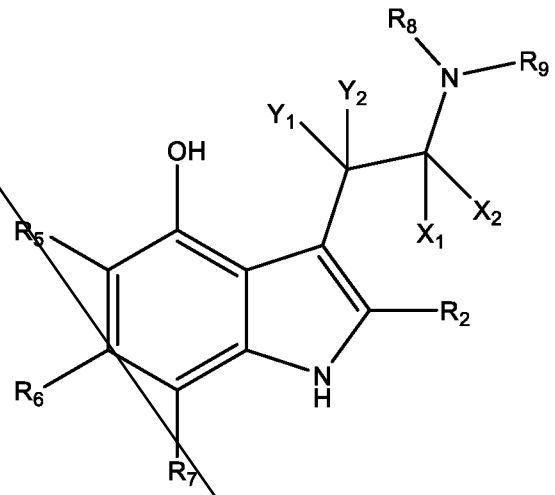
CLAIMS

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 $-CD_3$, and

X_1, X_2, Y_1, and Y_2 are independently selected from the group consisting of hydrogen or deuterium.

2. The pharmaceutically acceptable salt of claim 1, wherein R_2, R_5, R_6, and R_7 are hydrogen.

3. The pharmaceutically acceptable salt of claim 1, wherein at least one of R_2, R_5, R_6, and R_7 is deuterium.

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

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

6. The pharmaceutically acceptable salt of claim 1, wherein X_1, X_2, Y_1, and Y_2 are

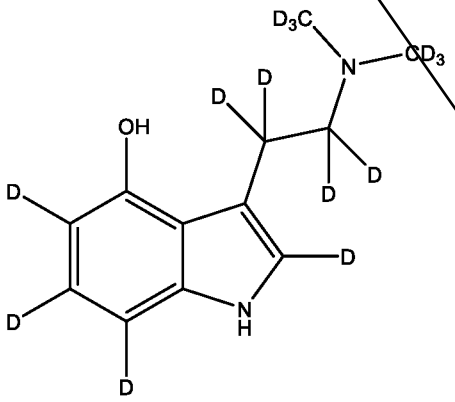
deuterium.

7. The pharmaceutically acceptable salt of claim 1, wherein X_1 and X_2 are deuterium.

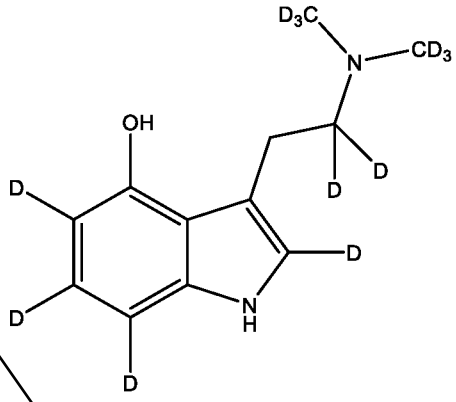
8. The pharmaceutically acceptable salt of claim 1, wherein Y_1 and Y_2 are deuterium.

9. The pharmaceutically acceptable salt of claim 1, wherein Y_1 and Y_2 are hydrogen.

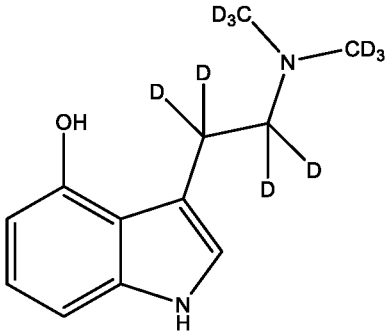
10. The pharmaceutically acceptable salt of claim 1, wherein the compound of Formula (I) is selected from the group consisting of:



