What is Claimed is:

1. A method of treating attention deficit hyperactivity disorder (ADHD) in a subject comprising administering a therapeutically effective amount of a nonselective metabotropic glutamate receptor (mGluR) activator to a subject, thereby treating ADHD.

2. A method of treating ADHD in a subject comprising administering a therapeutically effective amount of a nonselective metabotropic glutamate receptor (mGluR) activator to a subject having at least one genetic alteration in a mGluR network gene, thereby treating ADHD.

3. A method of treating ADHD in a subject comprising:

administering a nonselective metabotropic glutamate receptor (mGluR) activator to a subject with ADHD in an amount effective to result in a clinical general impression – improvement (CGI-I) score of 1 or 2 after at least four weeks of treatment and/or an improvement of at least 25%, such as at least 30%, at least 35%, or at least 40%, in an ADHD rating scale score after at least four weeks of treatment in a majority of subjects of at least one clinical trial.

4. The method of any one of claims 1-3, wherein the subject has at least one genetic alteration in an mGluR network gene, such as a point mutation, insertion, deletion, or copy number variation (CNV).

5. The method of claim 4, wherein at least one genetic alteration is a CNV.

6. The method of claim 5, wherein the CNV is a deletion or a duplication.

7. The method of any one of claims 2, 4, 5, or 6, wherein the subject has genetic alterations in at least two mGluR network genes.

8. The method of any one of claims 1-7, wherein the subject is a pediatric or adolescent subject, such as a subject between the ages of 5 and 17, 8 and 17, 5 and 12, 5 and 8, 8 and 12, or 12 and 17.

9. The method of any one of claims 1-7, wherein the subject is an adult.

10. The method of any one of claims 1-9, wherein the nonselective mGluR activator is fasoracetam, such as fasoracetam monohydrate.

11. The method of claim 10, wherein the fasoracetam is administered at a dose of 50-400 mg, such as 100-400 mg, or 100-200 mg, or 200-400 mg, or 100 mg, or 200 mg, or 300 mg, or 400 mg, and wherein the dose is administered once, twice, or three times daily.

12. The method of claim 11, wherein the fasoracetam is administered at a dose of 100 mg, 200 mg, 300 mg, or 400 mg twice daily, such as 100-200 mg twice daily or 200-400 mg twice daily.

13. The method of any one of claims 1-12, wherein the activator is administered in combination with a stimulant, such as methylphenidate, dexmethylphenidate, amphetamine, dextroamphetamine, or lisdexamphetamine; and/or in combination with a nonstimulant, such as atomoxetine, clonidine, or guanfacine; and/or in combination with an antidepressant, such as fluoxetine, escitalopram, bupropion, mirtazapine, amitriptyline, imipramine, venlafaxine, sertraline, paroxetine, tricyclic antidepressants, selective serotonin reuptake inhibitors, serotonin and norepinephrine reuptake inhibitors, norepinephrine and dopamine reuptake inhibitors, or monoamine oxidase inhibitors; and/or in combination with an anxiolytic, such as barbiturates, pregabalin, or benzodiazepines, including chlordiazepoxide, clorazepate, diazepam, flurazepam, halazepam, prazepam, lorazepam, lormetazepam, oxazepam, temazepam, clonazepam, flunitrazepam, nimetazepam, nitrazepam, adinazolam, alprazolam, estazolam, triazolam,

~~climazolam, loprazolam, or midazolam; and/or in combination with an anti-psychotic, such as aripiprazole or risperidone; and/or in combination with a beta blocker, such as acebutolol, atenolol, betaxolol, bisoprolol, esmolol, nebivolol, metoprolol, cartelol, penbutolol, pindolol, carvedilol, labetalol, levobunolol, metipranolol, nadolol, propranolol, sotalol, or timolol.~~

~~14. The method of any one of claims 1-13, wherein the activator is administered in combination with non-pharmaceutical therapy, such as brain stimulation, for example vagus nerve stimulation, repetitive transcranial magnetic stimulation, magnetic seizure therapy, and/or deep brain stimulation.~~

