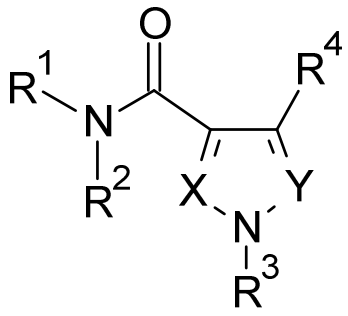
CLAIMS

1. A compound of Formula (1):



(1)

or a salt thereof, wherein;

X is N or CR^5;

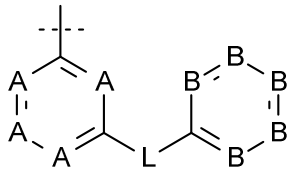
Y is N or CR^6;

R^1 is H, C_{1-6} alkyl optionally substituted with OH or 1 to 6 fluorine atoms, C_{3-6} cycloalkyl optionally substituted with OH or 1 to 6 fluorine atoms, wherein when the C_{1-6} alkyl or C_{3-6} cycloalkyl group is not substituted with OH, one atom of the C_{1-6} alkyl or C_{3-6} cycloalkyl group may be optionally replaced by an O atom which is not directly attached to the N or attached to a carbon atom which is directly attached to the N; or R^1 is joined to R^2 to form a 4, 5, 6 or 7-membered ring which is optionally substituted with OH or 1 to 6 fluorine atoms;

R^2 is H or C_{1-3} alkyl optionally substituted with OH or 1 to 6 fluorine atoms; or R^2 is joined to R^1 to form a 4, 5, 6 or 7-membered ring which is optionally substituted with OH or 1 to 6 fluorine atoms;

R^4, R^5 and R^6 are independently selected from H, CN, halo, C_{1-6} alkyl optionally substituted with OH or 1 to 6 fluorine atoms, C_{3-6} cycloalkyl optionally substituted with OH or 1 to 6 fluorine atoms and C_{1-6} alkoxy optionally substituted with 1 to 6 fluorine atoms, wherein when the C_{1-6} alkyl or C_{3-6} cycloalkyl group is not substituted with OH, one atom of the C_{1-6} alkyl or C_{3-6} cycloalkyl group may be optionally replaced by O;

R^3 is a group of the formula:



wherein, each A is independently N or CR^7;

L is CH_2 or CHOH;

each B is independently N, CR^8, CR^9 or CR^{10};

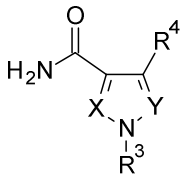
R^7 is selected from H, halo, CN and C_{1-3} alkyl optionally substituted with 1 to 6 fluorine atoms;

R^8, R^9 and R^{10} are independently selected from H, CN, halo, C_{1-6} alkyl optionally substituted with 1 to 6 fluorine atoms and C_{1-6} alkoxy optionally substituted with 1 to 6 fluorine atoms, wherein one atom of the C_{1-6} alkyl group may be optionally replaced by a heteroatom selected from O, N, S and oxidised forms thereof.

2. The compound according to claim 1, wherein R^1 is selected from: H, methyl, oxetanyl, CH_2CH_2OH and $CH_2CH_2OCH_3$, or wherein R^1 is joined to R^2 to form a 5-membered ring.

3. The compound according to claim 1 or claim 2, wherein R^2 is H or methyl, or is joined to R^1 to form a 5-membered ring.

4. The compound according to claim 1, which is a compound of formula (2a):



(2a);

or a salt thereof.

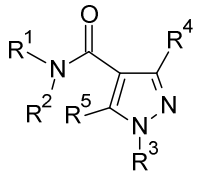
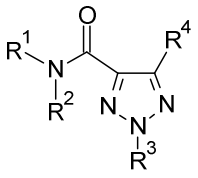
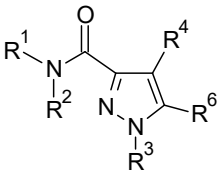
5. The compound according to any one of claims 1 to 4, wherein X is N, CH, CCH_3 or CCH_2OH.

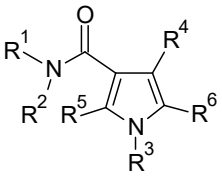
6. The compound according to any one of claims 1 to 5, wherein Y is N, CH or CCH_3.

7. The compound according to any one of claims 1 to 6, wherein R^4 is selected from: H, methyl, methoxy, Cl, CHF_2, CF_3, ethyl, CN, cyclopropyl, CH_2OH and CH_2OCH_3.

