network gene, such as a copy number variation (CNV) or single nucleotide variation (SNV). Also provided herein are methods of treating conduct disorder, comprising administering an effective amount of a nonselective activator of metabotropic glutamate receptors (mGluRs) to a subject that has at least one genetic alteration in an mGluR network gene, such as a CNV, thereby treating conduct disorder. In some embodiments, where the subject has a CNV in a mGluR network gene, the CNV is a duplication or deletion.

[008a] In one aspect of the disclosure, there is provided a use of fasoracetam in the preparation of a medicament for treating conduct disorder in a subject, wherein an effective amount of fasoracetam is to be administered to the subject, thereby treating conduct disorder.

[009] Also provided are methods of treating conduct disorder in a subject comprising obtaining results from a genetic screen that determines whether a subject has a genetic alteration in an mGluR network gene, and, if the results show that the subject has at least one genetic alteration in an mGluR network gene, treating the subject by administering an effective amount of a nonselective activator of mGluRs.

[0010] In some embodiments, a method for treating conduct disorder is provided comprising administering an effective amount of a nonselective activator of metabotropic glutamate receptors (mGluRs) to a subject, wherein the subject has at least one symptom of conduct disorder, thereby treating conduct disorder. In some embodiments, a method for treating conduct disorder is provided comprising administering an effective amount of a nonselective activator of metabotropic glutamate receptors (mGluRs) to a subject, wherein the subject has at least one symptom of conduct disorder and at least one genetic

alteration in an mGluR network gene, thereby treating conduct disorder. The skilled artisan can identify symptoms of conduct disorder, for example, by referring to the *Diagnostic and Statistical Manual of Mental Disorders Fifth Edition* (DSM-5) (2013). Symptoms

conduct disorder if the genetic information suggests that the subject has at least one genetic alteration in a mGluR network gene.

[0016a] In another aspect of the disclosure, there is provided a method for diagnosing conduct disorder in a subject comprising: analyzing a sample comprising nucleic acid which has been isolated from the subject, for the presence or absence of a copy number variation (CNV) in at least one metabotropic glutamate receptor (mGluR) network gene, and diagnosing conduct disorder if the subject has at least one genetic alteration in a mGluR network gene.

[0017] Provided herein also are methods of confirming a diagnosis of conduct disorder in a subject comprising: obtaining a nucleic acid-comprising sample from a subject diagnosed with conduct disorder by a method that does not comprise detecting or analyzing genetic alterations in mGluR network genes; optionally amplifying the nucleic acid in the sample; and determining whether the subject has at least one genetic alteration, such as a CNV, in an mGluR network gene, and confirming a diagnosis of conduct disorder if the subject has at least one genetic alteration in an mGluR network gene.

[0018] In any of the above methods, the analysis for the presence or absence of at least one genetic alteration in an mGluR network gene may comprise the use of microarrays, whole genome sequencing, exome sequencing, targeted sequencing, FISH, comparative genomic hybridization, genome mapping, or other methods using next-generation sequencing, Sanger sequencing, PCR, or TaqMan technologies.

[0019] In some embodiments, the subject has CNVs in one, two, or more mGluR network genes. In some embodiments, the methods comprise detecting CNVs in

mGluR network genes by subjecting the sample to a screen that assesses CNVs in at least 2, 3, 4, 5, 6, 7, 8, 9, or 10 mGluR network genes. In some embodiments, CNVs in mGluR network genes are determined by subjecting the sample to a screen that assesses CNVs in at least 5, 6, 7, 8, 9, 10, 15, 20, 30, 40, 50, 60, 70, or all of Tier 1 mGluR network genes. In some embodiments, CNVs in mGluR network genes are determined by subjecting the sample to a screen that assesses CNVs in at least 50, at least 100, at least

What is Claimed is:

1. Use of fasoracetam in the preparation of a medicament for treating conduct disorder in a subject, wherein an effective amount of fasoracetam is to be administered to the subject, thereby treating conduct disorder.

2. The use according to claim 1, wherein the subject has at least one genetic alteration in a metabotropic glutamate receptor (mGluR) network gene.

3. The use according to claim 1 or claim 2, wherein the treatment further comprises obtaining results from a genetic screen that determines whether a subject has a genetic alteration in an mGluR network gene.

4. The use according to claim 2 or claim 3, wherein the genetic alteration is a copy number variation (CNV).

5. The use according to claim 4, wherein the CNV is a deletion or a duplication.

6. The use according to any one of claims 1-5, wherein fasoracetam is to be administered at a dose of 50-400 mg, 100-400 mg, or 200-400 mg, and wherein the dose to be is administered once, twice, or three times daily.