~~15. The method of any one of claims 1-14, wherein the subject has least one of oppositional defiant disorder (ODD), 22q deletion/duplication syndrome, anxiety disorder, a mood disorder, a phobia, conduct disorder, Tourette's syndrome, autism, difficulty controlling anger, disruptive behavior, obsessive compulsive disorder (OCD), dermatillomania, a developmental disorder, or a movement disorder in addition to ADHD.~~

~~16. The method of any one of claims 1-14, wherein the subject does not have at least one of oppositional defiant disorder (ODD), 22q deletion/duplication syndrome, anxiety disorder, conduct disorder, Tourette's syndrome, autism, difficulty controlling anger, disruptive behavior, a mood disorder, a phobia, obsessive compulsive disorder (OCD), dermatillomania, a developmental disorder, or a movement disorder.~~

~~17. The method of claim 16, wherein the subject does not have any of ODD, 22q deletion/duplication syndrome, anxiety disorder, a mood disorder, a phobia, conduct disorder, Tourette's syndrome, autism, difficulty controlling anger, disruptive behavior,~~

obsessive compulsive disorder (OCD), dermatillomania, a developmental disorder, or a movement disorder.

18. The method of any one of claims 1-15, wherein the subject has ODD.

19. The method of claim 18, wherein the method treats ODD in the subject, such as by reducing symptoms of anger and irritability, argumentation and defiance, and/or vindictiveness.

20. The method of any one of claims 2 or 4-19, wherein the genetic alteration is detected by a process comprising a genetic test comprising obtaining a sample from the subject, optionally isolating nucleic acid from the sample, optionally amplifying the nucleic acid, and analyzing the nucleic acid for a genetic alteration in at least one mGluR network gene, and wherein the method comprises obtaining results of the genetic test prior to initial administration of the activator.

21. The method of claim 20, wherein the genetic test comprises analyzing the nucleic acid for a CNV or SNV in at least 5, 6, 7, 8, 9, 10, 15, 20, 30, 40, 50, 60, 70, or all Tier 1 mGluR network genes.

22. The method of claim 20 or claim 21, wherein the genetic test comprises analyzing the nucleic acid for a CNV or SNV in at least 5, 10, 20, 30, 50, 100, 150, 175, or all Tier 2 mGluR network genes.

23. The method of claim 20, 21, or 22 wherein the genetic test comprises analyzing the nucleic acid for a CNV or SNV in at least 5, 10, 20, 50, 100, 200 300, 400, 500, or all Tier 3 mGluR network genes.

24. The method of any one of claims 20-23, wherein the genetic test does not assess CNVs or SNVs in one or more of GRM1, GRM2, GRM3, GRM4, GRM5, GRM6, GRM7 or GRM8.

25. A method of treating attention deficit hyperactivity disorder (ADHD) in a subject comprising: administering fasoracetam to the subject at a dose of 50-400 mg, such as 100-400 mg, or 100-200 mg, or 200-400 mg, or 100 mg, or 200 mg, or 300 mg, or 400 mg, and wherein the dose is administered once, twice, or three times daily, thereby treating ADHD.

26. The method of claim 25, wherein the fasoracetam is administered at a dose of 100 mg, 200 mg, 300 mg, or 400 mg twice daily, such as 100-200 mg twice daily.

27. The method of claim 25 or 26, wherein the ADHD subject has at least one genetic alteration in an mGluR network gene, such as a point mutation, insertion, deletion, or copy number variation (CNV).

28. The method of claim 27, wherein at least one genetic alteration is a CNV.

29. The method of any one of claims 27 or 28, wherein the subject has genetic alterations in at least two mGluR network genes.

30. The method of any one of claims 25-29, wherein the subject is a pediatric or adolescent subject, such as a subject between the ages of 5 and 17, 8 and 17, 5 and 12, 5 and 8, 8 and 12, or 12 and 17.

