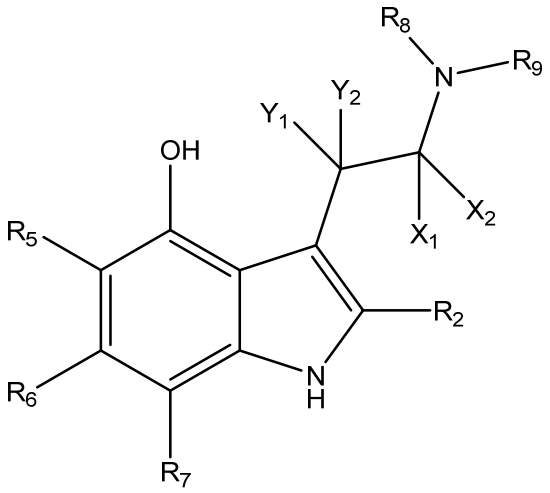
CLAIMS

1. A pharmaceutically acceptable salt of a compound of Formula (I), or a polymorph, stereoisomer, or solvate thereof,



(I)

wherein:

R_2, R_5, R_6, and R_7 are independently selected from the group consisting of hydrogen or deuterium,

R_8 and R_9 are independently selected from the group consisting of $-CH_3$ and $-CD_3$,

X_1 and X_2 are deuterium, and

Y_1 and Y_2 are independently selected from the group consisting of hydrogen and deuterium.

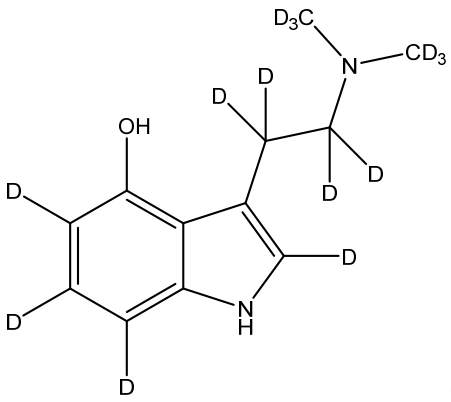
2. The pharmaceutically acceptable salt of claim 1, wherein R_8 and R_9 are $-CH_3$.

3. The pharmaceutically acceptable salt of claim 1, wherein R_8 and R_9 are $-CD_3$.

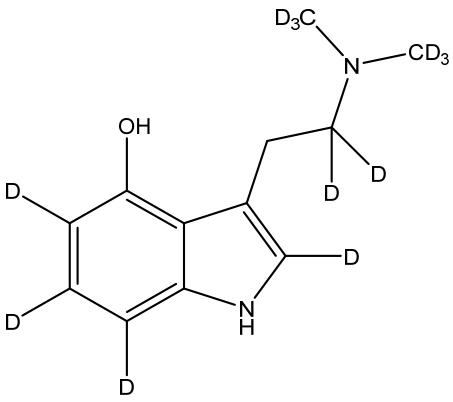
4. The pharmaceutically acceptable salt of any one of claims 1 to 3, wherein Y_1 and Y_2 are deuterium.

5. The pharmaceutically acceptable salt of any one of claims 1 to 3, wherein Y_1 and Y_2 are hydrogen.

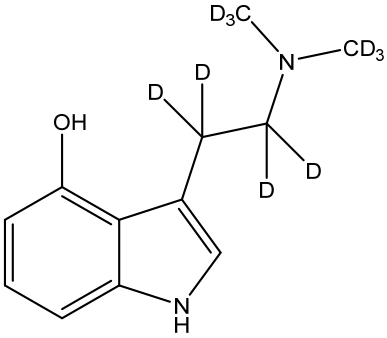
6. The pharmaceutically acceptable salt of claim 1, wherein the compound of Formula (I) is selected from the group consisting of:



