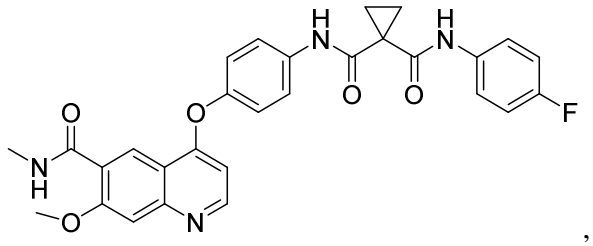
CLAIMS

1. A crystalline solid form of Compound 1



Compound 1

or hydrate or solvate thereof~~.~~

~~2. The crystalline solid form of claim 1~~, wherein the crystalline solid form of Compound 1 is characterized as Form A, Form B, Form C, Form D, Form E, Form F, Form G, Form H, Form K, Form O, or Form Q, wherein

Compound 1 Form A is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.20, wherein the one or more peaks is selected from 5.48, 9.93, 10.83, 10.98, 11.36, 11.79, 12.04, 12.25, 12.62, 14.33, 14.67, 15.33, 16.02, 16.51, 16.77, 18.07, 19.09, 19.34, 19.60, 20.00, 20.46, 20.85, 21.45, 21.55, 21.76, 22.16, 22.35, 22.58, 22.87, 23.79, 24.11, 24.29, 24.35, 24.87, 25.42, 25.81, 26.09, 26.72, 27.04, 27.44, 27.77, 27.98, 28.19, and 28.56;

Compound 1 Form B is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 9.58, 10.49, 11.27, 12.10, 13.26, 13.52, 15.15, and 16.69;

Compound 1 Form C is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 3.89, 7.95, 9.31, 10.54, 12.96, 16.61, 17.64, and 20.47;

Compound 1 Form D is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 5.43, 7.00, 10.21, 18.96, 23.62, 24.99, 26.62, 27.10, and 29.64;

Compound 1 Form E is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 6.13, 9.77, 10.37, 13.73, 14.79, 26.37, 29.12, and 29.95;

Compound 1 Form F is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 7.44, 8.56, 13.65, 16.27, 19.25, 25.93, 29.2 and 29.9;

Compound 1 Form G is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 6.71, 9.47, 14.40, 17.04, 17.85, 21.10, 30.3, and 30.7;

Compound 1 Form H is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 6.30, 11.42, 11.73, 17.52, 18.01, 18.56, 21.95, and 25.69;

Compound 1 Form K is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 6.39, 8.10, 11.53, 19.89, 21.11, 22.34, 24.50, and 26.42;

Compound 1 Form O is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 6.10, 9.01, 14.92, 17.14, 17.58, 23.96, 25.62, and 27.96; and

Compound 1 Form Q is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 6.11, 8.61, 9.06, 9.74, 15.69, 16.07, 20.04, and 24.01.

2. The crystalline solid form of claim 1, wherein

Compound 1 Form A is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.20, wherein the three or more peaks are selected from 5.48, 9.93, 10.83, 10.98, 11.36, 11.79, 12.04, 12.25, 12.62, 14.33, 14.67, 15.33, 16.02, 16.51, 16.77, 18.07, 19.09, 19.34, 19.60, 20.00, 20.46, 20.85, 21.45, 21.55, 21.76, 22.16, 22.35, 22.58, 22.87, 23.79, 24.11, 24.29, 24.35, 24.87, 25.42, 25.81, 26.09, 26.72, 27.04, 27.44, 27.77, 27.98, 28.19, and 28.56;

Compound 1 Form B is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 9.58, 10.49, 11.27, 12.10, 13.26, 13.52, 15.15, and 16.69;

Compound 1 Form C is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 3.89, 7.95, 9.31, 10.54, 12.96, 16.61, 17.64, and 20.47;

Compound 1 Form D is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 5.43, 7.00, 10.21, 18.96, 23.62, 24.99, 26.62, 27.10, and 29.64;

Compound 1 Form E is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 6.13, 9.77, 10.37, 13.73, 14.79, 26.37, 29.12, and 29.95;

Compound 1 Form F is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 7.44, 8.56, 13.65, 16.27, 19.25, 25.93, 29.2 and 29.9;

Compound 1 Form G is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 6.71, 9.47, 14.40, 17.04, 17.85, 21.10, 30.3, and 30.7;

Compound 1 Form H is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 6.30, 11.42, 11.73, 17.52, 18.01, 18.56, 21.95, and 25.69;

Compound 1 Form K is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 6.39, 8.10, 11.53, 19.89, 21.11, 22.34, 24.50, and 26.42;

Compound 1 Form O is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 6.10, 9.01, 14.92, 17.14, 17.58, 23.96, 25.62, and 27.96; and

Compound 1 Form Q is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 6.11, 8.61, 9.06, 9.74, 15.69, 16.07, 20.04, and 24.01.