8. The compound according to any one of claims 1 to 4, wherein, R^5 and R^6 are independently selected from H, methyl and CH_2OH.

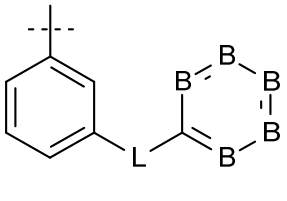
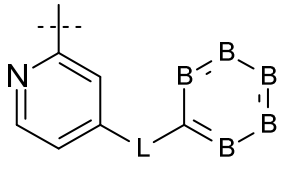
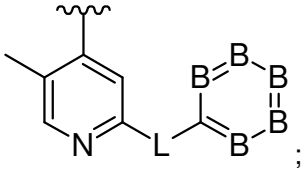
9. The compound according to claim 1, which is a compound of formula (3a), (3b), (3c) or (3d):

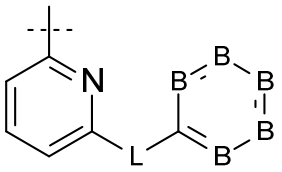
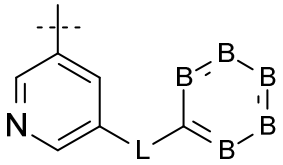
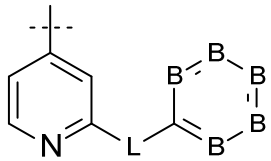
 (3a);  (3b);  (3c);

 (3d);

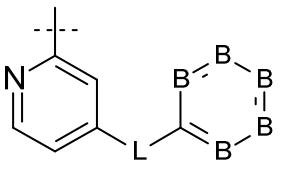
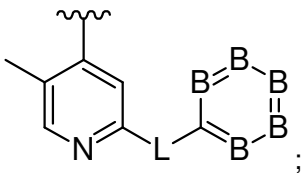
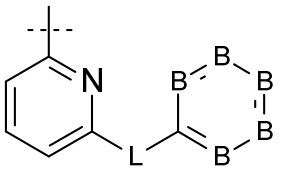
or a salt thereof.

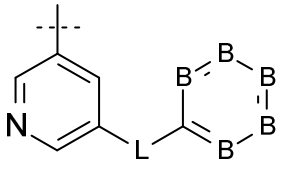
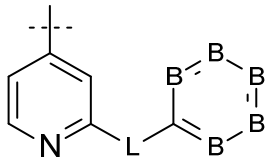
10. The compound according to any one of claims 1 to 9, wherein R^3 is:

 ;  ;  ;

 ;  ; or  .

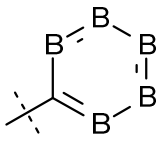
11. The compound according to any one of claims 1 to 9, wherein R^3 is:

 ;  ;  ;

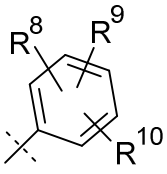
 ; or  .

12. The compound according to any one of claims 1 to 11, wherein L is CH_2.

13. The compound according to any one of claims 1 to 12, wherein the group:



is:



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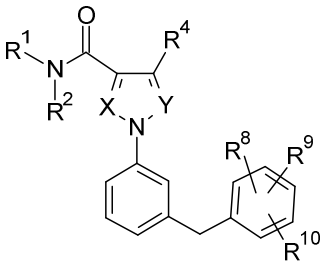
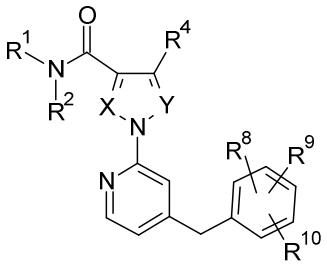
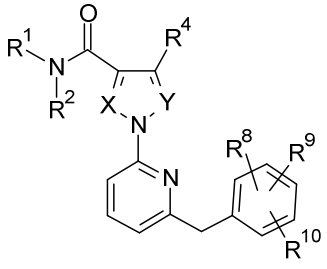
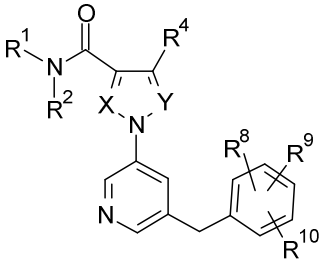
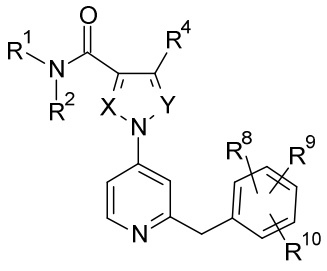
14. The compound according to claim 1 which is a compound of formula (4a), (4b), (4c), (4d), (4e) or (4f):