31. The method of any one of claims 25-29, wherein the subject is an adult subject.

32. The method of any one of claims 25-31, wherein the fasoracetam is administered in combination with a stimulant, such as methylphenidate, dexmethylphenidate, amphetamine, dextroamphetamine, or lisdexamphetamine; and/or in combination with a nonstimulant, such as atomoxetine, clonidine, or guanfacine; and/or in combination with an antidepressant, such as fluoxetine, escitalopram, bupropion, mirtazapine, amitriptyline, imipramine, venlafaxine, sertraline, paroxetine, tricyclic antidepressants, selective serotonin reuptake inhibitors, serotonin and norepinephrine reuptake inhibitors,

norepinephrine and dopamine reuptake inhibitors, or monoamine oxidase inhibitors; and/or in combination with an anxiolytic, such as barbiturates, pregabalin, or benzodiazepines, including chlordiazepoxide, clorazepate, diazepam, flurazepam, halazepam, prazepam, lorazepam, lormetazepam, oxazepam, temazepam, clonazepam, flunitrazepam, nimetazepam, nitrazepam, adinazolam, alprazolam, estazolam, triazolam, climazolam, loprazolam, or midazolam; and/or in combination with an anti-psychotic, such as aripiprazole or risperidone; and/or in combination with a beta blocker, such as acebutolol, atenolol, betaxolol, bisoprolol, esmolol, nebivolol, metoprolol, cartelol, penbutolol, pindolol, carvedilol, labetalol, levobunolol, metipranolol, nadolol, propranolol, sotalol, or timolol.

33. The method of any one of claims 25-32, wherein the fasoracetam is administered in combination with non-pharmaceutical therapy, such as brain stimulation, for example vagus nerve stimulation, repetitive transcranial magnetic stimulation, magnetic seizure therapy, and/or deep brain stimulation.

34. The method of any one of claims 25-33, wherein the subject has least one of oppositional defiant disorder (ODD), 22q deletion/duplication syndrome, anxiety disorder, conduct disorder, Tourette's syndrome, autism, difficulty controlling anger, disruptive behavior, a mood disorder, a phobia, obsessive compulsive disorder (OCD), dermatillomania, a developmental disorder, or a movement disorder in addition to ADHD.

35. The method of any one of claims 25-33, wherein the subject does not have at least one of oppositional defiant disorder (ODD), 22q deletion/duplication syndrome, anxiety disorder, a mood disorder, a phobia, conduct disorder, Tourette's syndrome, autism,

difficulty controlling anger, disruptive behavior, obsessive compulsive disorder (OCD), dermatillomania, a developmental disorder, or a movement disorder.

36. The method of claim 35, wherein the subject does not suffer from any of ODD, 22q deletion/duplication syndrome, anxiety disorder, a mood disorder, a phobia, conduct disorder, Tourette's syndrome, autism, difficulty controlling anger, disruptive behavior, obsessive compulsive disorder (OCD), dermatillomania, a developmental disorder, or a movement disorder.

37. The method of any one of claims 25-35, wherein the subject has ODD.

38. The method of claim 37, wherein the method treats ODD in the subject, such as by reducing symptoms of anger and irritability, argumentation and defiance, and/or vindictiveness.

39. The method of any one of claims 25-38, wherein the genetic alteration is detected by a process comprising a genetic test comprising obtaining a sample from the subject, optionally isolating nucleic acid from the sample, optionally amplifying the nucleic acid, and analyzing the nucleic acid for a genetic alteration in at least one mGluR network gene, and wherein the method comprises obtaining results of the genetic test prior to initial administration of the activator.

40. The method of claim 39, wherein the genetic test comprises analyzing the nucleic acid for a CNV or SNV in at least 5, 6, 7, 8, 9, 10, 15, 20, 30, 40, 50, 60, 70, or all Tier 1 mGluR network genes.

41. The method of claim 39 or claim 40, wherein the genetic test comprises analyzing the nucleic acid for a CNV or SNV in at least 5, 10, 20, 30, 50, 100, 150, 175, or all Tier 2 mGluR network genes.

