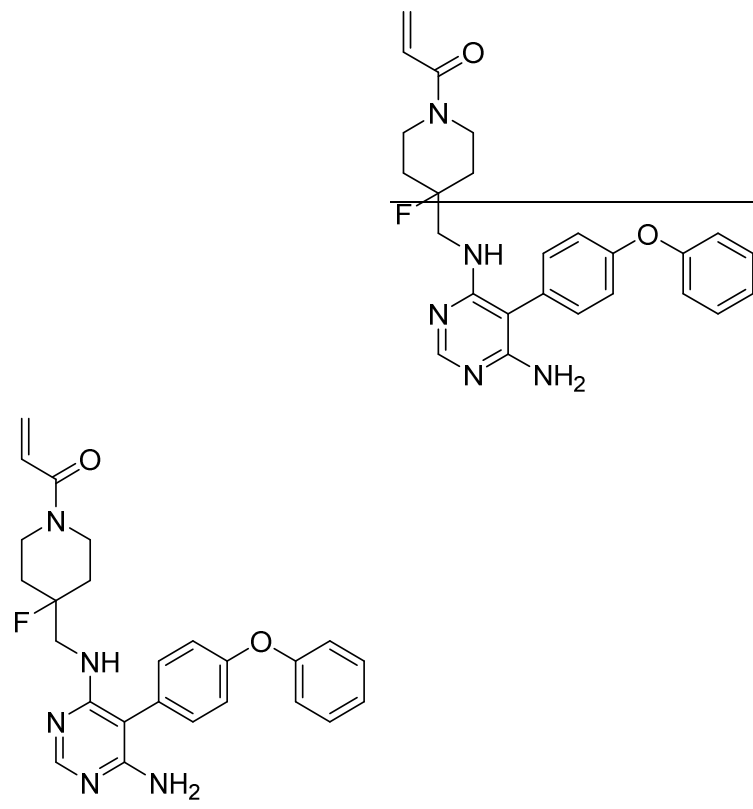


CLAIMS

We claim:

1. A substantially crystalline solid form of compound 1,

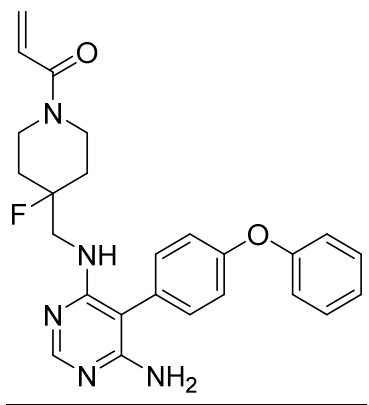


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~~or a pharmaceutically acceptable salt thereof.~~

2. ~~The solid form of claim 1, wherein the solid form is a crystalline anhydrous form-A2.~~

3. ~~The 2. A substantially crystalline solid form of claim 2, of compound 1.~~

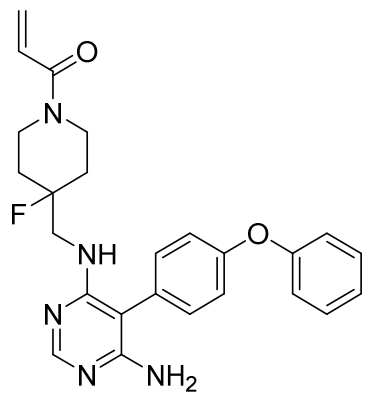


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wherein the solid form is a crystalline form A2, wherein form A2 is characterized by two or more a 2θ XRPD spectrum, comprising peaks at $17.0 \pm 0.2^\circ$, $18.7 \pm 0.2^\circ$, and $21.7 \pm 0.2^\circ$ degrees.

4. — The

3. A substantially crystalline solid form of claim 2, compound 1,

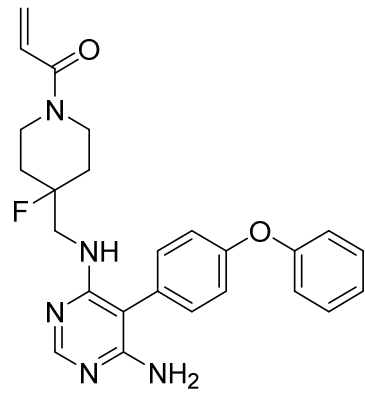


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wherein the solid form is a crystalline anhydrous form A2,

wherein form A2 is characterized by four or more 2 θ XRPD peaks at $7.5 \pm 0.2^\circ$, $10.8 \pm 0.2^\circ$, $17.0 \pm 0.2^\circ$, $17.5 \pm 0.2^\circ$, $18.7 \pm 0.2^\circ$, $20.5 \pm 0.2^\circ$, $21.7 \pm 0.2^\circ$, $22.3 \pm 0.2^\circ$, $23.6 \pm 0.2^\circ$, and $24.0 \pm 0.2^\circ$ degrees.

