. The solid form for use according to claim 13 wherein the solid form is for use in the treatment of an immune disorder and wherein the immune disorder is an autoimmune disease.

16. Use of a solid form of any one of claims 1 to 9 in the manufacture of a medicament for:
(a) the treatment of cancer; or
(b) the treatment of a myeloproliferative disorder; or
(c) the treatment of an immune disorder; or
(d) the treatment of atherosclerosis; or
(e) the reduction of angiogenesis or tumor metastasis.

17. The use according to claim 16 wherein the solid form is for use in the treatment of an immune disorder and wherein the immune disorder is an autoimmune disease.

18. Use of a solid form of any one of claims 1 to 9 in the manufacture of a medicament for the treatment of a cancer selected from prostate cancer, colon cancer, esophageal cancer, endometrial cancer, ovarian cancer, uterine cancer, renal cancer, hepatic cancer, pancreatic cancer, gastric cancer, breast cancer, lung cancer, cancer of the head or neck, thyroid cancer, glioblastoma, sarcoma, bladder cancer, lymphoma, leukemia, acute lymphoblastic leukemia, acute myelogenous leukemia, chronic lymphocytic leukemia, chronic myelogenous leukemia, diffuse large-B cell lymphoma, mantle cell lymphoma, non-Hodgkin lymphoma, Hodgkin lymphoma and multiple myeloma.

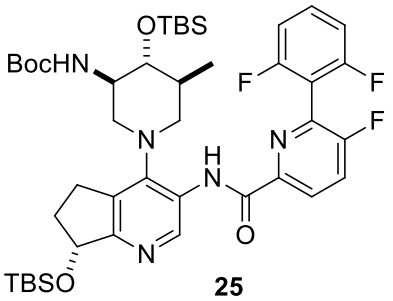
19. A method of preparing *N*-{(7*R*)-4-[(3*R*,4*R*,5*S*)-3-amino-4-hydroxy-5-methylpiperidin-1-yl]-7-hydroxy-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-3-yl}-6-(2,6-difluorophenyl)-5-fluoropyridine-2-carboxamide phosphoric acid salt, comprising: combining *N*-{(7*R*)-4-[(3*R*,4*R*,5*S*)-3-amino-4-hydroxy-5-methylpiperidin-1-yl]-7-hydroxy-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-3-yl}-6-(2,6-difluorophenyl)-5-fluoropyridine-2-carboxamide (Compound 1 free base) with phosphoric acid, wherein the combining is carried out in the presence of methanol and 2-propanol.

20. The method of claim 19 further comprising:

(a) step (i) wherein step (i) comprises preparing the *N*-{(7*R*)-4-[(3*R*,4*R*,5*S*)-3-amino-4-hydroxy-5-methylpiperidin-1-yl]-7-hydroxy-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-3-yl}-6-(2,6-difluorophenyl)-5-fluoropyridine-2-carboxamide (Compound 1 free base) by combining *N*-{(7*R*)-4-[(3*R*,4*R*,5*S*)-3-amino-4-hydroxy-5-methylpiperidin-1-yl]-7-hydroxy-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-3-yl}-6-(2,6-difluorophenyl)-5-fluoropyridine-2-carboxamide dihydrochloric acid salt (Compound 1 dihydrochloric acid salt) with sodium carbonate; or

(b) step (i) and step (ii) wherein step (ii) comprises preparing the *N*-{(7*R*)-4-[(3*R*,4*R*,5*S*)-3-amino-4-hydroxy-5-methylpiperidin-1-yl]-7-hydroxy-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-3-yl}-6-(2,6-difluorophenyl)-5-fluoropyridine-2-carboxamide dihydrochloric acid salt (Compound 1 dihydrochloric acid salt) by reacting *tert*-butyl {(3*R*,4*R*,5*S*)-4-{[*tert*-butyl(dimethyl)silyl]oxy}-1-[(7*R*)-7-{[*tert*-butyl(dimethyl)silyl]oxy}-3-({[6-(2,6-difluorophenyl)-5-fluoropyridin-2-

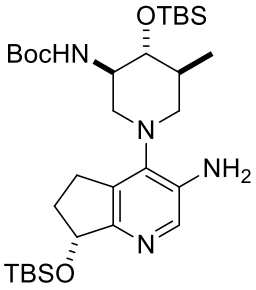
yl]carbonyl}amino)-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-4-yl]-5-methylpiperidin-3-yl}carbamate (25):



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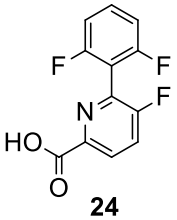
with hydrogen chloride; or

(c) step (i), step (ii) and step (iii), wherein step (iii) comprises preparing the *tert*-butyl {(3*R*,4*R*,5*S*)-4-{[*tert*-butyl(dimethyl)silyl]oxy}-1-[(7*R*)-7-{[*tert*-butyl(dimethyl)silyl]oxy}-3-({[6-(2,6-difluorophenyl)-5-fluoropyridin-2-yl]carbonyl}amino)-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-4-yl]-5-methylpiperidin-3-yl}carbamate (25) by coupling *tert*-butyl ((3*R*,4*R*,5*S*)-1-(3-amino-7-{[*tert*-butyl(dimethyl)silyl]oxy}-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-4-yl)-4-{[*tert*-butyl(dimethyl)silyl]oxy}-5-methylpiperidin-3-yl)carbamate (23):