42. The method of any one of claims 39-41, wherein the genetic test comprises analyzing the nucleic acid for a CNV or SNV in at least 5, 10, 20, 50, 100, 200 300, 400, 500, or all Tier 3 mGluR network genes.

43. The method of any one of claims 39-42, wherein the genetic test does not assess CNVs in one or more of GRM1, GRM2, GRM3, GRM4, GRM5, GRM6, GRM7 or GRM8.

44. The method of any one of claims 2, 4-24, or 27-43, wherein the subject has a genetic alteration, such as a CNV, in a Tier 1 or Tier 2 mGluR network gene but does not have a genetic alteration, such as a CNV, in a Tier 3 mGluR network gene.

45. The method of any one of claims 1-44, wherein treating ADHD in the subject comprises reducing at least one ADHD symptom in the subject, such as inattentiveness, hyperactivity, or impulsiveness.

46. The method of any one of claims 1-45, wherein the subject has one or more of the following changes in symptoms after at least one, two, three, or four weeks of treatment with the activator:

a. the subject has symptoms of difficulty controlling anger and the anger control symptoms are reduced;

b. the subject has symptoms of disruptive behavior and the disruptive behavior symptoms are reduced;

c. the subject's CGI-I is reduced by at least 1 or by at least 2;

d. the subject's CGI-I score after one, two, three, or four weeks of treatment is 1 or 2;

e. the subject's CGI-S score after one, two, three, or four weeks of treatment is 1;

f. the subject's ADHD Rating Scale score is reduced by at least 25%, such as at least 30%, at least 35%, or at least 40%;

g. the subject has symptoms of inattentiveness and the inattentiveness symptoms are reduced;

h. the subject has symptoms of hyperactivity and the hyperactivity symptoms are reduced;

i. the subject has symptoms of impulsiveness and the impulsiveness symptoms are reduced;

j. the subject has symptoms of ODD such as anger and irritability, argumentation and defiance, and/or vindictiveness and the ODD symptoms are reduced;

k. the subject has symptoms of conduct disorder and the conduct disorder symptoms are reduced;

l. the subject has symptoms of anxiety and the anxiety symptoms are reduced;

m. the subject has symptoms of Tourette's syndrome, and the Tourette's syndrome symptoms are reduced;

n. the subject has symptoms of autism, and the autism symptoms are reduced; and

o. the subject has symptoms of movement disorder and the movement disorder symptoms are reduced.

47. A method of treating 22q deletion and/or duplication syndrome in a subject comprising: administering an effective amount of a nonselective metabotropic glutamate

receptor (mGluR) activator to a subject with 22q deletion and/or duplication syndrome, thereby treating 22q deletion and/or duplication syndrome.

48. The method of claim 47, wherein the subject has a genetic alteration, such as a point mutation, insertion, deletion, or copy number variation (CNV) in RANBP1.

49. The method of claim 47 or 48, wherein the subject has a deletion or a duplication at 22q11.2.

50. The method of claim 47, 48, or 49, wherein the subject has a genetic alteration in at least one mGluR network gene, such as a Tier 1, Tier 2, or Tier 3 gene.

51. The method of any one of claims 47-50, wherein the subject has attention deficit hyperactivity disorder (ADHD).

52. The method of any one of claims 47-51, wherein the subject is a pediatric or adolescent subject, such as a subject between the ages of 5 and 17, 8 and 17, 5 and 12, 5 and 8, 8 and 12, or 12 and 17.

53. The method of any one of claims 47-51, wherein the subject is an adult subject.

54. The method of any one of claims 47-53, wherein the nonselective mGluR activator is fasoracetam, such as fasoracetam monohydrate.

55. The method of claim 54, wherein the fasoracetam is administered at a dose of 50-400 mg, such as 100-400 mg, or 100-200 mg, or 200-400 mg, or 100 mg, or 200 mg, or 300 mg, or 400 mg, and wherein the dose is administered once, twice, or three times daily.

56. The method of claim 54 or claim 55, wherein the fasoracetam is administered at a dose of 100 mg, 200 mg, 300 mg, or 400 mg twice daily, such as 100-200 mg twice daily.