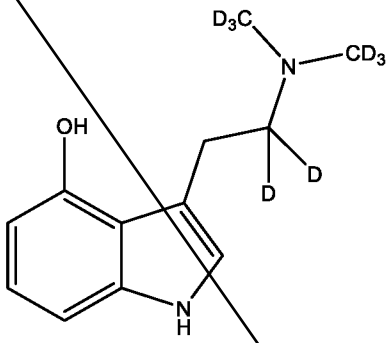
(I-1),



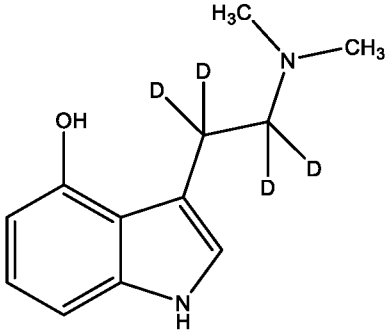
(I-2),



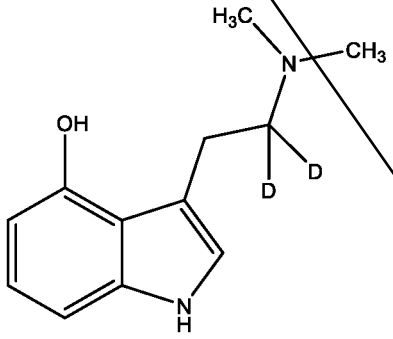
(I-3),



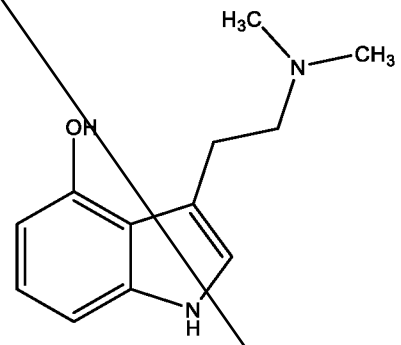
(I-4),



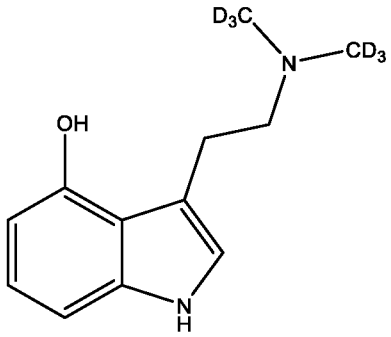
(I-5),



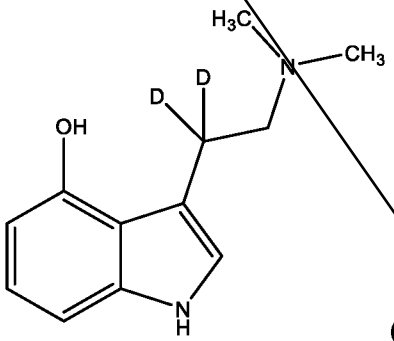
(I-6),



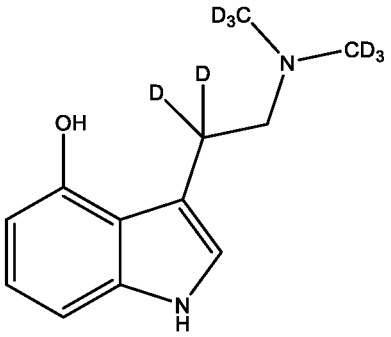
(I-7),



(I-8),

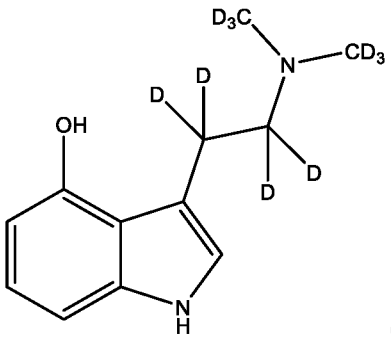


(I-9), and



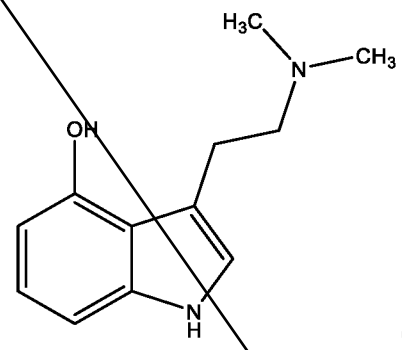
(I-10).

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



(I-3).

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



(I-7).

13. The pharmaceutically acceptable salt of claim 1, wherein the compound of Formula (I) is an agonist of a serotonin 5-HT_2 receptor.

14. The pharmaceutically acceptable salt of claim 1, wherein the compound of Formula (I) is an agonist of a serotonin 5-HT_{2A} receptor.

15. The pharmaceutically acceptable salt of claim 1, 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, a salicylate salt, an ascorbate salt, a hydrochloride salt, a maleate salt, a malate salt, a methanesulfonate salt, a toluenesulfonate salt, a glucuronate salt, or a glutarate salt of the compound of Formula (I).