3. The crystalline solid form of claim ~~2~~1, wherein the Compound 1 Form A is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.20, wherein the one or more peaks is selected from 10.83, 10.98, 11.36, 11.79, 12.04, 14.33, 18.07, 19.09, 20.00, 22.58, 24.87, and 28.19;

Compound 1 Form B is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 10.49, 12.10, 13.26, and 13.52;

Compound 1 Form C is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 3.89, 7.95, 9.31, and 17.64;

Compound 1 Form D is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 5.43, 7.00, 10.21, and 29.64;

Compound 1 Form E is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 10.37, 14.79, 26.37, and 29.95;

Compound 1 Form F is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 7.44, 8.56, 13.65, and 29.9;

Compound 1 Form G is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 6.71, 9.47, 30.3, and 30.7;

Compound 1 Form H is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 6.30, 17.52, 18.56, and 25.69;

Compound 1 Form K is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 6.39, 8.10, 22.34, and 24.50;

Compound 1 Form O is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 6.10, 14.92, 17.14, and 23.96; and

Compound 1 Form Q is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 8.61, 9.74, 16.07, and 20.04.

4. The crystalline solid form of any one of claims ~~2~~1-3, wherein the Compound 1 Form A is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale ± 0.20, wherein the peaks are 10.83, 10.98, 11.36, 11.79, 12.04, 14.33, 18.07, 19.09, 20.00, 22.58, 24.87, and 28.19;

Compound 1 Form B is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 10.49, 12.10, 13.26, and 13.52;

Compound 1 Form C is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 3.89, 7.95, 9.31, and 17.64;

Compound 1 Form D is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 5.43, 7.00, 10.21, and 29.64;

Compound 1 Form E is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 10.37, 14.79, 26.37, and 29.95;

Compound 1 Form F is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 7.44, 8.56, 13.65, and 29.9;

Compound 1 Form G is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.71, 9.47, 30.3, and 30.7;

Compound 1 Form H is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.30, 17.52, 18.56, and 25.69;

Compound 1 Form K is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.39, 8.10, 22.34, and 24.50;

Compound 1 Form O is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.10, 14.92, 17.14, and 23.96; and

Compound 1 Form Q is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 8.61, 9.74, 16.07, and 20.04.

5. The crystalline solid form of any one of claims ~~2-4~~1-3, wherein the Compound 1 Form A is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale ± 0.20, wherein the peaks are 5.48, 9.93, 10.83, 10.98, 11.36, 11.79, 12.04, 12.25, 12.62, 14.33, 14.67, 15.33, 16.02, 16.51, 16.77, 18.07, 19.09, 19.34, 19.60, 20.00, 20.46, 20.85, 21.45, 21.55, 21.76, 22.16, 22.35, 22.58, 22.87, 23.79, 24.11, 24.29, 24.35, 24.87, 25.42, 25.81, 26.09, 26.72, 27.04, 27.44, 27.77, 27.98, 28.19, and 28.56;

Compound 1 Form B is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 9.58, 10.49, 11.27, 12.10, 13.26, 13.52, 15.15, and 16.69;

Compound 1 Form C is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 3.89, 7.95, 9.31, 10.54, 12.96, 16.61, 17.64, and 20.47;

Compound 1 Form D is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 5.43, 7.00, 10.21, 18.96, 23.62, 24.99, 26.62, 27.10, and 29.64;

Compound 1 Form E is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.13, 9.77, 10.37, 13.73, 14.79, 26.37, 29.12, and 29.95;

Compound 1 Form F is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 7.44, 8.56, 13.65, 16.27, 19.25, 25.93, 29.2 and 29.9;

Compound 1 Form G is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.71, 9.47, 14.40, 17.04, 17.85, 21.10, 30.3, and 30.7;

Compound 1 Form H is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.30, 11.42, 11.73, 17.52, 18.01, 18.56, 21.95, and 25.69;

Compound 1 Form K is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.39, 8.10, 11.53, 19.89, 21.11, 22.34, 24.50, and 26.42;

Compound 1 Form O is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.10, 9.01, 14.92, 17.14, 17.58, 23.96, 25.62, and 27.96; and

Compound 1 Form Q is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.11, 8.61, 9.06, 9.74, 15.69, 16.07, 20.04, and 24.01.

