

CLAIMS

1. A crystal of monohydrate of 4-((1-methylpyrrol-2-yl)-
carbonyl)-N-(4-(4-morpholin-1-yl-carbonylpiperidin-1-yl)-phenyl)-
5 1-piperazinecarboxamide (the Compound (1)) having at least 5
peaks of diffraction angle ($2\theta \pm 0.2^\circ$) selected from 12.8° , 15.0° ,
 17.2° , 19.8° , 21.5° , 21.8° , 22.5° , 25.8° , and 27.5° in a powder
X-ray diffraction spectrum, wherein the chemical purity of the
Compound (1) is 95% or more.
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2. The crystal according to claim 1, wherein the chemical purity
of the Compound (1) is 99% or more.
3. The crystal according to claim 1 or 2, wherein the crystal has
15 an endothermic peak at $170^\circ\text{C} \pm 5^\circ\text{C}$ in differential scanning
calorimetry analysis.
4. A crystal of monohydrate of 4-((1-methylpyrrol-2-yl)-
carbonyl)-N-(4-(4-morpholin-1-yl-carbonylpiperidin-1-yl)-phenyl)-
20 1-piperazinecarboxamide (the Compound (1)), the chemical purity
of the Compound (1) being 95% or more, produced by a method using
a solvent selected from methanol, ethanol, water and mixed
solvents thereof in crystallization.
- 25 5. The crystal according to claim 4, wherein the crystal is
produced by a method using a solvent selected from ethanol, water,
and mixed solvents thereof in crystallization.
6. The crystal according to claim 4 or 5, wherein the crystal is
30 produced by a method using a mixed solvent of ethanol and water
in crystallization.
7. The crystal according to any one of claims 4 to 6, wherein the
crystal has at least 5 peaks of diffraction angle ($2\theta \pm 0.2^\circ$)
35 selected from 12.8° , 15.0° , 17.2° , 19.8° , 21.5° , 21.8° , 22.5° ,

25.8°, and 27.5° in a powder X-ray diffraction spectrum.

8. The crystal according to any one of claims 4 to 7, wherein the crystal has an endothermic peak at $170^{\circ}\text{C}\pm 5^{\circ}\text{C}$ in differential scanning calorimetry analysis.

9. A pharmaceutical composition comprising the crystal according to any one of claims 1 to 8.

10. A method for producing a crystal of monohydrate of 4-((1-methylpyrrol-2-yl)-carbonyl)-N-(4-(4-morpholin-1-yl-carboxylpiperidin-1-yl)-phenyl)-1-piperazinecarboxamide (the Compound (1)), the chemical purity of the Compound (1) being 95% or more, the method using a solvent selected from methanol, ethanol, water and mixed solvents thereof in crystallization.

11. The method according to claim 10, wherein the method uses a solvent selected from ethanol, water, and mixed solvents thereof in crystallization.

12. The method according to claim 10 or 11, wherein the method uses a mixed solvent of ethanol and water in crystallization.

13. The method according to any one of claims 10 to 12, wherein the method is a method for producing a crystal having at least 5 peaks of diffraction angle ($2\theta\pm 0.2^{\circ}$) selected from 12.8° , 15.0° , 17.2° , 19.8° , 21.5° , 21.8° , 22.5° , 25.8° , and 27.5° in a powder X-ray diffraction spectrum.

14. The method according to any one of claims 10 to 13, wherein the method is a method for producing a crystal having an endothermic peak at $170^{\circ}\text{C}\pm 5^{\circ}\text{C}$ in differential scanning calorimetry analysis.