57. The method of any one of claims 47-56, wherein the activator is administered in combination with a stimulant, such as methylphenidate, dexmethylphenidate, amphetamine, dextroamphetamine, or lisdexamphetamine; and/or in combination with a

nonstimulant, such as atomoxetine, clonidine, or guanfacine; and/or in combination with an antidepressant, such as fluoxetine, escitalopram, bupropion, mirtazapine, amitriptyline, imipramine, venlafaxine, sertraline, paroxetine, tricyclic antidepressants, selective serotonin reuptake inhibitors, serotonin and norepinephrine reuptake inhibitors, norepinephrine and dopamine reuptake inhibitors, or monoamine oxidase inhibitors; and/or in combination with an anxiolytic, such as barbiturates, pregabalin, or benzodiazepines, including chlordiazepoxide, clorazepate, diazepam, flurazepam, halazepam, prazepam, lorazepam, lormetazepam, oxazepam, temazepam, clonazepam, flunitrazepam, nimetazepam, nitrazepam, adinazolam, alprazolam, estazolam, triazolam, climazolam, loprazolam, or midazolam; and/or in combination with an anti-psychotic, such as aripiprazole or risperidone; and/or in combination with a beta blocker, such as acebutolol, atenolol, betaxolol, bisoprolol, esmolol, nebivolol, metoprolol, cartelol, penbutolol, pindolol, carvedilol, labetalol, levobunolol, metipranolol, nadolol, propranolol, sotalol, or timolol.

58. The method of any one of claims 47-57, wherein the activator is administered in combination with non-pharmaceutical therapy, such as brain stimulation, for example vagus nerve stimulation, repetitive transcranial magnetic stimulation, magnetic seizure therapy, and/or deep brain stimulation.

59. The method of any one of claims 47-58, wherein the subject has at least one of oppositional defiant disorder (ODD), anxiety disorder, conduct disorder, Tourette's syndrome, autism, difficulty controlling anger, disruptive behavior, a mood disorder, a phobia, obsessive compulsive disorder (OCD), dermatillomania, a developmental disorder, or a movement disorder.

60. The method of any one of claims 47-58, wherein the subject does not have at least one of oppositional defiant disorder (ODD), anxiety disorder, conduct disorder, Tourette's syndrome, autism, difficulty controlling anger, disruptive behavior, a mood disorder, a phobia, obsessive compulsive disorder (OCD), dermatillomania, a developmental disorder, or a movement disorder.

61. The method of claim 60, wherein the subject has ADHD but does not have at least one of ODD, conduct disorder, anxiety disorder, Tourette's syndrome, autism, difficulty controlling anger, disruptive behavior, a mood disorder, a phobia, obsessive compulsive disorder (OCD), or a movement disorder.

62. The method of claim 60 or 61, wherein the subject does not have any of ODD, conduct disorder, anxiety disorder, Tourette's syndrome, autism, difficulty controlling anger, disruptive behavior, a mood disorder, a phobia, obsessive compulsive disorder (OCD), dermatillomania, a developmental disorder, or a movement disorder.

63. The method of any one of claims 47-62, wherein the subject has ODD.

64. The method of claim 63, wherein the method treats ODD in the subject, such as by reducing symptoms of anger and irritability, argumentation and defiance, and/or vindictiveness.

65. The method of any one of claims 47-64, wherein 22q deletion and/or duplication syndrome is diagnosed by a process comprising a genetic test to detect the presence or absence of a deletion or duplication at 22q11.2 and/or for the presence or absence of a genetic alteration in RANBP1 in a sample from the subject, and wherein the method comprises obtaining results of the genetic test prior to initial administration of the activator.

66. The method of any one of claims 47-65, wherein the activator is administered in an amount effective to result in a clinical general impression – improvement (CGI-I) score of 1 or 2 after four weeks of treatment and/or an improvement of at least 25%, such as at least 30%, at least 35%, or at least 40%, in an ADHD rating scale score after four weeks of treatment in a majority of subjects of at least one clinical trial.