6. The crystalline solid form of any one of claims ~~2~~1-5, wherein the Compound 1 Form A is characterized by an endotherm with an onset temperature at greater than 200 ºC in a DSC thermogram;

Compound 1 Form K is characterized by an endotherm with an onset at a temperature of ~~about~~ 226 ºC in a DSC thermogram;

Compound 1 Form Q is characterized by an endotherm with an onset at a temperature of ~~about~~ 194-195 ºC in a DSC thermogram.

7. The crystalline solid form of any one of claims ~~2~~1-6, wherein the Compound 1 Form A is characterized by a weight loss at a temperature greater than 200 ºC in a TGA thermogram;

Compound 1 Form B is characterized by a first weight loss of ~~≃~~0.3 wt% between the temperatures of 38 – 92 ºC, and a second weight loss of ~~≃~~11.2 wt% between the temperatures of 92 - 188 ºC in a TGA thermogram;

Compound 1 Form C is characterized by a first weight loss of ~~≃~~0.4 wt% between the temperatures of 40 – 75 ºC, a second weight loss of ~~≃~~13.8 wt% between the temperatures of 75 - 154 ºC, and a third weight loss of ~~≃~~1.9 wt% between the temperatures of 190 – 220 ºC in a TGA thermogram;

Compound 1 Form D is characterized by a weight loss of ~~≃~~13.5 wt% between the temperatures of 38 – 130 ºC in a TGA thermogram;

Compound 1 Form E is characterized by a weight loss of ~~≃~~8.2 wt% between the temperatures of 60 – 130 ºC in a TGA thermogram;

Compound 1 Form F is characterized by a first weight loss of ~~≃~~0.1 wt% between the temperatures of 38 – 77 ºC, and a second weight loss of ~~≃~~14.4 wt% between the temperatures of 77 – 178 ºC in a TGA thermogram;

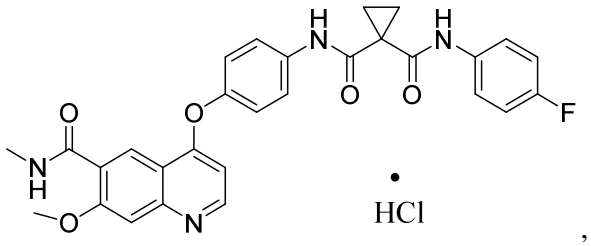
Compound 1 Form G is characterized by a weight loss of ~~≃~~20.8 wt% between the temperatures of 40 – 165 ºC in a TGA thermogram;

Compound 1 Form K is characterized by a weight loss of ~~≃~~0.2 wt% between the temperatures of 40 – 180 ºC in a TGA thermogram; and

Compound 1 Form Q is characterized by a weight loss of ~~≃~~11-12 wt% between the temperatures of 120 – 160 ºC in a TGA thermogram.

8. The crystalline solid form of any one of claims ~~2~~1-7, wherein the Compound 1 Form A is characterized by a weight gain of from ~~about~~ 0.8 to ~~about~~ 1.0 wt%, as determined by DVS analysis, when taken from an environment of 5% relative humidity to an environment of 95% relative humidity.