7. The use according to any one of claims 1-6, wherein the patient treated has antisocial personality disorder.

8. The use according to any one of claims 1-7, wherein the subject is between the ages of 5 and 17, 5 and 8, 8 and 17, 8 and 12, 12 and 18, 13 and 18, or 12 and 17.

9. The use according to any one of claims 1-8, wherein the fasoracetam is to be administered in combination with another pharmaceutical or non-pharmaceutical therapy.

10. The use according to claim 9, wherein fasoracetam is to be administered in combination with an antipsychotic agent.

11. The use according to any one of claims 1-10, wherein symptoms of inattentiveness, hyperactivity, and/or impulsiveness are reduced in the subject after at

least 1 week, such as at least 2 weeks, at least 3 weeks, or at least 4 weeks of treatment with the activator.

12. The use according to any one of claims 1-11, wherein symptoms of aggression or antisocial behavior are reduced in the subject after at least 1 week, such as at least 2 weeks, at least 3 weeks, or at least 4 weeks of treatment with the activator.

13. A method for diagnosing conduct disorder in a subject comprising:

(a) analyzing a sample comprising nucleic acid which has been isolated from the subject, for the presence or absence of a copy number variation (CNV) in at least one metabotropic glutamate receptor (mGluR) network gene, and

(b) diagnosing conduct disorder if the subject has at least one genetic alteration in a mGluR network gene.

14. The method according to claim 13, wherein the method comprises detecting CNVs in mGluR network genes by subjecting the sample to a screen that assesses CNVs in at least 2, 3, 4, 5, 6, 7, 8, 9, or 10 mGluR network genes.

15. The method according to claim 14, wherein CNVs in mGluR network genes are determined by subjecting the sample to a screen that assesses CNVs in at least 5, 6, 7, 8, 9, 10, 15, 20, 30, 40, 50, 60, 70, or all of Tier 1 mGluR network genes.

16. The method according to claim 14 or claim 15, wherein CNVs in mGluR network genes are determined by subjecting the sample to a screen that assesses CNVs in at least 50, at least 100, at least 150, at least 175, or all of Tier 2 mGluR network genes.

17. The method according to claim 14, 15, or 16, wherein CNVs in mGluR network genes are determined by subjecting the sample to a screen that assesses CNVs in at least 50, at least 100, at least 200, at least 300, at least 400, at least 500, or all of Tier 3 mGluR network genes.

18. The method according to any one of claims 14-17, wherein the method comprises detecting CNVs in mGluR network genes by subjecting the sample to a screen that assesses CNVs in at least 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 30, 40, 50, 60, 70, or all of Tier 1 mGluR network genes; and at least 50, at least 100, at least 150, at least 175, or all

of Tier 2 mGluR network genes; and at least 50, at least 100, at least 200, at least 300, at least 400, at least 500, or all of Tier 3 mGluR network genes.

19. The use according to any one of claims 1-13, wherein the subject has conduct disorder as well as one or more of ADHD, ODD, anxiety disorder, Tourette syndrome, phobia, or depression.

20. The use according to any one of claims 1-13, wherein the subject has one or more of the following phenotypic changes after at least 1 week, such as at least 2 weeks, at least 3 weeks, or at least 4 weeks of treatment with the activator:

(a) the subject has difficulty controlling anger and the anger control symptoms are improved;

(b) the subject has disruptive behaviors and the disruptive behaviors are reduced;

(c) the subject's CGI-I is reduced by at least 1 or by at least 2; the subject's CGI-I score after one, two, three, or four weeks of treatment is 1 or 2;

(d) the subject's CGI-S score after one, two, three, or four weeks of treatment is 1; 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%;

(e) the subject has symptoms of inattentiveness and the inattentiveness symptoms are reduced; the subject has symptoms of hyperactivity and the hyperactivity symptoms are reduced;

(f) the subject has symptoms of impulsiveness and the impulsiveness symptoms are reduced;

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

(h) the subject has symptoms of anxiety and the anxiety symptoms are reduced;

(i) the subject has symptoms of Tourette's syndrome, and the Tourette's syndrome symptoms are reduced;

(j) the subject has symptoms of autism, and the autism symptoms are reduced; and

(k) the subject has symptoms of movement disorder and the movement disorder symptoms are reduced.