~~5. The~~ 4. A substantially crystalline solid form of claim 2, of compound 1,



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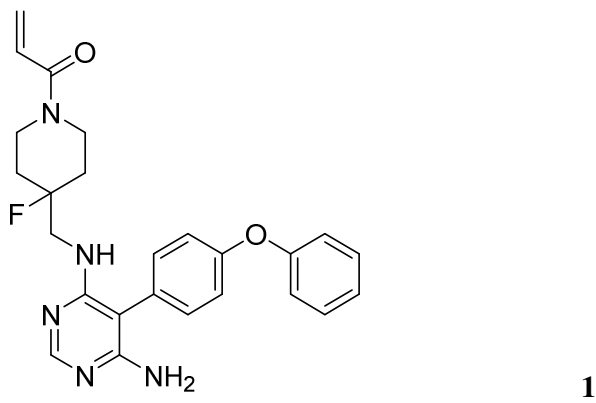
wherein the solid form is a crystalline form A2,

having ~~the~~ a space group *P-1* with the lattice parameters $a = 9.5 \pm 0.1 \text{ \AA}$, $b = 10.7 \pm 0.1 \text{ \AA}$, $c = 12.8 \pm 0.1 \text{ \AA}$, and $\alpha = 71.0 \pm 0.1^\circ$, $\beta = 68.9 \pm 0.1^\circ$, $\gamma = 71.9 \pm 0.1^\circ$.

~~6. The solid form of claim 1, of crystalline form A1, wherein form A1 is characterized by two or more 2 θ XRPD peaks at $17.1 \pm 0.2^\circ$, $17.4 \pm 0.2^\circ$, $18.8 \pm 0.2^\circ$, $20.0 \pm 0.2^\circ$, and $21.1 \pm 0.2^\circ$ degrees.~~

~~7. The~~

5. A substantially crystalline solid form of compound 1,

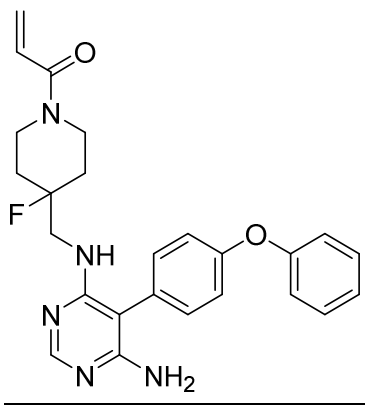


wherein the solid form of claim 6, is A1,

wherein form A1 is characterized by four or more 2 θ XRPD peaks at $17.1 \pm 0.2^\circ$, $17.4 \pm 0.2^\circ$, $18.8 \pm 0.2^\circ$, $20.0 \pm 0.2^\circ$, and $21.1 \pm 0.2^\circ$ degrees.

8. ~~The~~

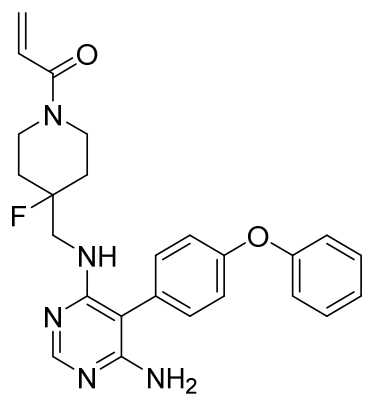
6. A substantially crystalline solid form of claim compound 1, of crystalline



wherein the solid form is A1,

having ~~the~~ a space group $P21/n$ with the lattice parameters $a = 12.8 \pm 0.1 \text{ \AA}$, $b = 12.9 \pm 0.1 \text{ \AA}$, $c = 28.6 \pm 0.1 \text{ \AA}$, and $\beta = 98.0 \pm 0.1^\circ$ (with $\alpha = \gamma = 90^\circ$).

9. ~~The 7.~~ A pharmaceutically acceptable salt of a substantially crystalline solid form of ~~claim~~compound 1,



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which is selected from the group consisting of HCl salt HCl-NF1 of ~~Compound~~compound 1, HCl salt HCl-NF2 of ~~Compound~~compound 1, HCl salt HCl-NF3 of ~~Compound~~compound 1, HBr salt HBr-NF1 of ~~Compound~~compound 1, HBr salt HBr-NF2 of ~~Compound~~compound 1, Oxalate~~oxalate~~ salt form Oxalate~~oxalate~~-NF1 of ~~Compound~~compound 1, Maleate~~maleate~~ salt form Maleate~~maleate~~-NF1 of ~~Compound~~compound 1, Maleate~~maleate~~ salt form Maleate~~maleate~~-NF2 of ~~Compound~~compound 1, Fumarate~~fumarate~~ salt form Fumarate~~fumarate~~-NF1 of ~~Compound~~compound 1, Fumarate~~fumarate~~ salt form Fumarate~~fumarate~~-NF2 of ~~Compound~~compound 1, Fumarate~~fumarate~~ salt form Fumarate~~fumarate~~-NF3 of ~~Compound~~compound 1, Fumarate~~fumarate~~ salt form Fumarate~~fumarate~~-NF4 of ~~Compound~~1, Fumarate salt form Fumarate NF5 of ~~Compound~~1, and Mesylate~~compound 1~~, fumarate salt form Mesylate~~fumarate~~-NF5 of ~~compound 1~~, and mesylate salt form mesylate-NF1 of ~~Compound~~compound 1.