9. A crystalline hydrochloric acid salt of Compound 1 having the structure



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Compound 1 HCl salt

or hydrate or solvate thereof~~.~~

~~10. The crystalline hydrochloric acid salt of claim 9~~, characterized as Compound 1 HCl Form A, Compound 1 HCl Form B, Compound 1 HCl Form C, or Compound 1 HCl Form D, wherein the Compound 1 HCl Form A is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 5.19, 13.49,

13.69, 13.89, 14.84, 15.12, 16.34, 16.68, 17.47, 18.49, 20.31, 23.18, 24.39, 25.87, 26.34, 27.06, 28.07, 28.4, and 30.0;

Compound 1 HCl Form B is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 9.72, 15.89, 16.63, 17.37, 18.32, 19.51, 21.04, 21.30, 21.81, 23.40, 24.76, 26.20, and 27.71;

Compound 1 HCl Form C is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 2.5, 3.0, 4.3, 6.2, 7.3, 7.8, and 29.5; and

Compound 1 HCl Form D is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 3.47, 5.27, 6.93, 8.21, 8.97, 9.86, 10.16, 10.44, 10.69, 11.28, 12.26, 12.75, 13.27, 13.92, 14.23, 14.54, 14.95, 15.44, 15.58, 15.80, 16.08, 16.25, 17.84, 18.44, 18.65, 19.34, 19.75, 20.13, 20.93, 21.29, 22.05, 22.69, 22.90, 23.69, 24.15, 24.39, 24.60, 24.91, 25.16, 26.27, 27.03, 27.61, and 28.37.

10. The crystalline hydrochloric acid salt of claim 9, wherein

Compound 1 HCl Form A is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 5.19, 13.49, 13.69, 13.89, 14.84, 15.12, 16.34, 16.68, 17.47, 18.49, 20.31, 23.18, 24.39, 25.87, 26.34, 27.06, 28.07, 28.4, and 30.0;

Compound 1 HCl Form B is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 9.72, 15.89, 16.63, 17.37, 18.32, 19.51, 21.04, 21.30, 21.81, 23.40, 24.76, 26.20, and 27.71;

Compound 1 HCl Form C is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 2.5, 3.0, 4.3, 6.2, 7.3, 7.8, and 29.5; and

Compound 1 HCl Form D is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 3.47, 5.27, 6.93, 8.21, 8.97, 9.86, 10.16, 10.44, 10.69, 11.28, 12.26, 12.75, 13.27, 13.92, 14.23, 14.54, 14.95, 15.44, 15.58, 15.80, 16.08, 16.25, 17.84, 18.44, 18.65, 19.34, 19.75, 20.13, 20.93, 21.29, 22.05, 22.69, 22.90, 23.69, 24.15, 24.39, 24.60, 24.91, 25.16, 26.27, 27.03, 27.61, and 28.37.

11. The crystalline hydrochloric acid salt form of claim ~~10~~9, wherein the Compound 1 HCl Form A is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 13.49, 17.47, 18.49, and 30.0;

Compound 1 HCl Form B is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 9.72, 17.37, 18.32, and 19.51;

Compound 1 HCl Form C is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 2.5, 3.0, 4.3, 11.6, 17.1, 19.0, 20.5, 26.8, and 29.5; and

Compound 1 HCl Form D is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 3.47, 5.27, 10.16, 10.69, 12.26, 14.54, 14.95, 17.84, 20.93, 21.29, 22.05, 22.69, 22.90, 23.69, 24.91, and 25.16.

12. The crystalline hydrochloric acid salt form of ~~claim 10 or~~ any one of claims 9-11, wherein the Compound 1 HCl Form A is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 13.49, 17.47, 18.49, and 30.0;

Compound 1 HCl Form B is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 9.72, 17.37, 18.32, and 19.51;

Compound 1 HCl Form C is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 2.5, 3.0, 4.3, 6.2, 7.3, 7.8, and 29.5; and

Compound 1 HCl Form D is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 3.47, 5.27, 10.16, 10.69, 12.26, 14.54, 14.95, 17.84, 20.93, 21.29, 22.05, 22.69, 22.90, 23.69, 24.91, and 25.16.

13. The crystalline hydrochloric acid salt form of any one of claims ~~10-12~~9-11, wherein the Compound 1 HCl Form A is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 5.19, 13.49, 13.69, 13.89, 14.84,