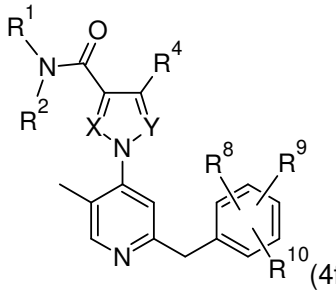
 (4a);

 (4b);

 (4c);

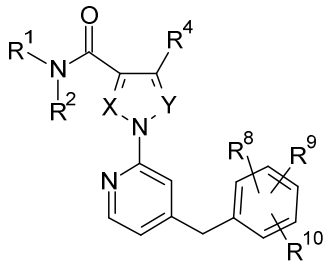
 (4d);

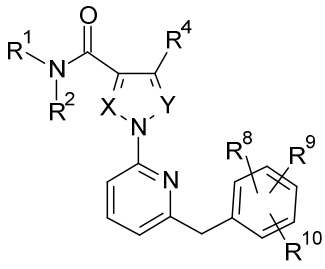
 (4e);

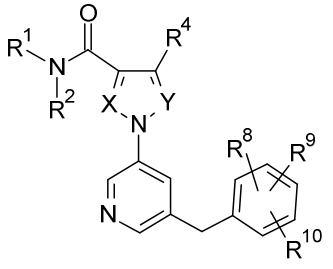
 (4f);

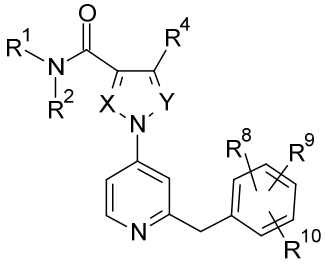
or a salt thereof.

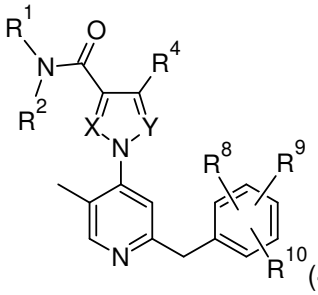
15. The compound according to claim 1 which is a compound of formula (4b), (4c), (4d), (4e) or (4f):


(4b);


(4c);


(4d);

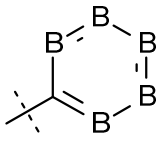

(4e);


(4f);

or a salt thereof.

16. The compound according to any one of claims 13 to 15, wherein R^8, R^9 and R^{10} are independently selected from H, F, CHF_2 and CF_3.

17. The compound according to any one of claims 1 to 12, wherein the group:



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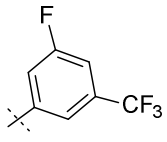
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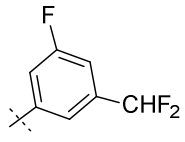
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18. The compound according to claim 1 which is selected from the group consisting of:

1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-1*H*-pyrazole-4-carboxamide;

1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-1*H*-pyrazole-4-carboxamide;
1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-*N*-methyl-1*H*-pyrazole-4-carboxamide;
2-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-2*H*-1,2,3-triazole-4-carboxamide;
1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-3-methyl-1*H*-pyrazole-4-carboxamide;
1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-3,5-dimethyl-1*H*-pyrazole-4-carboxamide;
1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-5-methyl-1*H*-pyrazole-4-carboxamide;
1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-3-methyl-1*H*-pyrazole-4-carboxamide;
1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-1*H*-pyrazole-3-carboxamide;
1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-4-methyl-1*H*-pyrazole-3-carboxamide;
1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-3-methoxy-1*H*-pyrazole-4-carboxamide;
2-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-5-methyl-2*H*-1,2,3-triazole-4-carboxamide;
2-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-5-methyl-2*H*-1,2,3-triazole-4-carboxamide;
1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-3-methoxy-1*H*-pyrazole-4-carboxamide;
1-(6-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-4-methyl-1*H*-pyrazole-3-carboxamide;
(1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-3-methyl-1*H*-pyrazol-4-yl)(pyrrolidin-1-yl)methanone;
1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-*N*,3-dimethyl-1*H*-pyrazole-4-carboxamide;
1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-*N*,*N*,3-trimethyl-1*H*-pyrazole-4-carboxamide;
1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-3-methyl-*N*-(oxetan-3-yl)-1*H*-pyrazole-4-carboxamide;
1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-*N*-(2-hydroxyethyl)-3-methyl-1*H*-pyrazole-4-carboxamide;
1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-*N*-(2-methoxyethyl)-3-methyl-1*H*-pyrazole-4-carboxamide;
3-chloro-1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-1*H*-pyrazole-4-carboxamide;
3-(difluoromethyl)-1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-1*H*-pyrazole-4-carboxamide;
1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-3-(trifluoromethyl)-1*H*-pyrazole-4-carboxamide;
3-ethyl-1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-1*H*-pyrazole-4-carboxamide;
3-cyano-1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-1*H*-pyrazole-4-carboxamide;

