

SUMMARY ~~OF THE INVENTION~~

In one aspect of the present disclosure, there is provided a crystalline form of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine, wherein

(1) the crystalline form is crystalline form Form A characterized by (i) at least three x-ray powder diffraction peaks at 2 Θ angles selected from 7.0°, 8.3°, 11.1°, 14.3°, and 15.0°; or (ii) at least four x-ray powder diffraction peaks at 2 Θ angles selected from 7.0°, 8.3°, 11.1°, 14.3°, and 15.0°; or (iii) x-ray powder diffraction peaks at 2 Θ angles 7.0°, 8.3°, 11.1°, 14.3°, and 15.0°; or (iv) x-ray powder diffraction peaks at 2 Θ angles 7.0°, 8.3°, 11.1°, 14.3°, 15.0°, 15.9°, 16.7°, 17.6°, 19.1°, 20.2°, 21.6°, 24.9°, and 25.8°; or (v) a DSC pattern that is the same DSC pattern shown in FIG. 2; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 3; or (vii) a DVS pattern that is the same DVS pattern shown in FIG. 4;

(2) the crystalline form is crystalline form Form B characterized by (i) at least three x-ray powder diffraction peaks at 2 Θ angles selected from 8.9°, 12.2°, 13.6°, 17.2°, and 21.0°; or (ii) at least four x-ray powder diffraction peaks at 2 Θ angles selected from 8.9°, 12.2°, 13.6°, 17.2°, and 21.0°; or (iii) x-ray powder diffraction peaks at 2 Θ angles 8.9°, 12.2°, 13.6°, 17.2°, and 21.0°; or (iv) x-ray powder diffraction peaks at 2 Θ angles 8.9°, 12.2°, 13.6°, 14.5°, 15.7°, 17.2°, 17.7°, 21.0°, 22.7°, 23.9°, 25.0°, 26.7°, and 27.6°; or (v) a DSC pattern that is the same DSC pattern shown in FIG. 6; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 7;

(3) the crystalline form is Crystalline Hydrate 1 characterized by (i) at least three x-ray powder diffraction peaks at 2 Θ angles selected from 11.5°, 15.2°, 17.0°, 17.7°, and 18.3°; or (ii) at least four x-ray powder diffraction peaks at 2 Θ angles selected from 11.5°, 15.2°, 17.0°, 17.7°, and 18.3°; or (iii) x-ray powder diffraction peaks at 2 Θ angles 11.5°, 15.2°, 17.0°, 17.7°, and 18.3°; or (iv) x-ray powder diffraction peaks at 2 Θ angles 11.5°, 13.5°, 15.2°, 17.0°, 17.7°, 18.3°, 19.1°, 22.1°, 23.1°, 23.3°, 24.2°, 24.9°, and 29.4°; or (v) a DSC pattern that is the same DSC pattern shown in FIG. 9; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 10;

(4) the crystalline form is Crystalline Hydrate 2 characterized by (i) at least three x-ray powder diffraction peaks at 2 Θ angles selected from 10.4°, 15.5°, 18.4°, 18.7°, and 21.9°; or (ii) at least four x-ray powder diffraction peaks at 2 Θ angles selected from 10.4°, 15.5°, 18.4°, 18.7°, and 21.9°; or (iii) x-ray powder diffraction peaks at 2 Θ angles 10.4°, 15.5°, 18.4°, 18.7°, and 21.9°; or (iv) x-ray powder diffraction peaks at 2 Θ angles 10.4°, 15.5°, 18.4°, 18.7°, 20.7°, 21.2°, 21.9°, 22.7°, 24.6°, 25.9°, 26.3°, and 27.4°; or (v) a DSC

pattern that is the same DSC pattern shown in FIG. 12; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 13; or

(5) the crystalline form is Crystalline Hydrate 3 characterized by (i) at least three x-ray powder diffraction peaks at 2Θ angles selected from 10.3° , 12.1° , 13.5° , 16.9° , and 24.4° ; or (ii) at least four x-ray powder diffraction peaks at 2Θ angles selected from 10.3° , 12.1° , 13.5° , 16.9° , and 24.4° ; or (iii) x-ray powder diffraction peaks at 2Θ angles 10.3° , 12.1° , 13.5° , 16.9° , and 24.4° ; or (iv) x-ray powder diffraction peaks at 2Θ angles 10.3° , 12.1° , 13.5° , 15.9° , 16.9° , 17.6° , 22.0° , 22.9° , 24.4° , and 28.9° ; or (v) a DSC pattern that is the same DSC pattern shown in FIG. 15; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 16.