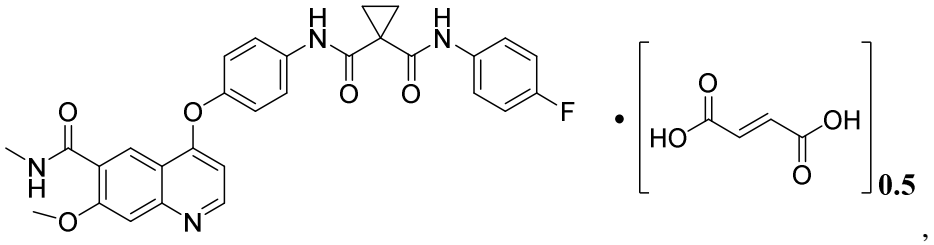
15.12, 16.34, 16.68, 17.47, 18.49, 20.31, 23.18, 24.39, 25.87, 26.34, 27.06, 28.07, 28.4, and 30.0;

Compound 1 HCl Form B is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 9.72, 15.89, 16.63, 17.37, 18.32, 19.51, 21.04, 21.30, 21.81, 23.40, 24.76, 26.20, and 27.71;

Compound 1 HCl Form C is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 2.5, 3.0, 4.3, 6.2, 7.3, 7.8, 8.8, 11.6, 17.1, 19.0, 20.5, 26.8, and 29.5; and

Compound 1 HCl Form D is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 3.47, 5.27, 6.93, 8.21, 8.97, 9.86, 10.16, 10.44, 10.69, 11.28, 12.26, 12.75, 13.27, 13.92, 14.23, 14.54, 14.95, 15.44, 15.58, 15.80, 16.08, 16.25, 17.84, 18.44, 18.65, 19.34, 19.75, 20.13, 20.93, 21.29, 22.05, 22.69, 22.90, 23.69, 24.15, 24.39, 24.60, 24.91, 25.16, 26.27, 27.03, 27.61, and 28.37.

14. A crystalline fumaric acid salt of Compound 1 having the structure



,

Compound 1 Hemifumarate

or hydrate or solvate thereof~~.~~, wherein the crystalline fumaric acid salt comprises Compound 1•0.5 Fumaric acid.

15. The crystalline fumaric acid salt of claim 14, characterized as Compound 1 hemifumarate Form B~~.~~

~~16.~~ , wherein Compound 1 ~~Hemifumarate~~hemifumarate Form B ~~according to claim 15,~~is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 7.55, 9.08, 10.81, 13.24, 15.89, 16.95, 17.14, 17.29,

17.44, 18.24, 19.16, 19.91, 20.19, 20.42, 20.70, 21.16, 21.74, 22.29, 22.48, 22.75, 23.82, 24.37, 26.34, 27.05, and 27.88~~, or~~ .

16. The crystalline fumaric acid salt of claim 15, wherein the one or more peaks is selected from 9.08, 10.81, 16.95, 17.44, 22.29, 22.48, 23.82, 24.37, 26.34, and 27.05.

~~17~~17. Compound 1 Hemifumarate Form B according to claim 15, wherein Compound 1 hemifumarate Form B is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 7.55, 9.08, 10.81, 13.24, 15.89, 16.95, 17.14, 17.29, 17.44, 18.24, 19.16, 19.91, 20.19, 20.42, 20.70, 21.16, 21.74, 22.29, 22.48, 22.75, 23.82, 24.37, 26.34, 27.05, and 27.88, or the three or more peaks are selected from 9.08, 10.81, 16.95, 17.44, 22.29, 22.48, 23.82, 24.37, 26.34, and 27.05.

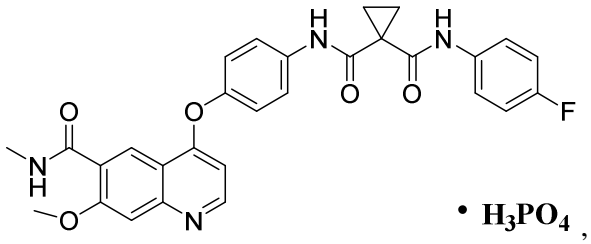
18. Compound 1 Hemifumarate Form B according to claim 15 or 16, characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 9.08, 10.81, 16.95, 17.44, 22.29, 22.48, 23.82, 24.37, 26.34, and 27.05~~, or characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 7.55, 9.08, 10.81, 13.24, 15.89, 16.95, 17.14, 17.29, 17.44, 18.24, 19.16, 19.91, 20.19, 20.42, 20.70, 21.16, 21.74, 22.29, 22.48, 22.75, 23.82, 24.37, 26.34, 27.05, and 27.88~~.