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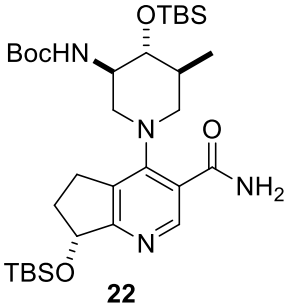
with 6-(2,6-difluorophenyl)-5-fluoropyridine-2-carboxylic acid (24):



24 ; or

(d) step (i), step (ii), step (iii) and step (iv), wherein step (iv) comprises preparing the *tert*-butyl ((3*R*,4*R*,5*S*)-1-(3-amino-7-{[*tert*-butyl(dimethyl)silyl]oxy}-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-4-yl)-4-{[*tert*-butyl(dimethyl)silyl]oxy}-5-methylpiperidin-3-yl)carbamate (23) by mixing *tert*-butyl ((3*R*,4*R*,5*S*)-1-((7*R*)-3-(aminocarbonyl)-7-

{[*tert*-butyl(dimethyl)silyl]oxy}-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-4-yl)-4-{[*tert*-butyl(dimethyl)silyl]oxy}-5-methylpiperidin-3-yl)carbamate (22):

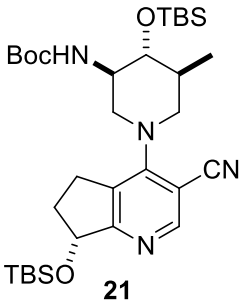


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with tetra-*N*-butylammonium bromide (TBAB) in the presence of sodium hydroxide; or

(e) step (i), step (ii), step (iii), and step (iv), wherein in step (iv) the mixing is carried out in the presence of 1,3-dibromo-5,5-dimethylhydantoin; or

(f) step (i), step (ii), step (iii), step (iv) and step (v), wherein step (v) comprises preparing the *tert*-butyl ((3*R*,4*R*,5*S*)-1-((7*R*)-3-(aminocarbonyl)-7-{[*tert*-butyl(dimethyl)silyl]oxy}-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-4-yl)-4-{[*tert*-butyl(dimethyl)silyl]oxy}-5-methylpiperidin-3-yl)carbamate (22) by reacting *tert*-butyl [(3*R*,4*R*,5*S*)-4-{[*tert*-butyl(dimethyl)silyl]oxy}-1-((7*R*)-7-{[*tert*-butyl(dimethyl)silyl]oxy}-3-cyano-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-4-yl)-5-methylpiperidin-3-yl]carbamate (21):

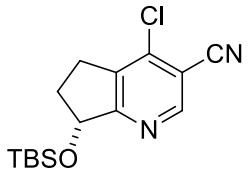


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with acetaldoxime; or

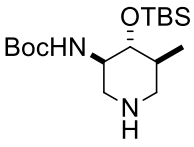
(g) step (i), step (ii), step (iii), step (iv) and step (v), wherein in step (v) the reacting with acetaldoxime is carried out in the presence of [1,1'-bis(diphenylphosphino)ferrocene]dichloropalladium(II)($Pd(dppf)_2Cl_2$ complexed with dichloromethane; or

(h) step (i), step (ii), step (iii), step (iv), step (v), and step (vi) wherein step (vi) comprises preparing the *tert*-butyl [(3*R*,4*R*,5*S*)-4-{[*tert*-butyl(dimethyl)silyl]oxy}-1-((7*R*)-7-{[*tert*-butyl(dimethyl)silyl]oxy}-3-cyano-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-4-yl)-5-methylpiperidin-3-yl]carbamate (21) by reacting (7*R*)-7-{[*tert*-butyl(dimethyl)silyl]oxy}-4-chloro-6,7-dihydro-5*H*-cyclopenta[*b*]pyridine-3-carbonitrile (20):



20

with *tert*-butyl ((3*R*,4*R*,5*S*)-4-{[*tert*-butyl(dimethyl)silyl]oxy}-5-methylpiperidin-3-yl)carbamate (9), or hydrochloric acid salt thereof:



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in the presence of *N*,*N*-diisopropylethylamine (DIEA).

21. A method of preparing the solid form of claim 4, comprising, precipitating the solid form from a solution comprising *N*-{(7*R*)-4-[(3*R*,4*R*,5*S*)-3-amino-4-hydroxy-5-methylpiperidin-1-yl]-7-hydroxy-6,7-dihydro-5*H*-cyclopenta[*b*]pyridin-3-yl}-6-(2,6-difluorophenyl)-5-fluoropyridine-2-carboxamide phosphoric acid salt.

22. The method of claim 21 wherein the solution comprises:
(a) a solvent which comprises 2-propanol; or
(b) a solvent which comprises acetonitrile, ethanol, or both.