16. The pharmaceutically acceptable salt of claim 1, 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).

17. The pharmaceutically acceptable salt of claim 1, which is a benzenesulfonate salt or a benzoate salt of the compound of Formula (I).

18. The pharmaceutically acceptable salt of claim 1, which is a benzenesulfonate salt of the compound of Formula (I).

19. The pharmaceutically acceptable salt of claim 1, which is a benzoate salt of the compound of Formula (I).

20. The pharmaceutically acceptable salt of claim 1, which is a citrate salt of the compound of Formula (I).

21. The pharmaceutically acceptable salt of claim 1, which is a tartrate salt of the compound of Formula (I).

22. 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).

23. The pharmaceutically acceptable salt of claim 22, 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°.

24. The pharmaceutically acceptable salt of claim 1, which is a benzenesulfonate salt of 3-(2-(dimethylamino)ethyl)-1*H*-indol-4-ol (I-7a).

25. The pharmaceutically acceptable salt of claim 24, wherein the benzenesulfonate salt of 3-(2-(dimethylamino)ethyl)-1*H*-indol-4-ol (I-7a) 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 7.002°, 7.733°, 11.768°, 12.516°, 12.882°, 13.546°, 13.968°, 14.788°, 15.225°, 15.474°, 18.370°, 19.737°, 20.703°, 21.050°, 21.873°, 21.982°, 22.315°, 22.639°, 23.282°, 23.775°, 24.125°, 25.193°, 25.475°, 25.931°, 26.813°, 27.778°, 28.127°, 30.866°, 31.207°, 32.941°, 33.222°, 33.698°, 36.803°, 38.668°, and 39.289°.

26. 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).

27. The pharmaceutically acceptable salt of claim 26, 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°.

28. The pharmaceutically acceptable salt of claim 1, which is a benzoate salt of 3-(2-(dimethylamino)ethyl)-1*H*-indol-4-ol (I-7j).

29. The pharmaceutically acceptable salt of claim 28, wherein benzoate salt of 3-(2-(dimethylamino)ethyl)-1*H*-indol-4-ol (I-7j) 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 9.492°, 11.011°, 12.391°, 13.440°, 14.609°, 15.432°, 16.394°, 18.259°, 18.967°, 19.356°, 19.827°, 20.843°, 21.476°, 22.062°, 22.805°, 23.862°, 24.963°, 25.734°, 26.170°, 26.992°, 27.738°, 28.593°, 30.073°, 30.746°, 31.041°, 31.799°, 32.794°, 33.551°, 34.480°, 35.430°, 37.685°, and 38.643°.

30. 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).

31. The pharmaceutically acceptable salt of claim 30, 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.

32. The pharmaceutically acceptable salt of claim 1, which is a citrate salt of 3-(2-(dimethylamino)ethyl)-1*H*-indol-4-ol (I-7e).

33. The pharmaceutically acceptable salt of claim 32, wherein citrate salt of 3-(2-(dimethylamino)ethyl)-1*H*-indol-4-ol (I-7e) is amorphous by X-ray powder diffraction.

34. 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).

35. The pharmaceutically acceptable salt of claim 34, 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°.

36. The pharmaceutically acceptable salt of claim 1, which is a tartrate salt of 3-(2-(dimethylamino)ethyl)-1*H*-indol-4-ol (I-7b).

37. The pharmaceutically acceptable salt of claim 36, wherein the tartrate salt of 3-(2-(dimethylamino)ethyl)-1*H*-indol-4-ol (I-7b) 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 6.798°, 11.360°, 12.764°, 13.535°, 14.837°, 15.973°, 16.351°, 17.367°, 18.937°, 20.168°, 20.929°, 21.946°, 22.719°, 23.604°, 23.814°, 24.874°, 25.609°, 26.745°, 27.111°, 27.558°, 28.653°, 29.630°, 31.129°, 31.567°, 32.180°, 33.073°, 34.096°, 34.460°, 36.226°, 37.497°, 38.727°.

38. The pharmaceutically acceptable salt of claim 1, 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.

39. The pharmaceutically acceptable salt of claim 1, which is a fatty acid salt of the compound of Formula (I).

40. The pharmaceutically acceptable salt of claim 39, which is an adipate salt, a laurate salt, a linoleate salt, a myristate salt, a caprate salt, a stearate salt, an oleate salt, a caprylate salt, a palmitate salt, a sebacate salt, an undecylenate salt, or a caproate salt of the compound of Formula (I).