~~18~~19. Compound 1 Hemifumarate Form B according to any one of claims 15-17, characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 7.55, 9.08, 10.81, 13.24, 15.89, 16.95, 17.14, 17.29, 17.44, 18.24, 19.16, 19.91, 20.19, 20.42, 20.70, 21.16, 21.74, 22.29, 22.48, 22.75, 23.82, 24.37, 26.34, 27.05, and 27.88.

20. Compound 1 Hemifumarate Form B according to any one of claims 15-19, characterized by an endotherm with an onset temperature of ~~about~~ 226 ºC in a DSC thermogram, by negligible weight loss under a temperature of ~~about~~ 220 ºC in a TGA

thermogram, or by an increase in weight of ~~about~~ 0.2 wt%, as measured by DVS, in an environment that is taken from 5% relative humidity to 95% relative humidity.

~~19~~21. A crystalline phosphoric acid salt of Compound 1 having the structure



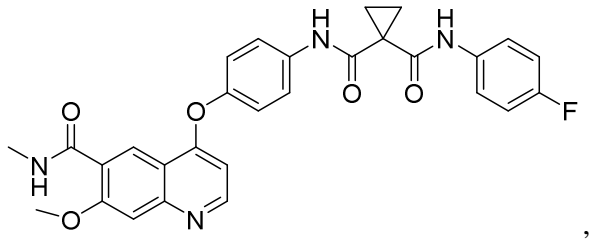
Compound 1 Phosphate Form A

or hydrate or solvate thereof~~.~~

~~20. The crystalline phosphoric acid salt of claim 19~~, characterized as Compound 1 phosphate Form A, wherein the Compound 1 Phosphate Form A is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 6.3, 6.8, 10.5, 12.7, 13.8, 16.1, 17.3, 18.1, 18.8, 19.4, 20.3, 20.9, 21.2, 22.1, 23.2, 24.7, 27.4, 27.8, and 28.5; or characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 6.3, 6.8, 13.8, 16.1, 19.4, 20.3, 23.2, and 24.7.

22. The crystalline phosphoric acid salt of claim 21, characterized as Compound 1 phosphate Form A, wherein the Compound 1 Phosphate Form A is characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 6.3, 6.8, 10.5, 12.7, 13.8, 16.1, 17.3, 18.1, 18.8, 19.4, 20.3, 20.9, 21.2, 22.1, 23.2, 24.7, 27.4, 27.8, and 28.5; or characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 6.3, 6.8, 13.8, 16.1, 19.4, 20.3, 23.2, and 24.7; or characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.3, 6.8, 13.8, 16.1, 19.4, 20.3, 23.2, and 24.7; or characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.3, 6.8, 10.5, 12.7, 13.8, 16.1, 17.3, 18.1, 18.8, 19.4, 20.3, 20.9, 21.2, 22.1, 23.2, 24.7, 27.4, 27.8, and 28.5.

~~21~~23. A crystalline solid form of Compound 1



Compound 1

or hydrate or solvate thereof, characterized by at least one of the following:

(i) one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.20, wherein the one or more peaks is selected from 5.48, 9.93, 10.83, 10.98, 11.36, 11.79, 12.04, 12.25, 12.62, 14.33, 14.67, 15.33, 16.02, 16.51, 16.77, 18.07, 19.09, 19.34, 19.60, 20.00, 20.46, 20.85, 21.45, 21.55, 21.76, 22.16, 22.35, 22.58, 22.87, 23.79, 24.11, 24.29, 24.35, 24.87, 25.42, 25.81, 26.09, 26.72, 27.04, 27.44, 27.77, 27.98, 28.19, and 28.56;

(ii) an endotherm with an onset temperature at greater than 200 ºC in a DSC thermogram;

(iii) a weight loss at a temperature greater than 200 ºC in a TGA thermogram;

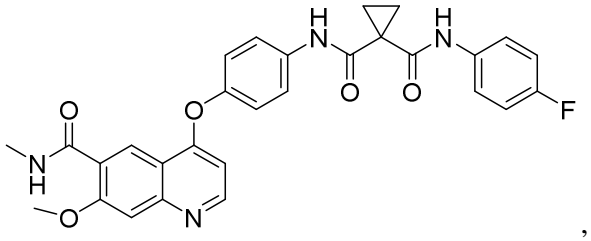
(iv) a weight gain of from ~~about~~ 0.8 to ~~about~~ 1.0 wt%, as determined by DVS analysis, when taken from an environment of 5% relative humidity to an environment of 95% relative humidity; and

(v) an ^{1}H NMR spectrum substantially identical to Figure 55.