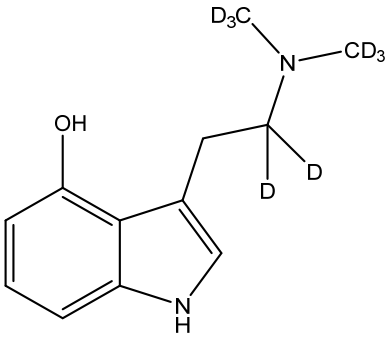
(I-1),



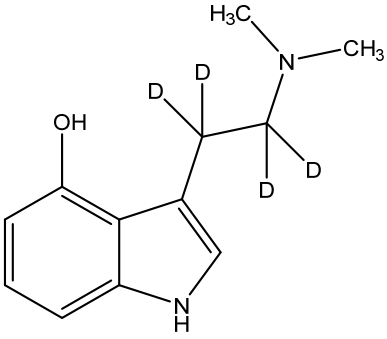
(I-2),



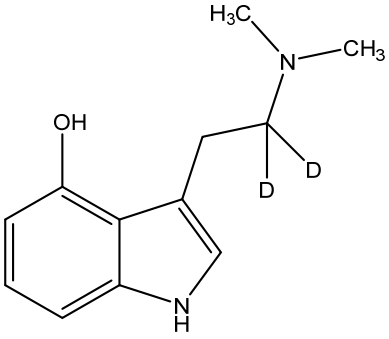
(I-3),



(I-4),

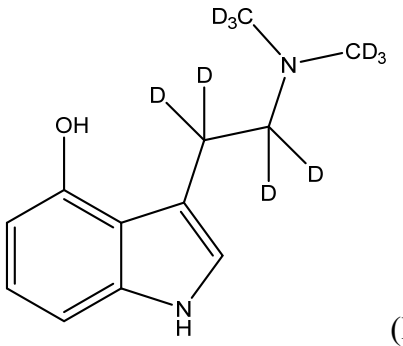


(I-5), and



(I-6).

7. The pharmaceutically acceptable salt of claim 1, wherein the compound of Formula (I) is



(I-3).

8. The pharmaceutically acceptable salt of any one of claims 1 to 7, which is a benzenesulfonate salt, a tartrate salt, a hemi-fumarate salt, an acetate salt, a citrate salt, a malonate salt, a fumarate salt, a succinate salt, an oxalate salt, a benzoate salt, or a salicylate salt of the compound of Formula (I).

9. The pharmaceutically acceptable salt of any one of claims 1 to 8, which is a benzenesulfonate salt of the compound of Formula (I).

10. The pharmaceutically acceptable salt of any one of claims 1 to 8, which is a benzoate salt of the compound of Formula (I).

11. The pharmaceutically acceptable salt of any one of claims 1 to 8, which is a citrate salt of the compound of Formula (I).

12. The pharmaceutically acceptable salt of any one of claims 1 to 8, which is a tartrate salt of the compound of Formula (I).

13. The pharmaceutically acceptable salt of claim 1, which is a benzenesulfonate salt of 3-(2-(bis(methyl-d_3)amino)ethyl-1,1,2,2-d_4)-1*H*-indol-4-ol (I-3a).

14. The pharmaceutically acceptable salt of claim 13, wherein the benzenesulfonate salt of 3-(2-(bis(methyl-d_3)amino)ethyl-1,1,2,2-d_4)-1*H*-indol-4-ol (I-3a) is crystalline and characterized by an X-ray powder diffraction pattern containing at least three characteristic peaks at diffraction

angles (2θ ± 0.2°) selected from the group consisting of 7.023°, 7.767°, 11.822°, 12.550°, 12.860°, 13.994°, 15.521°, 18.436°, 19.503°, 20.760°, 21.070°, 22.007°, 22.745°, 23.340°, 24.187°, 25.532°, 26.880°, 27.856°, 28.163°, 31.267°, 33.024°, 35.030°, 36.835°, 39.312°, 40.545°, and 40.988°.

15. The pharmaceutically acceptable salt of claim 1, which is a benzoate salt of 3-(2-(bis(methyl-d_3)amino)ethyl-1,1,2,2-d_4)-1*H*-indol-4-ol (I-3j).

16. The pharmaceutically acceptable salt of claim 15, wherein the benzoate salt of 3-(2-(bis(methyl-d_3)amino)ethyl-1,1,2,2-d_4)-1*H*-indol-4-ol (I-3j) is crystalline and characterized by an X-ray powder diffraction pattern containing at least three characteristic peaks at diffraction angles (2θ ± 0.2°) selected from the group consisting of 9.486°, 11.006°, 12.379°, 13.428°, 14.608°, 15.446°, 16.389°, 18.247°, 18.977°, 19.346°, 19.831°, 20.868°, 21.447°, 22.860°, 23.878°, 24.944°, 25.737°, 26.144°, 26.341°, 26.990°, 27.708°, 28.595°, 30.048°, 30.763°, 31.127°, 31.839°, 32.800°, 34.460°, 35.444°, 37.725°, and 38.597°.

17. The pharmaceutically acceptable salt of claim 1, which is a citrate salt of 3-(2-(bis(methyl-d_3)amino)ethyl-1,1,2,2-d_4)-1*H*-indol-4-ol (I-3e).

18. The pharmaceutically acceptable salt of claim 17, wherein the citrate salt of 3-(2-(bis(methyl-d_3)amino)ethyl-1,1,2,2-d_4)-1*H*-indol-4-ol (I-3e) is amorphous by X-ray powder diffraction.

