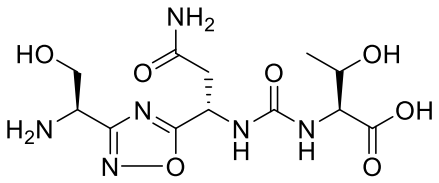
Claims:

1. A crystalline compound having the structure of formula (I),



(I);

wherein the compound is a hydrate.

2. The crystalline compound of claim 1, wherein the compound is a monohydrate.

3. The crystalline compound of any one of claims 1 to 2, having 2θ values 8.4 ± 0.2, 13.6 ± 0.2, 16.5 ± 0.2, 16.8 ± 0.2, 21.4 ± 0.2, and 28.4 ± 0.2.

4. The crystalline compound of any one of claims 1 to 3, having 2θ values 8.4 ± 0.2, 13.6 ± 0.2, 16.5 ± 0.2, 16.8 ± 0.2, 19.3 ± 0.2, 20.4 ± 0.2, 21.4 ± 0.2, and 28.4 ± 0.2.

5. The crystalline compound of any one of claims 1 to 4, having 2θ values 8.4 ± 0.2, 13.6 ± 0.2, 16.5 ± 0.2, 16.8 ± 0.2, 19.3 ± 0.2, 19.9 ± 0.2, 20.4 ± 0.2, 21.4 ± 0.2, 24.5 ± 0.2, 26.5 ± 0.2, and 28.4 ± 0.2.

6. The crystalline compound of any one of claims 1 to 5, having 2θ values 8.4 ± 0.2, 11.5 ± 0.2, 13.6 ± 0.2, 16.5 ± 0.2, 16.8 ± 0.2, 19.3 ± 0.2, 19.9 ± 0.2, 20.4 ± 0.2, 21.4 ± 0.2, 21.8 ± 0.2, 24.5 ± 0.2, 26.5 ± 0.2, 27.5 ± 0.2, 28.0 ± 0.2, 28.4 ± 0.2, 30.0 ± 0.2, and 32.4 ± 0.2.

7. The crystalline compound of claim 1, wherein the compound is a dihydrate.

8. The crystalline compound of claim 1 or 7, having 2θ values 12.9 ± 0.2, 13.5 ± 0.2, 15.7 ± 0.2, 17.0 ± 0.2, 29.7 ± 0.2, and 33.7 ± 0.2.

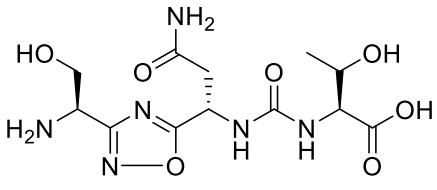
9. The crystalline compound of any one of claims 1, 7 to 8, having 2θ values 12.9 ± 0.2, 13.5 ± 0.2, 15.7 ± 0.2, 17.0 ± 0.2, 20.3 ± 0.2, 28.9 ± 0.2, 29.7 ± 0.2, and 33.7 ± 0.2.

10. The crystalline compound of any one of claims 1, 7 to 9, having 2θ values 12.9 ± 0.2, 13.5 ± 0.2, 15.7 ± 0.2, 17.0 ± 0.2, 19.6 ± 0.2, 20.3 ± 0.2, 26.2 ± 0.2, 28.9 ± 0.2, 29.7 ± 0.2, and 33.7 ± 0.2.

11. The crystalline compound of any one of claims 1, 7 to 10, having 2θ values 12.9 ± 0.2, 13.5 ± 0.2, 15.7 ± 0.2, 17.0 ± 0.2, 19.1 ± 0.2, 19.6 ± 0.2, 20.3 ± 0.2, 21.1 ± 0.2, 21.4 ± 0.2, 26.2 ± 0.2, 27.2 ± 0.2, 28.9 ± 0.2, 29.7 ± 0.2, 32.2 ± 0.2, and 33.7 ± 0.2.

12. A pharmaceutical composition comprising the crystalline compound of any one of claims 1 to 11 and one or more pharmaceutically acceptable excipients.