108. The HCl-NF1 salt~~pharmaceutically acceptable salt~~ of claim 9,7, which is HCl-NF1 salt and is characterized by two or more 2θ XRPD peaks at $15.7 \pm 0.2^\circ$, $19.1 \pm 0.2^\circ$, $20.3 \pm 0.2^\circ$, and $20.8 \pm 0.2^\circ$ degrees.

~~11~~9. The pharmaceutically acceptable salt of claim 7, which is HCl-NF2 salt of claim 9, and is characterized by two or more 2θ XRPD peaks at $7.8 \pm 0.2^\circ$, $13.0 \pm 0.2^\circ$, and $15.6 \pm 0.2^\circ$ degrees.

~~12~~10. The pharmaceutically acceptable salt of claim 7, which is HCl-NF3 salt of claim 9, and is characterized by two or more 2θ XRPD peaks at $14.8 \pm 0.2^\circ$, $16.8 \pm 0.2^\circ$, $20.1 \pm 0.2^\circ$, and $20.4 \pm 0.2^\circ$ degrees.

~~13~~11. The pharmaceutically acceptable salt of claim 7, which is HBr-NF1 salt of claim 9, and is characterized by two or more 2θ XRPD peaks at $6.9 \pm 0.2^\circ$, $19.1 \pm 0.2^\circ$, $20.4 \pm 0.2^\circ$, $20.8 \pm 0.2^\circ$, and $21.9 \pm 0.2^\circ$ degrees.

~~14~~12. The pharmaceutically acceptable salt of claim 7, which is HBr-NF2 salt of claim 9, and is characterized by two or more 2θ XRPD peaks at $4.9 \pm 0.2^\circ$, $13.2 \pm 0.2^\circ$, and $20.0 \pm 0.2^\circ$ degrees.

~~15~~13. The ~~Oxalate~~pharmaceutically acceptable salt of claim 7, which is oxalate-NF1 salt of claim 9, and is characterized by two or more 2θ XRPD peaks at $16.2 \pm 0.2^\circ$, $17.7 \pm 0.2^\circ$, $18.6 \pm 0.2^\circ$, $21.1 \pm 0.2^\circ$, and $21.3 \pm 0.2^\circ$ degrees.

~~16~~14. The ~~Maleate~~pharmaceutically acceptable salt of claim 7, which is maleate-NF1 salt of claim 9, and is characterized by two or more 2θ XRPD peaks at $18.1 \pm 0.2^\circ$, $19.1 \pm 0.2^\circ$, $20.8 \pm 0.2^\circ$, and $24.8 \pm 0.2^\circ$ degrees.

~~17~~15. The ~~Maleate~~pharmaceutically acceptable salt of claim 7, which is maleate-NF2 salt of
~~claim 9, and is~~ characterized by two or more 2 θ XRPD peaks at $10.8 \pm 0.2^\circ$, $17.1 \pm 0.2^\circ$, $19.2 \pm$
 0.2° , and $20.7 \pm 0.2^\circ$ degrees.

~~18~~16. The ~~Fumarate~~pharmaceutically acceptable salt of claim 7, which is fumarate-NF1 salt
~~of claim 9, and is~~ characterized by two or more 2 θ XRPD peaks at $9.0 \pm 0.2^\circ$, $17.0 \pm 0.2^\circ$, $18.$
 $\pm 0.2^\circ$, $\pm 0.2^\circ$, and $22.1 \pm 0.2^\circ$ degrees.

~~19~~17. The ~~Mesylate~~pharmaceutically acceptable salt of claim 7, which is mesylate-NF1 salt
~~of claim 9, and is~~ characterized by two or more 2 θ XRPD peaks at $18.7 \pm 0.2^\circ$, $19.5 \pm 0.2^\circ$, and
 $21.1 \pm 0.2^\circ$ degrees.

~~20~~18. A pharmaceutical composition comprising ~~at~~the solid form of compound 1 of claim
~~4~~2, and a pharmaceutically acceptable adjuvant, carrier, or vehicle.

~~21. A method for 19.~~ Use of the solid form of compound 1 of claim 2 in the
manufacture of a medicament for treating a BTK-mediated disorder in a patient in need thereof,
wherein said medicament is to be administered to said patient.

20. A method for producing a medicament for the prophylactic or therapeutic treatment of
a BTK-mediated disorder, the method comprising the step of administering to said patient a:
formulating the solid form of compound 1 of claim 1-2.

21. A pharmaceutical composition comprising the solid form of compound 1 of claim 5,
and a pharmaceutically acceptable adjuvant, carrier, or vehicle.

22. Use of ~~a~~the solid form of compound 1 of claim 4 ~~or physiologically acceptable salts~~5
in the manufacture of a medicament for treating a BTK-mediated disorder in a patient in need
thereof, ~~for the production of a medicament for the prophylactic or therapeutic treatment of a~~
~~BTK-mediated disorder, wherein said medicament is to be administered to said patient.~~

23. A method for producing a medicament for the prophylactic or therapeutic treatment of
a BTK-mediated disorder, the method comprising:
formulating the solid form of compound 1 of claim 5.