41. The pharmaceutically acceptable salt of claim 39, which is an adipate salt, a laurate salt, a linoleate salt, a myristate salt, a caprate salt, a stearate salt, an oleate salt, or a caprylate salt of the compound of Formula (I).

42. The pharmaceutically acceptable salt of claim 39, which is a laurate salt, a linoleate salt, a myristate salt, a caprate salt, a stearate salt, an oleate salt, or a caprylate salt of the compound of Formula (I).

43. The pharmaceutically acceptable salt of claim 39, which is a laurate salt, a linoleate salt, a caprate salt, or a caprylate salt of the compound of Formula (I).

44. A pharmaceutical composition comprising the pharmaceutically acceptable salt of claim 1, and a pharmaceutically acceptable vehicle.

45. The pharmaceutical composition of claim 44, which is adapted for intraoral administration.

46. The pharmaceutical composition of claim 45, wherein the pharmaceutical composition is in an orodispersible dosage form.

47. The pharmaceutical composition of claim 45, wherein the pharmaceutical composition is in a form of an orally disintegrating tablet (ODT).

48. The pharmaceutical composition of claim 47, wherein the pharmaceutically acceptable vehicle comprises a water-soluble polymer and a matrix material, filler, or diluent.

49. The pharmaceutical composition of claim 48, wherein the water-soluble polymer is gelatin, and the matrix material, filler, or diluent is mannitol.

50. The pharmaceutical composition of claim 48, wherein the pharmaceutically acceptable vehicle further comprises an acid.

51. The pharmaceutical composition of claim 50, wherein the acid is citric acid and/or tartaric acid.

52. The pharmaceutical composition of claim 45, wherein the pharmaceutical composition is in a form of an orodispersible film (ODF).

53. The pharmaceutical composition of claim 44, wherein the pharmaceutical composition is in an immediate release (IR) dosage form.

54. The pharmaceutical composition of claim 53, wherein the immediate release (IR) dosage form is an immediate release (IR) tablet.

55. The pharmaceutical composition of claim 54, wherein the immediate release (IR) tablet comprises microcrystalline cellulose, sodium carboxymethylcellulose, and magnesium stearate.

56. The pharmaceutical composition of claim 53, wherein the immediate release (IR) tablet comprises mannitol, crospovidone, and sodium stearyl fumarate.

57. A method of treating a subject with a disease or disorder, comprising:

administering to the subject a therapeutically effective amount of the pharmaceutically acceptable salt of claim 1.

58. A method of treating a subject with a disease or disorder associated with a serotonin 5-HT_2 receptor, comprising:

administering to the subject a therapeutically effective amount of the pharmaceutically acceptable salt of claim 1.

59. The method of claim 58, wherein the disease or disorder is a neuropsychiatric disease or disorder or an inflammatory disease or disorder.

60. The method of claim 58, wherein the disease or disorder is a central nervous system (CNS) disorder.

61. The method of claim 60, 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.

62. The method of claim 60, wherein the central nervous system (CNS) disorder is major depressive disorder (MDD).

63. The method of claim 60, wherein the central nervous system (CNS) disorder is treatment-resistant depression (TRD).

64. The method of claim 60, wherein the central nervous system (CNS) disorder is generalized anxiety disorder (GAD).

65. The method of claim 60, wherein the central nervous system (CNS) disorder is social anxiety disorder.

66. The method of claim 60, wherein the central nervous system (CNS) disorder is obsessive-compulsive disorder (OCD).

67. The method of claim 60, wherein the central nervous system (CNS) disorder is a substance use disorder.

68. The method of claim 67, wherein the central nervous system (CNS) disorder is alcohol use disorder.

69. The method of claim 58, wherein the disease or disorder is an autonomic nervous system (ANS) condition.

70. The method of claim 58, wherein the disease or disorder is a pulmonary disorder.

71. The method of claim 58, wherein the disease or disorder is a cardiovascular disorder.

72. The method of claim 58, wherein the pharmaceutically acceptable salt is administered orally to the subject.

73. The method of claim 72, wherein the pharmaceutically acceptable salt is administered intraorally to the subject.

74. The method of claim 58, wherein the pharmaceutically acceptable salt is administered transdermally to the subject.

75. The method of claim 58, wherein the pharmaceutically acceptable salt is administered subcutaneously to the subject.

76. The method of claim 58, wherein the pharmaceutically acceptable salt is administered at a psychedelic dose of about 0.083 mg/kg to about 1 mg/kg.