67. The method of any one of claims 47-66, wherein 22q deletion and/or duplication syndrome is deemed treated if at least one symptom of ADHD is improved in the subject, such as impulsiveness, hyperactivity, or inattentiveness.

68. The method of any one of claims 1-67, wherein the subject does not have a CNV or SNV in one or more of GRM1, GRM2, GRM3, GRM4, GRM5, GRM6, GRM7 or GRM8.

69. A method of treating ADHD in a subject comprising administering a therapeutically effective amount of a nonselective metabotropic glutamate receptor (mGluR) activator to a subject that has ADHD and at least one genetic alteration in a mGluR network gene, thereby treating ADHD.

70. A method of treating ODD in a subject comprising administering a therapeutically effective amount of a nonselective metabotropic glutamate receptor (mGluR) activator to a subject that has ODD and at least one genetic alteration in a mGluR network gene, thereby treating ODD.

71. A method of treating a subject having ADHD and ODD comprising administering a therapeutically effective amount of a nonselective metabotropic glutamate receptor (mGluR) activator to a subject that has ADHD and ODD and at least one genetic alteration in a mGluR network gene, thereby treating ADHD and ODD.

72. A method of treating a subject having ADHD and autism comprising administering a therapeutically effective amount of a nonselective metabotropic glutamate receptor (mGluR) activator to a subject that has ADHD and autism and at least one genetic alteration in a mGluR network gene, thereby treating ADHD and autism.

73. A method of treating a subject having ADHD and a symptom of difficulty controlling anger comprising administering a therapeutically effective amount of a nonselective metabotropic glutamate receptor (mGluR) activator to a subject that has ADHD and a symptom of difficulty controlling anger and at least one genetic alteration in a mGluR network gene, thereby treating ADHD and alleviating the symptom of difficulty controlling anger.

74. A method of treating a subject having ADHD and a symptom of disruptive behavior comprising administering a therapeutically effective amount of a nonselective metabotropic glutamate receptor (mGluR) activator to a subject that has ADHD and a symptom of disruptive behavior and at least one genetic alteration in a mGluR network gene, thereby treating ADHD and alleviating the symptom of disruptive behavior.

75. A method of treating a subject having ADHD and a symptom of movement disorder comprising administering a therapeutically effective amount of a nonselective metabotropic glutamate receptor (mGluR) activator to a subject that has ADHD and a symptom of movement disorder and at least one genetic alteration in a mGluR network gene, thereby treating ADHD and alleviating the symptom of movement disorder.

76. The method of any one of claims 69-75, wherein the nonselective mGluR activator is fasoracetam, such as fasoracetam monohydrate.

77. The method of claim 76, wherein the fasoracetam is administered at a dose of 50-400 mg, such as 100-400 mg, or 100-200 mg, or 200-400 mg, or 100 mg, or 200 mg, or

300 mg, or 400 mg, and wherein the dose is administered once, twice, or three times daily.

78. The method of claim 76, wherein the fasoracetam is administered at a dose of 100 mg, 200 mg, 300 mg, or 400 mg twice daily, such as 100-200 mg twice daily or 200-400 mg twice daily.

79. The method of any one of claims 69-75, wherein the genetic alteration is a copy number variation (CNV).

CLAIMS

1. Use of Fasoracetam in the manufacture of a medicament for treating 22q deletion and/or duplication syndrome, wherein an effective amount of fasoracetam is to be administered to a subject with 22q deletion and/or duplication syndrome, thereby treating 22q deletion and/or duplication syndrome.

2. The use according to claim 1, wherein the subject has a genetic alteration, such as a point mutation, insertion, deletion, or copy number variation (CNV) in RANBP1.

3. The use according to any one of claims 1 or 2, wherein the subject has a deletion or a duplication at 22q11.2.

4. The use according to any one of claims 1 to 3, wherein the subject has a genetic alteration in at least one metabotropic glutamate receptor (mGluR) network gene, such as a Tier 1, Tier 2, or Tier 3 gene.

5. The use according to any one of claims 1 to 4, wherein the subject has attention deficit hyperactivity disorder (ADHD).