In another aspect of the present disclosure, there is provided a pharmaceutical composition comprising the crystalline form disclosed herein; and a pharmaceutically acceptable carrier or diluent.

In a further aspect of the present disclosure, there is provided a use of the crystalline form disclosed herein, in the manufacture of a medicament for treating a CNS disorder.

In another aspect of the present disclosure, there is provided a crystalline form disclosed herein for use in therapy.

Provided herein is a novel crystalline Form A of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine.

Also provided herein is a novel crystalline Form B of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine.

Also provided herein is a novel crystalline Hydrate 1 of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine.

Also provided herein is a novel crystalline Hydrate 2 of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine.

Also provided herein is a novel crystalline Hydrate 3 of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine.

Also provided herein is a novel crystalline ethanol solvate of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine.

Also provided herein is a novel crystalline methanol solvate of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine.

Also provided herein is a novel crystalline methyl ethyl ketone solvate of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine.

Also provided herein is a novel crystalline dichloromethane solvate of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine.

Also provided herein is a novel crystalline acetonitrile solvate of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine.

Further provided herein are pharmaceutical compositions comprising crystalline Form A of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine, methods for their manufacture, and uses thereof for treating various diseases, wherein an increase in the concentration of nitric oxide (NO) or an increase in the concentration of cyclic Guanosine 3',5'-Monophosphate (cGMP) or both, or an upregulation of the NO pathway is desirable, such as, e.g., CNS diseases.

Further provided herein are pharmaceutical compositions comprising crystalline Form B of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine, methods for their manufacture, and uses thereof for treating various diseases, wherein an increase in the concentration of nitric oxide (NO) or an increase in the concentration of cyclic Guanosine 3',5'-Monophosphate (cGMP) or both, or an upregulation of the NO pathway is desirable, such as, e.g., CNS diseases.

CLAIMS

1. ~~A crystalline form~~Crystalline Form A of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine-

~~2. The crystalline Form A of claim 1~~, wherein

~~(1)~~ the crystalline form is crystalline form Form A characterized by (i) at least three x-ray powder diffraction peaks at 2Θ angles selected from 7.0° , 8.3° , 11.1° , 14.3° , and 15.0° ; or (ii):-

~~3. The crystalline Form A of claim 1~~, wherein ~~the crystalline form is characterized by~~ at least four x-ray powder diffraction peaks at 2Θ angles selected from 7.0° , 8.3° , 11.1° , 14.3° , and 15.0° ; or (iii):-

~~4. The crystalline Form A of claim 1~~, wherein ~~the crystalline form is characterized by~~ x-ray powder diffraction peaks at 2Θ angles 7.0° , 8.3° , 11.1° , 14.3° , and 15.0° ; or (iv):-

~~5. The crystalline Form A of claim 1~~, wherein ~~the crystalline form is characterized by~~ x-ray powder diffraction peaks at 2Θ angles 7.0° , 8.3° , 11.1° , 14.3° , 15.0° , 15.9° , 16.7° , 17.6° , 19.1° , 20.2° , 21.6° , 24.9° , and 25.8° ; or (v) a DSC pattern that is the same DSC pattern shown in FIG. 2; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 3; or (vii) a DVS pattern that is the same DVS pattern shown in FIG. 4:-

~~6. The crystalline Form A of any one of claims 2-5~~, wherein ~~the peaks have a relative intensity of at least 10%, of at least 15%, of at least 20%, or of at least 25%~~:-

~~7. The crystalline Form A of any one of claims 1-6~~, wherein ~~the crystalline form has a DSC pattern that is substantially the same DSC pattern shown in FIG. 2~~:-

~~8. The crystalline Form A of any one of claims 1-7~~, wherein ~~the crystalline form has a TGA pattern that is substantially the same TGA pattern shown in FIG. 3~~:-

~~9. The crystalline Form A of any one of claims 1-8~~, wherein ~~the crystalline form has a DVS pattern that is substantially the same DVS pattern shown in FIG. 4~~:-

~~10. Crystalline Form B of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine~~:-

