

pyrido[2,3-d]pyrimidin-7-one (Compound I) is provided. The maleate salt may be characterized by an X-ray powder diffraction (XRPD) pattern comprising a characteristic peak at about 22.5° 2θ.

Another aspect relates to the use of an effective amount of any of the crystalline free base, amorphous form of the free base, crystalline hydrochloride salt or crystalline maleate salt as disclosed herein, in the manufacture of a medicament, for treating a disease mediated by aberrant activity of FGFR in a subject in need thereof, wherein the disease is selected from the group consisting of breast cancer, multiple myeloma, bladder cancer, non-muscle invasive bladder cancer, endometrial cancer, gastric cancer, cervical cancer, rhabdomyosarcoma, lung cancer, squamous non-small cell lung cancer, cholangiocarcinoma, urothelial cancer, renal cell carcinoma, ovarian cancer, esophageal cancer, melanoma, colon cancer, liver cancer, hepatocellular carcinoma, head and neck squamous cell carcinoma, cholangiocarcinoma, glioma, cholangiocarcinoma, 8,11 myeloproliferative syndrome, myeloproliferative disorders involving FGFR translocations/fusions, alveolar rhabdomyosarcoma, malignant rhabdoid tumors, glioblastoma, muscle invasive bladder or renal cancer and prostate cancers.

BRIEF DESCRIPTION OF THE DRAWINGS

The following drawings form part of the present specification and are included to further demonstrate certain aspects of the present invention. The invention may be better understood by reference to one or more of these drawings in combination with the detailed description of the specific embodiments presented herein.

FIGS. 1A-1C show the XRPD spectra of Form 1 of 6-(2,6-dichloro-3,5-dimethoxyphenyl)-2-(methylamino)-8-[3-[4-(prop-2-enoyl)piperazin-1-yl]propyl]-7H,8H-pyrido[2,3-d]pyrimidin-7-one free base.

FIG. 2 shows a comparison of the XRPD spectra of Samples 1-3 of Form 1 of 6-(2,6-dichloro-3,5-dimethoxyphenyl)-2-(methylamino)-8-[3-[4-(prop-2-enoyl)piperazin-1-yl]propyl]-7H,8H-pyrido[2,3-d]pyrimidin-7-one free base.

FIG. 3A shows the proton NMR spectrum of Form 1 of the 6-(2,6-dichloro-3,5-dimethoxyphenyl)-2-(methylamino)-8-[3-[4-(prop-2-enoyl)piperazin-1-yl]propyl]-7H,8H-pyrido[2,3-d]pyrimidin-7-one free base.

FIG. 3B shows proton NMR peaks of Form 1 of the 6-(2,6-dichloro-3,5-dimethoxyphenyl)-2-(methylamino)-8-[3-[4-(prop-2-enoyl)piperazin-1-yl]propyl]-7H,8H-pyrido[2,3-d]pyrimidin-7-one free base.

FIG. 4A shows the thermogram obtained by thermogravimetric analysis for Form 1 of the 6-(2,6-dichloro-3,5-dimethoxyphenyl)-2-(methylamino)-8-[3-[4-(prop-2-enoyl)piperazin-1-yl]propyl]-7H,8H-pyrido[2,3-d]pyrimidin-7-one free base.

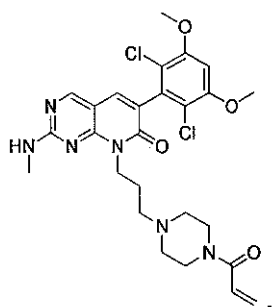
5 FIG. 4B shows the DSC thermogram for Form 1 of the 6-(2,6-dichloro-3,5-dimethoxyphenyl)-2-(methylamino)-8-[3-[4-(prop-2-enoyl)piperazin-1-yl]propyl]-7H,8H-pyrido[2,3-d]pyrimidin-7-one free base.

10 FIG. 5 shows the dynamic vapor sorption (DVS) isotherm for Form 1 of the 6-(2,6-dichloro-3,5-dimethoxyphenyl)-2-(methylamino)-8-[3-[4-(prop-2-enoyl)piperazin-1-yl]propyl]-7H,8H-pyrido[2,3-d]pyrimidin-7-one free base.

FIG. 6 shows the XRPD spectra of Form 3 (hydrate) of the 6-(2,6-dichloro-3,5-dimethoxyphenyl)-2-(methylamino)-8-[3-[4-(prop-2-enoyl)piperazin-1-yl]propyl]-7H,8H-pyrido[2,3-d]pyrimidin-7-one free base.

34. The crystalline hydrochloride salt according to claim 33, characterized by an X-ray powder diffraction (XRPD) pattern comprising a characteristic peak at about $11^{\circ} 2\theta$.

35. A crystalline maleate salt of a compound of formula:



5 36. The crystalline maleate salt according to claim 35, characterized by an X-ray powder diffraction (XRPD) pattern comprising a characteristic peak at about $22.5^{\circ} 2\theta$.

37. A pharmaceutical composition comprising any of the crystalline free base, amorphous form of the free base, crystalline hydrochloride salt or crystalline maleate salt of any preceding claim, and further comprising a pharmaceutically acceptable carrier and/or excipient.

10 38. Use of an effective amount of any of the crystalline free base, amorphous form of the free base, crystalline hydrochloride salt or crystalline maleate salt of any preceding claim, in the manufacture of a medicament, for treating a disease mediated by aberrant activity of FGFR in a subject in need thereof, wherein the disease is selected from the group consisting of breast cancer, multiple myeloma, bladder cancer, non-muscle invasive bladder cancer, endometrial
15 cancer, gastric cancer, cervical cancer, rhabdomyosarcoma, lung cancer, squamous non-small cell lung cancer, cholangiocarcinoma, urothelial cancer, renal cell carcinoma, ovarian cancer, esophageal cancer, melanoma, colon cancer, liver cancer, hepatocellular carcinoma, head and neck squamous cell carcinoma, cholangiocarcinoma, glioma, cholangiocarcinoma, 8,11 myeloproliferative syndrome, myeloproliferative disorders involving FGFR
20 translocations/fusions, alveolar rhabdomyosarcoma, malignant rhabdoid tumors, glioblastoma, muscle invasive bladder or renal cancer and prostate cancers.