77. The method of claim 76, wherein the pharmaceutically acceptable salt is administered at the psychedelic dose once per week or less over a treatment course.

78. The method of claim 58, wherein the pharmaceutically acceptable salt is administered at a sub-psychedelic dose of about 0.00001 mg/kg to less than about 0.083 mg/kg.

79. The method of claim 78, wherein the pharmaceutically acceptable salt is administered at the sub-psychedelic dose once per day or more over a treatment course.

80. A method for stabilizing the compound of Formula (I) comprising preparing the pharmaceutically acceptable salt of the compound of Formula (I) of claim 1.

81. A method for decreasing time of therapeutic onset relative to a psilocybin-based drug, comprising:

administering a therapeutically effective amount of the pharmaceutically acceptable salt of the compound of Formula (I) of claim 1 to a subject in need thereof.

82. A method of reducing psychedelic side effects relative to a psilocybin-based drug, comprising:

administering a therapeutically effective amount of the pharmaceutically acceptable salt of the compound of Formula (I) of claim 1 to a subject in need thereof.

83. A method of decreasing duration of therapeutic effect relative to a psilocybin-based drug, comprising:

administering a therapeutically effective amount of the pharmaceutically acceptable salt

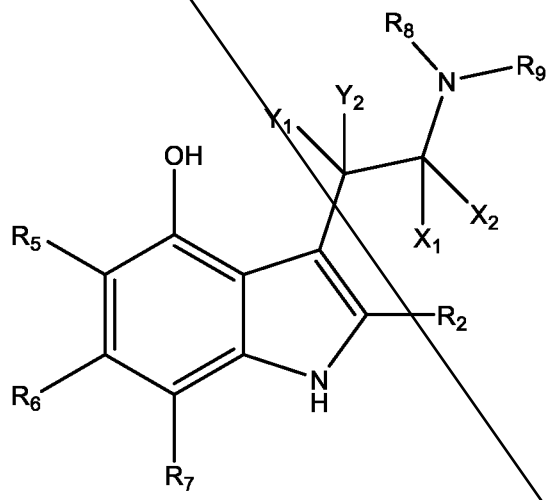
of the compound of Formula (I) of claim 1 to a subject in need thereof.

84. A solution-phase composition, comprising:

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

85. The solution-phase composition of claim 84, which is an aqueous solution-phase composition comprising the pharmaceutically acceptable salt of the compound of Formula (I), in solvated form.

86. A crystalline polymorph of a compound of Formula (I), or a stereoisomer or a 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 $-CD_3$, and

X_1, X_2, Y_1, and Y_2 are independently selected from the group consisting of hydrogen or deuterium.

87. The crystalline polymorph of claim 86, which is a crystalline form of 3-(2-(bis(methyl-d_3)amino)ethyl-1,1,2,2-d_4)-1*H*-indol-4-ol (I-3) characterized by an X-ray powder diffraction pattern containing at least three characteristic peaks at diffraction angles ($2\theta \pm 0.2°$)

selected from the group consisting of 7.582°, 8.395°, 9.647°, 10.444°, 11.319°, 12.614°, 13.372°, 14.222°, 15.157°, 16.524°, 16.787°, 17.693°, 19.468°, 19.699°, 20.901°, 21.132°, 21.859°, 22.547°, 23.699°, 24.630°, 25.034°, 25.264°, 26.867°, 27.399°, 27.929°, 28.219°, 28.871°, 29.430°, 30.120°, 30.675°, 31.373°, 32.365°, 33.880°, 34.418°, 34.792°, 35.884°, 36.254°, 37.156°, 38.200°, and 38.417°.

88. The crystalline polymorph of claim 86, which is a crystalline form of 3-(2-(bis(methyl-d_3)amino)ethyl-1,1,2,2-d_4)-1*H*-indol-4-ol (I-3) 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 8.124°, 8.357°, 10.059°, 12.630°, 13.420°, 13.743°, 14.053°, 15.220°, 16.272°, 16.763°, 16.954°, 17.328°, 17.662°, 18.062°, 18.742°, 19.413°, 19.658°, 20.172°, 20.836°, 21.267°, 21.833°, 22.213°, 22.504°, 23.334°, 23.701°, 24.385°, 25.431°, 25.721°, 26.049°, 27.291°, 28.368°, 30.349°, 30.656°, 31.337°, 31.538°, 32.091°, 35.870°, 38.514°, and 41.361°.

