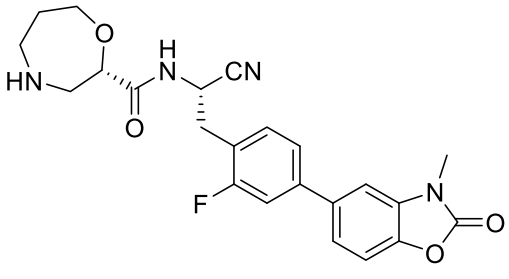
Claims

1. Salts of a compound represented by formula (I) and hydrates and solvates thereof:



(I)

wherein, the salt is selected from the group consisting of hydrochloride, sulfate, maleate, phosphate, mucate, tartrate, fumarate, citrate, malate, hippurate, adipate, sebacate, 1,5-naphthalenedisulfonate, methanesulfonate, benzenesulfonate, oxalate, benzoate, hydrobromide, 2-naphthalenesulfonate, p-toluenesulfonate, hemi-1,5-naphthalenedisulfonate, or succinate.

2. The salts and hydrates and solvates thereof according to claim 1, wherein the salt is selected from the group consisting of hydrochloride, sulfate, maleate, phosphate, mucate, tartrate, fumarate, citrate, malate, hippurate, adipate, sebacate, 1,5-naphthalenedisulfonate, methanesulfonate, benzenesulfonate, oxalate, benzoate, or hydrobromide, preferably in crystalline form.

3. The salts and hydrates and solvates thereof according to claim 1, wherein the salt is selected from the group consisting of hydrochloride, malate or adipate, preferably in crystalline form.

4. The salts and hydrates and solvates thereof according to any one of claims 1-3, wherein the salt is selected from the group consisting of hydrochloride, wherein the hydrochloride is a crystalline form (crystalline form A of the hydrochloride), and its X-ray powder diffraction pattern has characteristic diffraction peaks at the following 2θ positions: 9.38°±0.2°, 16.40°±0.2°, 18.69°±0.2°, 22.04°±0.2°, 23.05°±0.2°, 23.90°±0.2°, using Cu-Kα radiation.

5. The salts and hydrates and solvates thereof according to claim 4, wherein its X-ray powder diffraction pattern has characteristic diffraction peaks at the following 2θ positions: 13.99°±0.2°, 14.75° ±0.2°, 17.92°±0.2°, 25.70°±0.2°, 30.32°±0.2°, using Cu-Kα radiation.

6. The salts and hydrates and solvates thereof according to claim 5, wherein its X-ray powder diffraction pattern is shown in Figure 1.

7. The salts and hydrates and solvates thereof according to claim 5, wherein its thermogravimetric analysis (TGA) thermogram is shown in Figure 2, and the differential scanning calorimetry (DSC) thermogram is shown in Figure 3.

8. The salts and hydrates and solvates thereof according to any one of claims 1 to 3, wherein the salt

is selected from the group consisting of malate, wherein the malate is a crystalline form (crystalline form A of the malate), and its X-ray powder diffraction pattern has characteristic diffraction peaks at the following 2θ positions: 8.75°±0.2°, 9.82°±0.2°, 15.08°±0.2°, 16.65°±0.2°, 20.89°±0.2°, 21.89°±0.2 °, 23.75°±0.2°, using Cu-Kα radiation.

9. The salts and hydrates and solvates thereof according to claim 8, wherein its X-ray powder diffraction pattern has characteristic diffraction peaks at the following 2θ positions: 11.80°±0.2°, 14.04°±0.2°, 14.69°±0.2°, 24.81°±0.2°, 25.91°±0.2°, using Cu-Kα radiation.

10. The salts and hydrates and solvates thereof according to claim 9, wherein its X-ray powder diffraction pattern is shown in Figure 4.

11. The salts and hydrates and solvates thereof according to claim 9, wherein its thermogravimetric analysis (TGA) thermogram is shown in Figure 5, and its differential scanning calorimetry (DSC) thermogram is shown in Figure 6.

12. The salts and hydrates and solvates thereof according to any one of claims 1-3, wherein the salt is selected from the group consisting of adipate, wherein the adipate is a crystalline form (crystalline form B of the adipate), and its X-ray powder diffraction pattern has characteristic diffraction peaks at the following 2θ positions: 8.10°±0.2°, 12.18°±0.2°, 16.24°±0.2°, 17.68°±0.2°, 20.33°±0.2°, using Cu-Kα radiation.

13. The salts and hydrates and solvates thereof according to claim 12, wherein its X-ray powder diffraction pattern has characteristic diffraction peaks at the following 2θ positions: 10.68°±0.2°, 14.02°± 0.2°, 19.60°±0.2°, 20.95°±0.2°, using Cu-Kα radiation.

14. The salts and hydrates and solvates thereof according to claim 13, wherein its X-ray powder diffraction pattern is shown in Figure 7.

15. The salts and hydrates and solvates thereof according to claim 13, wherein its thermogravimetric analysis (TGA) thermogram is shown in Figure 8 and its differential scanning calorimetry (DSC) thermogram is shown in Figure 9.

16. A pharmaceutical composition comprising a therapeutically effective amount of the salts and hydrates and solvates thereof according to any one of claims 1 to 15, and a pharmaceutically acceptable carrier or excipient.

17. The salts and hydrates and solvates thereof according to any one of claims 1 to 15, or the pharmaceutical composition according to claim 16, for use in therapy.

18. A use of the salts and hydrates and solvates thereof according to any one of claims 1 to 15, or the pharmaceutical composition according to claim 16, in the manufacture of a

medicament for treating the diseases mediated by DPP1.

19. The use according to claim 18, wherein the disease mediated by DPP1 is selected from the group consisting of non-cystic fibrosis bronchiectasis, cystic fibrosis bronchiectasis, acute lung injury, airway obstructive disease, bronchiectasis, cystic fibrosis, asthma, emphysema and chronic obstructive pulmonary disease.