

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  $12.8^\circ$ ,  $15.0^\circ$ ,  
 $17.2^\circ$ ,  $19.8^\circ$ ,  $21.5^\circ$ ,  $21.8^\circ$ ,  $22.5^\circ$ ,  $25.8^\circ$ , and  $27.5^\circ$  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. The crystal according to any one of claims 1 to 3, wherein the  
crystal has 9 peaks of diffraction angle ( $2\theta \pm 0.2^\circ$ ) of  $12.8^\circ$ ,  
20  $15.0^\circ$ ,  $17.2^\circ$ ,  $19.8^\circ$ ,  $21.5^\circ$ ,  $21.8^\circ$ ,  $22.5^\circ$ ,  $25.8^\circ$ , and  $27.5^\circ$  in a  
powder X-ray diffraction spectrum.
5. A pharmaceutical composition comprising the crystal according  
to any one of claims 1 to 4.  
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6. A method for producing a crystal of monohydrate of 4-((1-  
methylpyrrol-2-yl)-carbonyl)-N-(4-(4-morpholin-1-yl-  
carbonylpiperidin-1-yl)-phenyl)-1-piperazinecarboxamide (the  
Compound (1)), the chemical purity of the Compound (1) being 95%  
30 or more, the method using a solvent selected from methanol,  
ethanol, water and mixed solvents thereof in crystallization.
7. The method according to claim 6, wherein the method uses a  
solvent selected from ethanol, water, and mixed solvents thereof  
35 in crystallization.

8. The method according to claim 6 or 7, wherein the method uses a mixed solvent of ethanol and water in crystallization.

5 9. The method according to claim 6 or 7, 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  $12.8^\circ$ ,  $15.0^\circ$ ,  $17.2^\circ$ ,  $19.8^\circ$ ,  $21.5^\circ$ ,  $21.8^\circ$ ,  $22.5^\circ$ ,  $25.8^\circ$ , and  $27.5^\circ$  in a powder X-ray diffraction spectrum.

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10. The method according to claim 6 or 7, wherein the method is a method for producing a crystal having 9 peaks of diffraction angle ( $2\theta \pm 0.2^\circ$ ) of  $12.8^\circ$ ,  $15.0^\circ$ ,  $17.2^\circ$ ,  $19.8^\circ$ ,  $21.5^\circ$ ,  $21.8^\circ$ ,  $22.5^\circ$ ,  $25.8^\circ$ , and  $27.5^\circ$  in a powder X-ray diffraction spectrum.

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11. The method according to any one of claims 6 to 10, 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.

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