~~11. The (2)~~ the crystalline form is crystalline form Form B ~~of claim 10~~, wherein ~~the crystalline form is~~ characterized by (i) at least three x-ray powder diffraction peaks at 2Θ angles selected from 8.9° , 12.2° , 13.6° , 17.2° , and 21.0° ; or (ii):-

~~12. The crystalline Form B of claim 10~~, wherein ~~the crystalline form is characterized by~~ at least four x-ray powder diffraction peaks at 2Θ angles selected from 8.9° , 12.2° , 13.6° , 17.2° , and 21.0° ; or (iii):-

~~13. The crystalline Form B of claim 10, wherein the crystalline form is characterized by x-ray powder diffraction peaks at 2 Θ angles 8.9°, 12.2°, 13.6°, 17.2°, and 21.0°; or (iv)-~~

~~14. The crystalline Form B of claim 10, wherein the crystalline form is characterized by x-ray powder diffraction peaks at 2 Θ angles 8.9°, 12.2°, 13.6°, 14.5°, 15.7°, 17.2°, 17.7°, 21.0°, 22.7°, 23.9°, 25.0°, 26.7°, and 27.6°; or (v) a DSC pattern that is the same DSC pattern shown in FIG. 6; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 7;-~~

~~15. The crystalline Form B of any one of claims 11-14, wherein the peaks have a relative intensity of at least 10%, of at least 15%, of at least 20%, or of at least 25%.~~

~~16. The crystalline Form B of any one of claims 10-15, wherein the crystalline form has a DSC pattern that is substantially the same DSC pattern shown in FIG. 5.~~

~~17. The crystalline Form B of any one of claims 10-16, wherein the crystalline form has a TGA pattern that is substantially the same TGA pattern shown in FIG. 6.~~

~~18. Crystalline Hydrate 1 of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine.~~

~~19. The (3) the crystalline form is Crystalline Hydrate 1 of claim 18, wherein the crystalline form is characterized by (i) at least three x-ray powder diffraction peaks at 2 Θ angles selected from 11.5°, 15.2°, 17.0°, 17.7°, and 18.3°; or (ii)-~~

~~20. The crystalline Hydrate 1 of claim 19, wherein the crystalline form is characterized by at least four x-ray powder diffraction peaks at 2 Θ angles selected from 11.5°, 15.2°, 17.0°, 17.7°, and 18.3°; or (iii)-~~

~~21. The crystalline Hydrate 1 of claim 20, wherein the crystalline form is characterized by x-ray powder diffraction peaks at 2 Θ angles 11.5°, 15.2°, 17.0°, 17.7°, and 18.3°; or (iv)-~~

~~22. The crystalline Hydrate 1 of claim 21, wherein the crystalline form is characterized by x-ray powder diffraction peaks at 2 Θ angles 11.5°, 13.5°, 15.2°, 17.0°, 17.7°, 18.3°, 19.1°, 22.1°, 23.1°, 23.3°, 24.2°, 24.9°, and 29.4°; or (v) a DSC pattern that is the same DSC pattern shown in FIG. 9; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 10;-~~

~~23. The crystalline Hydrate 1 of any one of claims 19-22, wherein the peaks have a relative intensity of at least 10%, of at least 15%, of at least 20%, or of at least 25%.~~

~~24. The crystalline Hydrate 1 of any one of claims 18-23, wherein the crystalline form has a DSC pattern that is substantially the same DSC pattern shown in FIG. 9.~~

~~25. The crystalline Hydrate 1 of any one of claims 18-24, wherein the crystalline form has a TGA pattern that is substantially the same TGA pattern shown in FIG. 10~~

~~26. Crystalline Hydrate 2 of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine.~~

~~27. The (4) the crystalline form is Crystalline Hydrate 2 of claim 26, wherein the crystalline form is characterized by (i) at least three x-ray powder diffraction peaks at 2 Θ angles selected from 10.4°, 15.5°, 18.4°, 18.7°, and 21.9°; or (ii) at least four x-ray powder diffraction peaks at 2 Θ angles selected from 10.4°, 15.5°, 18.4°, 18.7°, and 21.9°; or (iii) x-ray powder diffraction peaks at 2 Θ angles 10.4°, 15.5°, 18.4°, 18.7°, and 21.9°; or (iv) x-ray powder diffraction peaks at 2 Θ angles 10.4°, 15.5°, 18.4°, 18.7°, 20.7°, 21.2°, 21.9°, 22.7°, 24.6°, 25.9°, 26.3°, and 27.4°; or (v) a DSC pattern that is the same DSC pattern shown in FIG. 12; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 13; or-~~