3-cyclopropyl-1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-1*H*-pyrazole-4-carboxamide;

1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-*N*,5-dimethyl-1*H*-pyrazole-3-carboxamide;

1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-1*H*-pyrazole-3-carboxamide;

1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-5-methyl-1*H*-pyrazole-3-carboxamide;

1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-*N*-methyl-1*H*-pyrazole-3-carboxamide;

1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-*N*,*N*-dimethyl-1*H*-pyrazole-3-carboxamide;

(1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-1*H*-pyrazol-3-yl)(pyrrolidin-1-yl)methanone;

1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-*N*-(oxetan-3-yl)-1*H*-pyrazole-3-carboxamide;

1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-*N*-(2-hydroxyethyl)-1*H*-pyrazole-3-carboxamide;

1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-*N*-(2-methoxyethyl)-1*H*-pyrazole-3-carboxamide;

1-(4-(3-(difluoromethyl)-5-fluorobenzyl)pyridin-2-yl)-3-methyl-1*H*-pyrazole-4-carboxamide;

1-(4-(3-(difluoromethyl)-5-fluorobenzyl)pyridin-2-yl)-1*H*-pyrazole-3-carboxamide;

1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-5-(hydroxymethyl)-3-methyl-1*H*-pyrazole-4-carboxamide;

1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-*N*-(2-hydroxyethyl)-5-(hydroxymethyl)-3-methyl-1*H*-pyrazole-4-carboxamide;

1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-5-(hydroxymethyl)-3-methyl-1*H*-pyrazole-4-carboxamide;

1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-*N*-(2-hydroxyethyl)-5-(hydroxymethyl)-3-methyl-1*H*-pyrazole-4-carboxamide;

1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-5-(hydroxymethyl)-*N*,3-dimethyl-1*H*-pyrazole-4-carboxamide;

1-(4-(3-(difluoromethyl)-5-fluorobenzyl)pyridin-2-yl)-5-(hydroxymethyl)-3-methyl-1*H*-pyrazole-4-carboxamide;

1-(4-{[3-(difluoromethyl)-5-fluorophenyl]methyl}pyridin-2-yl)-*N*,3-dimethyl-1*H*-pyrazole-4-carboxamide;

1-(4-(3-(difluoromethyl)-5-fluorobenzyl)pyridin-2-yl)-*N*-methyl-1*H*-pyrazole-3-carboxamide;

1-(6-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-3-(hydroxymethyl)-1*H*-pyrazole-4-carboxamide;

1-(6-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-3-(hydroxymethyl)-*N*-methyl-1*H*-pyrazole-4-carboxamide;
1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-4-(hydroxymethyl)-1*H*-pyrazole-3-carboxamide;
1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-4-(hydroxymethyl)-*N*-methyl-1*H*-pyrazole-3-carboxamide;
1-(6-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-4-(hydroxymethyl)-1*H*-pyrazole-3-carboxamide;
1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)-5-methylpyridin-4-yl)-3-methyl-1*H*-pyrazole-4-carboxamide;
1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-3-(hydroxymethyl)-5-methyl-1*H*-pyrazole-4-carboxamide;
1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-5-(hydroxymethyl)-1*H*-pyrazole-3-carboxamide;
1-(2-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-4-yl)-*N*-methyl-1*H*-pyrazole-3-carboxamide;
2-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-*N*-methyl-2*H*-1,2,3-triazole-4-carboxamide;
1-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-*N*,4-dimethyl-1*H*-pyrazole-3-carboxamide;
2-(4-(3-fluoro-5-(trifluoromethyl)benzyl)pyridin-2-yl)-*N*,5-dimethyl-2*H*-1,2,3-triazole-4-carboxamide;
1-(2-((3-fluoro-5-(trifluoromethyl)phenyl)(hydroxy)methyl)pyridin-4-yl)-3-methyl-1*H*-pyrazole-4-carboxamide;
or a salt thereof.