~~22~~24. The crystalline solid form of claim ~~21~~23, having Form A, wherein Form A is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.20, wherein the one or more peaks is selected from 10.83, 10.98, 11.36, 11.79, 12.04, 14.33, 18.07, 19.09, 20.00, 22.58, 24.87, and 28.19; or characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale ± 0.20, wherein the peaks are 10.83, 10.98, 11.36, 11.79, 12.04, 14.33, 18.07, 19.09, 20.00, 22.58, 24.87, and 28.19; or characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale ± 0.20, wherein the peaks are 5.48, 9.93, 10.83, 10.98, 11.36, 11.79, 12.04, 12.25, 12.62, 14.33, 14.67, 15.33, 16.02, 16.51, 16.77, 18.07, 19.09, 19.34, 19.60, 20.00, 20.46, 20.85, 21.45, 21.55, 21.76, 22.16, 22.35, 22.58, 22.87, 23.79, 24.11, 24.29, 24.35, 24.87, 25.42, 25.81, 26.09, 26.72, 27.04, 27.44, 27.77, 27.98, 28.19, and 28.56.

~~23~~25. Compound 1 Form A of claim ~~20~~23 or ~~21~~24, characterized as Compound 1 Form A by at least two of (i), (ii), (iii), and (iv); or characterized by at least three of (i), (ii), (iii), and (iv); or characterized as Compound 1 Form A by all of (i), (ii), (iii), and (iv).

~~24~~26. A crystalline solid form of Compound 1



,

Compound 1

or hydrate or solvate thereof, characterized by at least one of the following:

(i) one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.20, wherein the one or more peaks is selected from 6.39, 8.10, 11.53, 19.89, 21.11, 22.34, 24.50, and 26.42;

(ii) an endotherm with an onset at a temperature of ~~about~~ 226 ºC in a DSC thermogram;

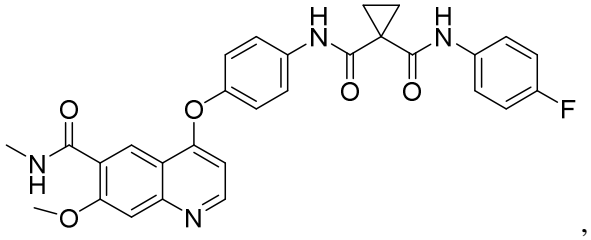
(iii) a weight loss of ~~~~ 0.2 wt% between the temperatures of 40 – 180 ºC in a TGA thermogram; and

(iv) an ^{1}H NMR spectrum substantially identical to Figure 56.

~~25~~27. The crystalline solid form of claim ~~24~~26, having Form K, wherein Form K is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 6.39, 8.10, 22.34, and 24.50; or characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.39, 8.10, 22.34, and 24.50; or characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.39, 8.10, 11.53, 19.89, 21.11, 22.34, 24.50, and 26.42.

~~26~~28. Compound 1 Form K of claim ~~24~~26 or ~~25~~27, characterized as Compound 1 Form K by at least two of (i), (ii), and (iii); or characterized as Compound 1 Form K by all of (i), (ii), and (iii).

~~27~~29. A crystalline solid form of Compound 1



,

Compound 1

or hydrate or solvate thereof, characterized by at least one of the following:

(i) one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.20, wherein the one or more peaks is selected from 6.11, 8.61, 9.06, 9.74, 15.69, 16.07, 20.04, and 24.01;

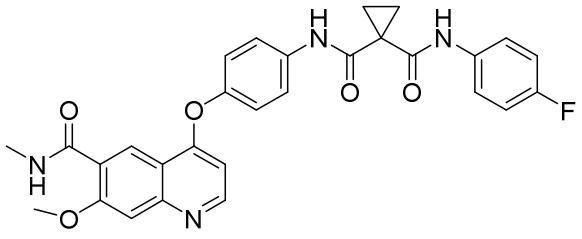
(ii) an endotherm with an onset at a temperature of ~~about~~ 194-195 ºC in a DSC thermogram; and

(iii) a weight loss of ~~–~~11-12 wt% between the temperatures of 120 – 160 ºC in a TGA thermogram.