~~28. The crystalline Hydrate 2 of claim 27, wherein the crystalline form is characterized by at least four x-ray powder diffraction peaks at 2 Θ angles selected 10.4°, 15.5°, 18.4°, 18.7°, and 21.9°.~~

~~29. The crystalline Hydrate 2 of claim 28, wherein the crystalline form is characterized by x-ray powder diffraction peaks at 2 Θ angles 10.4°, 15.5°, 18.4°, 18.7°, and 21.9°.~~

~~30. The crystalline Hydrate 2 of claim 29, wherein the crystalline form is characterized by x-ray powder diffraction peaks at 2 Θ angles 10.4°, 15.5°, 18.4°, 18.7°, 20.7°, 21.2°, 21.9°, 22.7°, 24.6°, 25.9°, 26.3°, and 27.4°.~~

~~31. The crystalline Hydrate 2 of any one of claims 27-30, wherein the peaks have a relative intensity of at least 10%, of at least 15%, of at least 20%, or of at least 25%.~~

~~32. The crystalline Hydrate 2 of any one of claims 26-31, wherein the crystalline form has a DSC pattern that is substantially the same DSC pattern shown in FIG. 12.~~

~~33. The crystalline Hydrate 2 of any one of claims 26-32, wherein the crystalline form has a TGA pattern that is substantially the same TGA pattern shown in FIG. 13.~~

~~34. Crystalline Hydrate 3 of 8-(2-fluorobenzyl)-6-(3-(trifluoromethyl)-1H-1,2,4-triazol-5-yl)imidazo[1,2-a]pyrazine.~~

~~35. The (5) the crystalline form is Crystalline Hydrate 3 of claim 34, wherein the crystalline form is characterized by (i) at least three x-ray powder diffraction peaks at 2 Θ angles selected from 10.3°, 12.1°, 13.5°, 16.9°, and 24.4°; or (ii)-~~

~~36. The crystalline Hydrate 3 of claim 35, wherein the crystalline form is characterized by at least four x-ray powder diffraction peaks at 2 Θ angles selected from 10.3°, 12.1°, 13.5°, 16.9°, and 24.4°; or (iii)-~~

~~37. The crystalline Hydrate 3 of claim 36, wherein the crystalline form is characterized by x-ray powder diffraction peaks at 2Θ angles 10.3° , 12.1° , 13.5° , 16.9° , and 24.4° ; or (iv)-~~

~~38. The crystalline Hydrate 3 of claim 37, wherein the crystalline form is characterized by x-ray powder diffraction peaks at 2Θ angles 10.3° , 12.1° , 13.5° , 15.9° , 16.9° , 17.6° , 22.0° , 22.9° , 24.4° , and 28.9° ; or (v) a DSC pattern that is the same DSC pattern shown in FIG. 15; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 16.~~

2. The crystalline form of claim 1, wherein the crystalline form is crystalline form Form A, wherein the crystalline form is characterized by (i) at least three x-ray powder diffraction peaks at 2Θ angles selected from 7.0° , 8.3° , 11.1° , 14.3° , and 15.0° ; or (ii) at least four x-ray powder diffraction peaks at 2Θ angles selected from 7.0° , 8.3° , 11.1° , 14.3° , and 15.0° ; or (iii) x-ray powder diffraction peaks at 2Θ angles 7.0° , 8.3° , 11.1° , 14.3° , and 15.0° ; or (iv) x-ray powder diffraction peaks at 2Θ angles 7.0° , 8.3° , 11.1° , 14.3° , 15.0° , 15.9° , 16.7° , 17.6° , 19.1° , 20.2° , 21.6° , 24.9° , and 25.8° ; or (v) a DSC pattern that is the same DSC pattern shown in FIG. 2; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 3; or (vii) a DVS pattern that is the same DVS pattern shown in FIG. 4.