19. The compound according to any one of claims 1 to 18 having GPR52 receptor modulator activity.

20. The compound according to any one of claims 1 to 18 for use as a GPR52 receptor agonist.

21. A pharmaceutical composition comprising a compound as defined in any one of claims 1 to 20 and a pharmaceutically acceptable excipient.

22. The compound according to any one of claims 1 to 20 or composition according to claim 21 for use in medicine.

23. Use of ~~T~~the compound according to any one of claims 1 to 20 or composition according to claim 21 for ~~use in~~ the manufacture of a medicament for the treatment of psychiatric disorders; neuropsychiatric disorders; neurodegenerative disorders; psychotic disorders; cognitive disorders; neurocognitive disorders; extrapyramidal disorders; movement disorders; motor disorders; hyperkinetic movement disorders; catatonia; mood disorders; depressive disorders; anxiety disorders; obsessive-compulsive disorder (OCD); autism spectrum disorders; depressive disorders; hypothalamic disorders; pituitary disorders; prolactin-related disorders; trauma- or stressor-related disorders; disruptive, impulse-control or conduct disorders; sleep-wake disorders; substance-related disorders; addictive disorders; behavioral disorders; hypofrontality; abnormalities in the tuberoinfundibular, mesolimbic, mesocortical, or nigrostriatal pathway; decreased activity in the striatum; cortical dysfunction; neurocognitive dysfunction or conditions or symptoms related thereto.

24. The ~~compound or composition for~~ use according to claim 23, wherein the disorder or symptom is selected from schizophrenia, depression, attention-deficit hyperactivity disorder (ADHD), generalised anxiety disorder, obsessive-compulsive disorder (OCD), panic disorder, bipolar disorder, addiction/impulse-control disorders, autism spectrum disorders, psychosis, anhedonia, agitation, Alzheimer's disease, Parkinson's disease, Huntington's disease, vascular dementia, Lewy body disease, frontotemporal dementia, Tourette's syndrome, hyperprolactinemia, pituitary adenoma, prolactinoma, craniopharyngioma, Cushing's disease, diabetes insipidus, non-functioning tumours, obesity, posttraumatic stress disorder (PTSD), akathisia and associated movements, athetosis, ataxia, ballismus, hemiballismus, chorea, choreoathetosis, dyskinesia, tardive dyskinesia, neuroleptic-induced dyskinesia, myoclonus, mirror movement disorder, paroxysmal kinesigenic dyskinesia, restless legs syndrome, spasms, stereotypic movement disorder, sterotypy, Tic disorder, tremor, Wilson's disease, schizotypal personality disorder, delusional disorder, brief psychotic disorder, schizophreniform disorder, schizoaffective disorder, substance- or medication-induced psychotic disorder, delusions, hallucinations, disorganized thinking, grossly disorganized or abnormal motor behavior, catatonia, major depressive disorder, bipolar I disorder, bipolar II disorder, cyclothymic disorder, substance- or medication-induced bipolar and related disorders, bipolar and related disorders due to another medical condition, separation anxiety disorder, selective mutism, specific phobia, social anxiety disorder, panic disorder, agoraphobia, generalized anxiety disorder, substance- or medication-induced anxiety disorder, anxiety disorders due to another medical condition, delirium, major neurocognitive disorder, minor neurocognitive disorder, amnesia, dementia, developmental coordination disorder, stereotypic movement disorder, a post-stroke effect,

dentatorubral-pallidoluysian atrophy, diminished emotional expression, avolition, alogia and asociality.

25. The ~~compound or composition for~~ use according to claim 23, wherein the disorder or symptom is selected from schizophrenia, depression, attention-deficit hyperactivity disorder (ADHD), generalised anxiety disorder, obsessive-compulsive disorder (OCD), panic disorder, bipolar disorder, addiction/impulse-control disorders, autism spectrum disorders, psychosis, neurocognitive disorder, delirium, anhedonia, agitation, Alzheimer's disease, Parkinson's disease, Huntington's disease, vascular dementia, Lewy body disease, frontotemporal dementia, Tourette's syndrome, hyperprolactinemia, obesity, and posttraumatic stress disorder (PTSD).