89. The crystalline polymorph of claim 86, which is a crystalline form of 3-(2-(dimethylamino)ethyl)-1*H*-indol-4-ol (I-7) 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 7.563°, 8.375°, 12.626°, 13.383°, 15.211°, 16.753°, 17.671°, 19.668°, 21.112°, 21.863°, 22.201°, 22.560°, 23.711°, 24.592°, 25.415°, 26.820°, 27.357°, 27.921°, 28.228°, 29.253°, 30.653°, 31.364°, 32.401°, 33.797°, 34.445°, 39.867°

90. A pharmaceutical composition comprising the crystalline polymorph of claim 86, and a pharmaceutically acceptable vehicle.

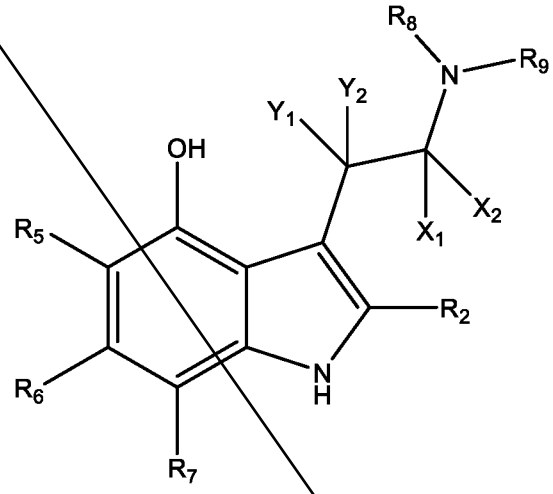
91. The pharmaceutical composition of claim 90, wherein the pharmaceutically acceptable vehicle comprises an acid.

92. The pharmaceutical composition of claim 91, wherein the acid is citric acid and/or tartaric acid.

93. A method of treating a subject with a disease or disorder associated with a serotonin 5-HT_2 receptor, comprising:

administering to the subject a therapeutically effective amount of the crystalline polymorph of claim 86.

94. An amorphous compound of Formula (I), or a stereoisomer or a 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 $-CD_3$, and

X_1, X_2, Y_1, and Y_2 are independently selected from the group consisting of hydrogen or deuterium.

95. The amorphous compound of claim 94, which is an amorphous form of 3-(2-(bis(methyl-d_3)amino)ethyl-1,1,2,2-d_4)-1*H*-indol-4-ol (I-3), as determined by X-ray powder diffraction.

96. The amorphous compound of claim 94, which is an amorphous form of 3-(2-(dimethylamino)ethyl)-1*H*-indol-4-ol (I-7), as determined by X-ray powder diffraction.

97. The amorphous compound of claim 94, which has a glass transition temperature of about 26°C to about 30°C as determined by differential scanning calorimetry (DSC).

98. The amorphous compound of claim 94, which is prepared by melting a crystalline form of the compound of Formula (I) to beyond a melting point of the crystalline form, and then rapidly cooling to a glass transition temperature.

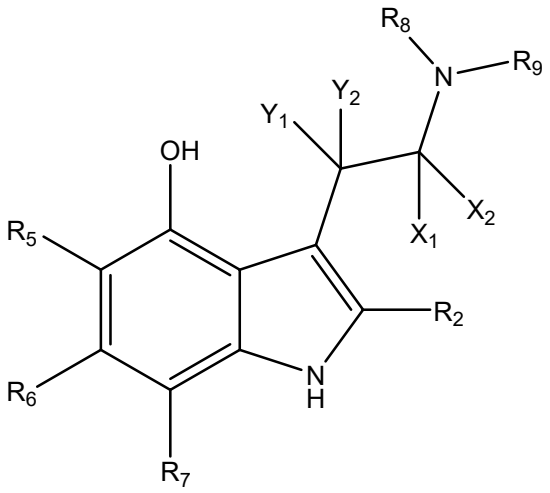
99. A pharmaceutical composition comprising the amorphous compound of claim 94, and a pharmaceutically acceptable vehicle.