3. The crystalline form of claim 2, wherein the crystalline form is characterized by at least four x-ray powder diffraction peaks at 2Θ angles selected from 7.0° , 8.3° , 11.1° , 14.3° , and 15.0° , or optionally wherein the crystalline form is characterized by x-ray powder diffraction peaks at 2Θ angles 7.0° , 8.3° , 11.1° , 14.3° , and 15.0° , or optionally, wherein the crystalline form is characterized by at least five, or at least six, or at least seven, or at least eight, or at least nine, or at least ten x-ray powder diffraction peaks at 2Θ angles selected from 7.0° , 8.3° , 8.5° , 11.3° , 15.0° , 15.2° , 16.2° , 17.0° , 17.8° , 19.3° , 19.9° , 21.6° , 22.0° , and 22.2° .

4. The crystalline form of claim 1, wherein the crystalline form is crystalline form Form B, wherein the crystalline form is characterized by (i) at least three x-ray powder diffraction peaks at 2Θ angles selected from 8.9° , 12.2° , 13.6° , 17.2° , and 21.0° ; or (ii) at least four x-ray powder diffraction peaks at 2Θ angles selected from 8.9° , 12.2° , 13.6° , 17.2° , and 21.0° ; or (iii) x-ray powder diffraction peaks at 2Θ angles 8.9° , 12.2° , 13.6° , 17.2° , and 21.0° ; or (iv) x-ray powder diffraction peaks at 2Θ angles 8.9° , 12.2° , 13.6° , 14.5° , 15.7° , 17.2° , 17.7° , 21.0° , 22.7° , 23.9° , 25.0° , 26.7° , and 27.6° ; or (v) a DSC pattern that is the same

DSC pattern shown in FIG. 6; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 7.

5. The crystalline form of claim 4, wherein the crystalline form is characterized by at least four x-ray powder diffraction peaks at 2Θ angles selected from 8.9° , 12.2° , 13.6° , 17.2° , and 21.0° , or optionally wherein the crystalline form is characterized by x-ray powder diffraction peaks at 2Θ angles 8.9° , 12.2° , 13.6° , 17.2° , and 21.0° , or optionally, wherein the crystalline form is characterized by at least five, or at least six, or at least seven, or at least eight, or at least nine, or at least ten x-ray powder diffraction peaks at 2Θ angles selected from 8.9° , 12.2° , 13.6° , 14.5° , 15.7° , 17.2° , 17.7° , 21.0° , 22.7° , 23.9° , 25.0° , 26.7° , and 27.6° .

6. The crystalline form of claim 1, wherein the crystalline form is Crystalline Hydrate 1, wherein the crystalline form is characterized by (i) at least three x-ray powder diffraction peaks at 2Θ angles selected from 11.5° , 15.2° , 17.0° , 17.7° , and 18.3° ; or (ii) at least four x-ray powder diffraction peaks at 2Θ angles selected from 11.5° , 15.2° , 17.0° , 17.7° , and 18.3° ; or (iii) x-ray powder diffraction peaks at 2Θ angles 11.5° , 15.2° , 17.0° , 17.7° , and 18.3° ; or (iv) x-ray powder diffraction peaks at 2Θ angles 11.5° , 13.5° , 15.2° , 17.0° , 17.7° , 18.3° , 19.1° , 22.1° , 23.1° , 23.3° , 24.2° , 24.9° , and 29.4° ; or (v) a DSC pattern that is the same DSC pattern shown in FIG. 9; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 10.

7. The crystalline form of claim 6, wherein the crystalline form is characterized by at least four x-ray powder diffraction peaks at 2Θ angles selected from 11.5° , 15.2° , 17.0° , 17.7° , and 18.3° , or optionally wherein the crystalline form is characterized by x-ray powder diffraction peaks at 2Θ angles 11.5° , 15.2° , 17.0° , 17.7° , and 18.3° , or optionally, wherein the crystalline form is characterized by at least five, or at least six, or at least seven, or at least eight, or at least nine, or at least ten x-ray powder diffraction peaks at 2Θ angles selected from 11.5° , 13.5° , 15.2° , 17.0° , 17.7° , 18.3° , 19.1° , 22.1° , 23.1° , 23.3° , 24.2° , 24.9° , and 29.4° .

