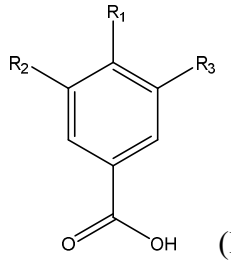
CLAIMS

What is claimed is:

1. A cocrystal comprising (3S,4R)-3-ethyl-4-(3H-imidazo[1,2-a]pyrrolo[2,3-e]pyrazin-8-yl)-N-(2,2,2-trifluoroethyl)pyrrolidine-1-carboxamide (Compound 1) and a coformer, wherein the coformer is an aryl carboxylic acid.

2. The cocrystal of claim 1, wherein the aryl carboxylic acid is a substituted benzoic acid.

3. The cocrystal of claim 2, wherein the substituted benzoic acid has a structure of Formula (I)



(I),

wherein:

R_1 is -NHC(O)CH_3 or -OH;

R_2 is -H, -OH, or NO_2; and

R_3 is -H, -OH, or NO_2.

4. The cocrystal of claim 3, wherein R_1 is -NHC(O)CH_3, and R_2 and R_3 are each H.

5. The cocrystal of claim 3, wherein R_1 is OH, and R_2 and R_3 are each H.

6. The cocrystal of claim 3, wherein R_1 is OH, R_2 is –OH, and R_3 is H.

7. The cocrystal of claim 3, wherein R_1, R_2 and R_3 are -OH.

8. The cocrystal of claim 3, wherein R_1 is OH, R_2 is –NO_2, and R_3 is H.

9. The cocrystal of any preceding claim, wherein a molar ratio of Compound 1 to coformer is from about 5:1 to about 1:5.

10. The cocrystal of claim 9, wherein the molar ratio is from about 2:1 to about 1:2, or from about 1:1.5 to about 1.5:1.

11. The cocrystal of claim 9, wherein the molar ratio is about 1:1.

12. The cocrystal of any preceding claim, which is a solvate.

13. The cocrystal of claim 12, wherein the solvate comprises acetonitrile.

14. The cocrystal of claim 13, further comprising water.

15. The cocrystal of any preceding claim, having one or more of reduced aqueous solubility, reduced dissolution, enhanced bioavailability, enhanced stability, increased C_{max}, increased or decreased T_{max}, increased half-life, increased AUC, enhanced processability, and reduced hygroscopicity, relative to Compound 1 as a free base or a salt, including solvates, hydrates, and polymorphs of any thereof.

16. A cocrystal comprising (3S,4R)-3-ethyl-4-(3H-imidazo[1,2-a]pyrrolo[2,3-e]pyrazin-8-yl)-N-(2,2,2-trifluoroethyl)pyrrolidine-1-carboxamide (Compound 1) and 4-acetamidobenzoic acid in a molar ratio of approximately 1:1.

17. The cocrystal of claim 16, which is an acetonitrile solvate.

18. The cocrystal of claim 17, which is a hydrate.

19. The cocrystal of claim 17, having an x-ray powder diffraction pattern characterized by peaks at 5.1±0.2, 10.2±0.2, and 12.5±0.2 degrees two theta when measured at about 25 °C with monochromatic Kα1 radiation λ=1.540562 Å.