19. The pharmaceutically acceptable salt of claim 1, which is a tartrate salt of 3-(2-(bis(methyl-d_3)amino)ethyl-1,1,2,2-d_4)-1*H*-indol-4-ol (I-3b).

20. The pharmaceutically acceptable salt of claim 19, wherein the tartrate salt of 3-(2-(bis(methyl-d_3)amino)ethyl-1,1,2,2-d_4)-1*H*-indol-4-ol (I-3b) is crystalline and characterized by an X-ray powder diffraction pattern containing at least three characteristic peaks at diffraction angles (2θ ± 0.2°) selected from the group consisting of 6.732°, 12.708°, 13.470°, 14.774°, 15.921°, 16.268°, 17.295°, 18.869°, 20.079°, 20.208°, 20.877°, 21.894°, 22.657°, 23.491°, 23.702°,

24.636°, 24.882°, 25.569°, 26.685°, 27.060°, 27.502°, 28.179°, 28.597°, 29.035°, 29.257°, 29.527°, 31.017°, 31.527°, 32.059°, 32.307°, 33.012°, 34.024°, 34.388°, 34.905°, 35.361°, 36.183°, 37.372°, 37.764°, 38.657°, 41.049°.

21. The pharmaceutically acceptable salt of any one of claims 1 to 20, wherein the pharmaceutically acceptable salt of the compound of Formula (I) has a water solubility from about 1 mg/mL to about 400 mg/mL.

22. A pharmaceutical composition comprising the pharmaceutically acceptable salt of any one of claims 1 to 21, and a pharmaceutically acceptable vehicle.

23. The pharmaceutical composition of claim 22, wherein the pharmaceutical composition is in an immediate release (IR) dosage form.

24. Use of the pharmaceutically acceptable salt of any one of claims 1 to 23 for the manufacture of a medicament for the treatment of a subject with a disease or disorder.

25. Use of the pharmaceutically acceptable salt of any one of claims 1 to 23 for the manufacture of a medicament for the treatment of a disease or disorder associated with a serotonin 5-HT_2 receptor.

26. The use of claim 25, wherein the disease or disorder is a neuropsychiatric disease or disorder or an inflammatory disease or disorder.

27. The use of claim 25, wherein the disease or disorder is a central nervous system (CNS) disorder.

28. The use of claim 27, wherein the central nervous system (CNS) disorder is at least one selected from the group consisting of major depressive disorder (MDD), treatment-resistant depression (TRD), post-traumatic stress disorder (PTSD), bipolar and related disorders, obsessive-compulsive disorder (OCD), generalized anxiety disorder (GAD), social anxiety disorder, a

substance use disorder, an eating disorder, Alzheimer's disease, cluster headache and migraine, attention deficit hyperactivity disorder (ADHD), pain and neuropathic pain, aphantasia, childhood-onset fluency disorder, major neurocognitive disorder, mild neurocognitive disorder, sexual dysfunction, suicidal ideation, suicidal behavior, major depressive disorder with suicidal ideation or suicidal behavior, melancholic depression, atypical depression, dysthymia, non-suicidal self-injury disorder (NSSID), chronic fatigue syndrome, Lyme's disease, gambling disorder, a paraphilic disorder, sexual dysfunction, peripheral neuropathy, and obesity.

29. The use of claim 27, wherein the central nervous system (CNS) disorder is major depressive disorder (MDD).

30. The use of claim 27, wherein the central nervous system (CNS) disorder is treatment-resistant depression (TRD).

31. The use of claim 27, wherein the central nervous system (CNS) disorder is generalized anxiety disorder (GAD).

32. The use of claim 27, wherein the central nervous system (CNS) disorder is social anxiety disorder.

33. The use of claim 27, wherein the central nervous system (CNS) disorder is obsessive-compulsive disorder (OCD).

34. The use of claim 27, wherein the central nervous system (CNS) disorder is a substance use disorder.

35. The use of claim 27, wherein the central nervous system (CNS) disorder is alcohol use disorder.

36. The use of any one of claims 25 to 35, wherein the medicament is to be administered orally.

37. The use of any one of claims 25 to 36, wherein the medicament is to be administered at a psychedelic dose of about 0.083 mg/kg to about 1 mg/kg.

38. A solution-phase composition, comprising:

the pharmaceutically acceptable salt of the compound of Formula (I) of claim 1, in solvated form.

39. The solution-phase composition of claim 38, which is an aqueous solution-phase composition comprising the pharmaceutically acceptable salt of the compound of Formula (I), in solvated form.