~~28~~30. The crystalline solid form of claim ~~27~~29, having Form Q, wherein Form Q is characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 8.61, 9.74, 16.07, and 20.04; or is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 8.61, 9.74, 16.07, and 20.04; or is characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 6.11, 8.61, 9.06, 9.74, 15.69, 16.07, 20.04, and 24.01.

~~29~~31. Compound 1 Form Q of claim ~~27~~29 or ~~28~~30, characterized as Compound 1 Form Q by at least two of (i), (ii), and (iii); or characterized as Compound 1 Form Q by all of (i), (ii), and (iii).

~~30~~32. A crystalline solid form of Compound 1



Compound 1

or hydrate or solvate thereof, characterized by at least one of the following:

(i) one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 7.55, 9.08, 10.81, 13.24, 15.89, 16.95, 17.14, 17.29, 17.44, 18.24, 19.16, 19.91, 20.19, 20.42, 20.70, 21.16, 21.74, 22.29, 22.48, 22.75, 23.82, 24.37, 26.34, 27.05, and 27.88;

(ii) an endotherm with an onset temperature of ~~about~~ 226 ºC in a DSC thermogram;

(iii) negligible weight loss under a temperature of ~~about~~ 220 ºC in a TGA thermogram;

(iv) an increase in weight of ~~about~~ 0.2 wt%, as measured by DVS, in an environment that is taken from 5% relative humidity to 95% relative humidity; and

(v) an ^{1}H NMR spectrum substantially identical to Figure 54.

~~31~~33. The crystalline solid form of claim ~~30~~32, having Compound 1 Hemifumarate Form B, characterized by one or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the one or more peaks is selected from 9.08, 10.81, 16.95, 17.44, 22.29, 22.48, 23.82, 24.37, 26.34, and 27.05; or characterized by three or more peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the three or more peaks are selected from 7.55, 9.08, 10.81, 13.24, 15.89, 16.95, 17.14, 17.29, 17.44, 18.24, 19.16, 19.91, 20.19, 20.42, 20.70, 21.16, 21.74, 22.29, 22.48, 22.75, 23.82, 24.37, 26.34, 27.05, and 27.88; or characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 9.08, 10.81, 16.95, 17.44, 22.29, 22.48, 23.82, 24.37, 26.34, and 27.05; or characterized by all of the following peaks in an XRPD pattern on a 2 Theta scale, ± 0.2, wherein the peaks are 7.55, 9.08, 10.81, 13.24, 15.89, 16.95, 17.14, 17.29, 17.44, 18.24, 19.16, 19.91, 20.19, 20.42, 20.70, 21.16, 21.74, 22.29, 22.48, 22.75, 23.82, 24.37, 26.34, 27.05, and 27.88.

~~32~~34. Compound 1 Hemifumarate Form B of claim ~~30 or 31~~32or 33, characterized as Compound 1 Hemifumarate Form B by at least two of (i), (ii), (iii), and (iv); or characterized by at least three of (i), (ii), (iii), and (iv); or characterized by all of (i), (ii), (iii), and (iv).

~~33~~35. A pharmaceutical composition comprising a crystalline form or a crystalline salt form of any one of claims 1-~~32~~34 and a pharmaceutically acceptable excipient.

~~34. A method of treating a disease, disorder, or syndrome mediated at least in part by modulating *in vivo* activity of a protein kinase, comprising administering to a subject in need thereof a~~36. A crystalline solid form or ~~a crystalline~~ salt form of any one of claims 1-~~32~~34, or a pharmaceutical composition of claim ~~33.~~

35~~. The method of claim 34, wherein the disease, disorder, or syndrome mediated at least in part by modulating *in vivo* activity of a protein kinase is~~ for treating cancer.

~~36. A method for inhibiting a protein kinase, the method comprising contacting the protein kinase with a~~ 37. Use of a crystalline solid form or ~~a crystalline~~ salt form of Compound 1 of any one of claims 1-~~32, or a pharmaceutical composition of claim 33, wherein the protein kinase is Axl, Mer, c-Met, KDR, or a combination thereof~~34 for the manufacture of a medicament for treating cancer.