8. The crystalline form of claim 1, wherein the crystalline form is Crystalline Hydrate 2, wherein the crystalline form is characterized by (i) at least three x-ray powder diffraction peaks at 2Θ angles selected from 10.4° , 15.5° , 18.4° , 18.7° , and 21.9° ; or (ii) at least four x-ray powder diffraction peaks at 2Θ angles selected from 10.4° , 15.5° , 18.4° , 18.7° , and 21.9° ;

or (iii) x-ray powder diffraction peaks at 2 Θ angles 10.4°, 15.5°, 18.4°, 18.7°, and 21.9°; or (iv) x-ray powder diffraction peaks at 2 Θ angles 10.4°, 15.5°, 18.4°, 18.7°, 20.7°, 21.2°, 21.9°, 22.7°, 24.6°, 25.9°, 26.3°, and 27.4°; or (v) a DSC pattern that is the same DSC pattern shown in FIG. 12; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 13.

9. The crystalline form of claim 8, wherein the crystalline form is characterized by at least four x-ray powder diffraction peaks at 2 Θ angles selected from 10.4°, 15.5°, 18.4°, 18.7°, and 21.9°, or optionally wherein the crystalline form is characterized by x-ray powder diffraction peaks at 2 Θ angles 10.4°, 15.5°, 18.4°, 18.7°, and 21.9°, or optionally, wherein the crystalline form is characterized by at least five, or at least six, or at least seven, or at least eight, or at least nine, or at least ten x-ray powder diffraction peaks at 2 Θ angles selected from 10.4°, 15.5°, 18.4°, 18.7°, 20.7°, 21.2°, 21.9°, 22.7°, 24.6°, 25.9°, 26.3°, and 27.4°.

10. The crystalline form of claim 1, wherein the crystalline form is Crystalline Hydrate 3, wherein the crystalline form is characterized by (i) at least three x-ray powder diffraction peaks at 2 Θ angles selected from 10.3°, 12.1°, 13.5°, 16.9°, and 24.4°; or (ii) at least four x-ray powder diffraction peaks at 2 Θ angles selected from 10.3°, 12.1°, 13.5°, 16.9°, and 24.4°; or (iii) x-ray powder diffraction peaks at 2 Θ angles 10.3°, 12.1°, 13.5°, 16.9°, and 24.4°; or (iv) x-ray powder diffraction peaks at 2 Θ angles 10.3°, 12.1°, 13.5°, 15.9°, 16.9°, 17.6°, 22.0°, 22.9°, 24.4°, and 28.9°; or (v) a DSC pattern that is the same DSC pattern shown in FIG. 15; or (vi) a TGA pattern that is the same TGA pattern shown in FIG. 16.

11. The crystalline form of claim 10, wherein the crystalline form is characterized by at least four x-ray powder diffraction peaks at 2 Θ angles selected from 10.3°, 12.1°, 13.5°, 16.9°, and 24.4°, or optionally wherein the crystalline form is characterized by x-ray powder diffraction peaks at 2 Θ angles 10.3°, 12.1°, 13.5°, 16.9°, and 24.4°, or optionally, wherein the crystalline form is characterized by at least five, or at least six, or at least seven, or at least eight, or at least nine, or at least ten x-ray powder diffraction peaks at 2 Θ angles selected from 10.3°, 12.1°, 13.5°, 15.9°, 16.9°, 17.6°, 22.0°, 22.9°, 24.4°, and 28.9°.

~~1239~~. The crystalline ~~Hydrate 3~~form of any one of claims ~~1-11~~~~135-38~~, wherein the peaks have a relative intensity of at least 10%, or of at least 15%, or of at least 20%, or of at least 25%.

~~40. The crystalline Hydrate 3 of any one of claims 34-39, wherein the crystalline form has a DSC pattern that is substantially the same DSC pattern shown in FIG. 15~~

~~41. The crystalline Hydrate 3 of any one of claims 34-40, wherein the crystalline form has a TGA pattern that is substantially the same TGA pattern shown in FIG. 16.~~

1342. A pharmaceutical composition comprising the crystalline form of any of claims 1-12~~claim 1, 10, 18, 26, or 34~~; and a pharmaceutically acceptable carrier or diluent.

1443. Use of~~A method of treating a CNS disorder in a patient in need thereof,~~ comprising ~~the step of administering to said patient~~ the crystalline form of any one of claims ~~1-12~~41, in the manufacture of a medicament for treating a CNS disorder.

15. The crystalline form of any one of claims 1-12 for use in therapy.