100. A method of treating a subject with a disease or disorder associated with a serotonin 5-HT_2 receptor, comprising:

administering to the subject a therapeutically effective amount of the amorphous compound of claim 94.

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.

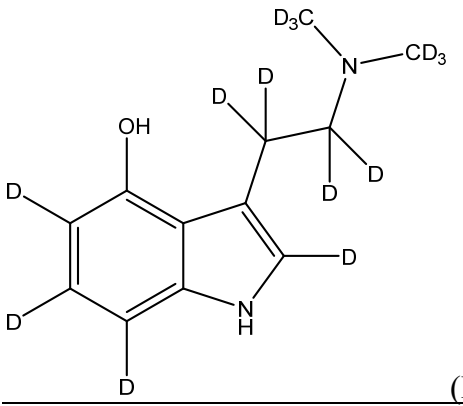
2. The pharmaceutically acceptable salt of claim 1, wherein R_8 and R_9 are $-CH_3$.

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

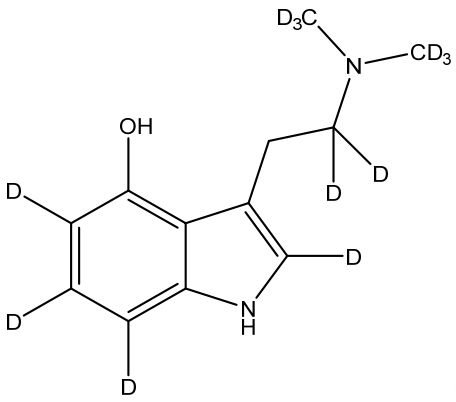
4. The pharmaceutically acceptable salt of any one of claims 1 to 3, wherein Y_1 and Y_2 are deuterium.

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

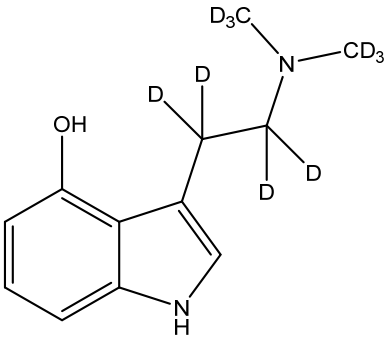
6. The pharmaceutically acceptable salt of claim 1, wherein the compound of Formula (I) is selected from the group consisting of:



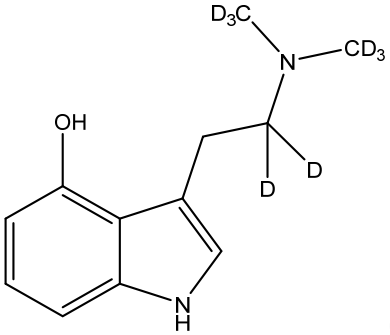
(I-1),



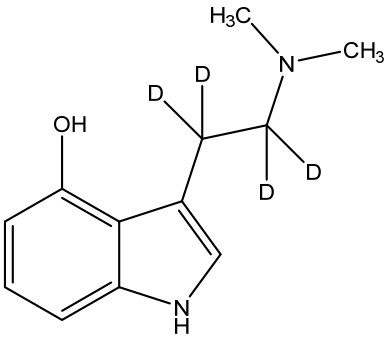
(I-2),



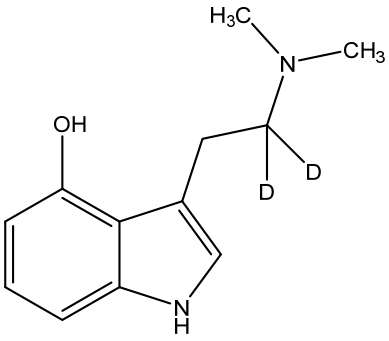
(I-3),



(I-4),

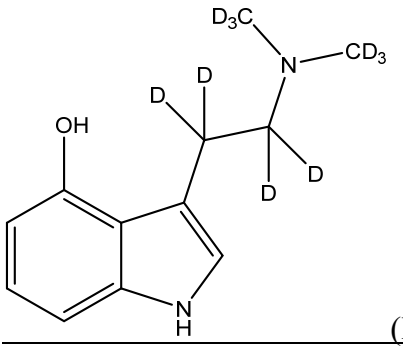


(I-5), and



(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.