13. A method for preparing a crystalline compound having the structure of formula (I):



(I);

wherein the compound is a hydrate;

comprising:

a) providing a mixture comprising a compound of formula (I) and a solvent; and

b) crystallizing the compound of formula (I) from the mixture comprising the compound of formula (I).

14. The method of claim 13, wherein the compound is monohydrate.

15. The method of claim 13, wherein the compound is dihydrate.

16. The method of claim 13, wherein the solvent is selected from acetonitrile, anisole, dichloromethane, ethanol, isopropyl acetate, methyl tert-butyl ether (MTBE), n-heptane, tetrahydrofuran, water, and mixtures thereof.

17. The method of claim 16, wherein the solvent is selected from acetonitrile, ethanol, methyl tert-butyl ether (MTBE), water, and mixtures thereof.

18. The method of claim 13, wherein the solvent is a mixture comprising water.

19. The method of claim 18, wherein the mixture further comprises a solvent selected from ethanol, isopropanol, methanol, tetrahydrofuran, 1,4-dioxane, acetonitrile, and acetone.

20. The method of claim 18, wherein the mixture further comprises a solvent selected from ethanol, acetonitrile, diethyl ether, tetrahydrofuran, and mixtures thereof.

21. The method of any one of claims 13 to 20, wherein the mixture comprising the compound of formula (I) and the solvent is a reaction mixture.

22. The method of any one of claims 13 to 21, wherein the mixture comprising the compound of formula (I) is a solution.

23. The method of claim 22, wherein the solution comprises a crude solid material comprising the compound of formula (I) dissolved in a solvent.

24. The method of claim 22, wherein the solution is a reaction mixture.

25. The method of any one of claims 13 to 24, wherein the mixture comprising the compound of formula (I) is a solution, and the step of crystallizing the compound of formula (I) from the mixture comprises bringing the solution to supersaturation, thereby causing the compound of formula (I) to precipitate out of solution.

26. The method of claim 25, wherein the step of bringing the solution to supersaturation comprises slowly adding an anti-solvent, allowing the solution to cool, reducing the volume of the solution, or any combination thereof.

27. The method of claim 25, wherein the step of bringing the solution to supersaturation comprises slowly adding an anti-solvent.

28. The method of claim 25, wherein the step of bringing the solution to supersaturation comprises cooling the solution to ambient temperature or lower.

29. The method of any one of claims 13 to 21, wherein the mixture comprising the compound of formula (I) is a slurry.

30. The method of claim 29, wherein the slurry comprises crude solid material comprising the compound of formula (I).

31. The method of any one of claims 23, 25-28, and 30, wherein the crude solid material comprises 70% to 90% compound of formula (I).

32. The method of any one of claims 13 to 23, further comprising isolating the crystalline compound.

33. The method of claim 32, wherein isolating the crystalline compound comprises filtering the crystallized compound from the mixture.

34. The method of claim 32or 33, further comprising drying the crystalline compound under reduced pressure.

35. The method of any one of claims 13-34, wherein the crystalline compound is the crystalline compound of claim 1.

36. The method of claim 13, wherein, prior to step a), the compound of formula (I) is in a solution and step a) comprises contacting the solution with vapour of the solvent, thereby forming the mixture of step a).

37. The method of claim 36, wherein the solution is prepared by filtering a suspension comprising compound of formula (I), thereby forming the solution.

38. The method of claim 13, wherein the solvent is selected from acetonitrile, anisole, dichloromethane, ethanol, isopropyl acetate, methyl tert-butyl ether (MTBE), n-heptane, tetrahydrofuran, water, and mixtures thereof.

39. The method of any one of claims 13-38, wherein the purity of the crystalline form of the compound of formula (I) is selected from 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, and 99%.

40. A method for preparing a crystalline compound having the structure of formula (I), comprising exposing a solid form of the compound of formula (I) to vapour of the solvent and obtaining a crystalline form of the compound having the structure of formula (I).

41. The method of claim 40, wherein the solvent is selected from acetonitrile, anisole, dichloromethane, ethanol, isopropyl acetate, methyl tert-butyl ether (MTBE), n-heptane, tetrahydrofuran, water, and mixtures thereof.