6. The use according to any one of claims 1 to 5, wherein the subject is a pediatric or adolescent subject, such as a subject between the ages of 5 and 17, 8 and 17, 5 and 12, 5 and 8, 8 and 12, or 12 and 17.

7. The use according to any one of claims 1 to 5, wherein the subject is an adult subject.

8. The use according to any one of claims 1 to 7, wherein the fasoracetam is fasoracetam monohydrate.

9. The use according to claim 8, wherein the fasoracetam is to be administered at a dose of 50-400 mg, such as 100-400 mg, or 100-200 mg, or 200-400 mg, or 100 mg, or 200 mg, or 300 mg, or 400 mg, and wherein the dose is to be administered once, twice, or three times daily.

10. The use according to any one of claims 1 to 9, wherein the fasoracetam is to be administered in combination with at least one of the following:

(i) a stimulant, such as methylphenidate, dexmethylphenidate, amphetamine, dextroamphetamine, or lisdexamphetamine; and/or

(ii) a nonstimulant, such as atomoxetine, clonidine, or guanfacine; and/or

(iii) an antidepressant, such as fluoxetine, escitalopram, bupropion, mirtazapine, amitriptyline, imipramine, venlafaxine, sertraline, paroxetine, tricyclic antidepressants, selective serotonin reuptake inhibitors, serotonin and norepinephrine reuptake inhibitors, norepinephrine and dopamine reuptake inhibitors, or monoamine oxidase inhibitors; and/or

(iv) an anxiolytic, such as barbiturates, pregabalin, or benzodiazepines, including chlordiazepoxide, clorazepate, diazepam, flurazepam, halazepam, prazepam, lorazepam, lormetazepam, oxazepam, temazepam, clonazepam, flunitrazepam,

nimetazepam, nitrazepam, adinazolam, alprazolam, estazolam, triazolam, climazolam, loprazolam, or midazolam; and/or

(v) an anti-psychotic, such as aripiprazole or risperidone; and/or

(vi) a beta blocker, such as acebutolol, atenolol, betaxolol, bisoprolol, esmolol, nebivolol, metoprolol, cartelol, penbutolol, pindolol, carvedilol, labetalol, levobunolol, metipranolol, nadolol, propranolol, sotalol, or timolol; and/or

(vii) a non-pharmaceutical therapy, such as brain stimulation, for example vagus nerve stimulation, repetitive transcranial magnetic stimulation, magnetic seizure therapy, and/or deep brain stimulation.

11. The use according to any one of claims 1 to 10, wherein the subject has at least one of oppositional defiant disorder (ODD), anxiety disorder, conduct disorder, Tourette's syndrome, autism, difficulty controlling anger, disruptive behavior, a mood disorder, a phobia, obsessive compulsive disorder (OCD), dermatillomania, a developmental disorder, or a movement disorder.

12. The use according to any one of claims 1 to 10, wherein the subject does not have at least one of oppositional defiant disorder (ODD), anxiety disorder, conduct disorder, Tourette's syndrome, autism, difficulty controlling anger, disruptive behavior, a mood disorder, a phobia, obsessive compulsive disorder (OCD), dermatillomania, a developmental disorder, or a movement disorder.

13. The use according to claim 12, wherein the subject does not have any of ODD, conduct disorder, anxiety disorder, Tourette's syndrome, autism, difficulty controlling

anger, disruptive behavior, a mood disorder, a phobia, obsessive compulsive disorder (OCD), dermatillomania, a developmental disorder, or a movement disorder.

14. The use according to any one of claims 1 to 13, wherein the subject has oppositional defiant disorder (ODD) and wherein the method treats ODD in the subject, such as by reducing symptoms of anger and irritability, argumentation and defiance, and/ or vindictiveness.

15. The use according to any one of claims 1 to 14, wherein 22q deletion and/or duplication syndrome is deemed treated if at least one symptom of attention deficit hyperactivity disorder (ADHD) is improved in the subject, such as impulsiveness, hyperactivity, or inattentiveness