

dementia with corticobasal degeneration, amyotrophic lateral sclerosis (ALS), Huntington's disease, multiple sclerosis, thalamic degeneration, Creutzfeld-Jacob dementia, HIV dementia, schizophrenia with dementia or Korsakoff's psychosis. In addition, the compounds of the present invention can be used for the treatment of Alzheimer's disease.

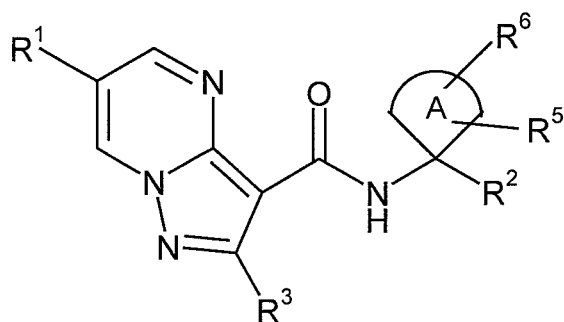
In addition compounds of the present invention can be used for the treatment of pain disorders, including but not limited to inflammatory, neuropathic and osteoarthritic pain.

In addition, the compounds of the present invention can be used for the treatment of sleep disorders, bipolar disorder, metabolic syndrome, obesity, diabetes mellitus, hyperglycemia, dyslipidemia, impaired glucose tolerance, or a disease of the testes, brain, small intestine, skeletal muscle, heart, lung, thymus or spleen.

Other aims of the present invention will become apparent to the skilled man directly from the foregoing and following remarks.

Summary

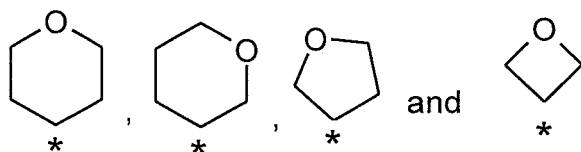
In a first aspect the present disclosure relates to a compound of formula (I)



(I)

wherein

A is selected from the group A^a consisting of



wherein above mentioned groups are substituted with one R⁵ and one R⁶;

- R^1 is selected from the group R^{1a} consisting of halogen, C_{1-3} -alkyl- and C_{3-6} -cycloalkyl- wherein the above mentioned C_{1-3} -alkyl-, and C_{3-6} -cycloalkyl- groups may optionally be substituted with 1 to 5 substituents independently selected from the group consisting of halogen, NC- and HO-;
- R^2 is selected from the group R^{2a} consisting of aryl and heteroaryl, wherein the above mentioned aryl and heteroaryl-groups may optionally be substituted with 1 to 5 substituents R^4 ;
- R^3 is selected from the group R^{3a} consisting of H- and C_{1-3} -alkyl-, wherein the above mentioned C_{1-3} -alkyl-groups may optionally be substituted with 1 to 7 substituents independently from each other selected from the group consisting of halogen;
- R^4 is independently from each other selected from the group R^{4a} consisting of halogen, NC-, HO-, C_{1-4} -alkyl- and C_{1-3} -alkyl-O- wherein the above mentioned C_{1-4} -alkyl- and C_{1-3} -alkyl-O-groups may optionally be substituted with 1 to 5 substituents independently selected from the group consisting of HO- and F-;

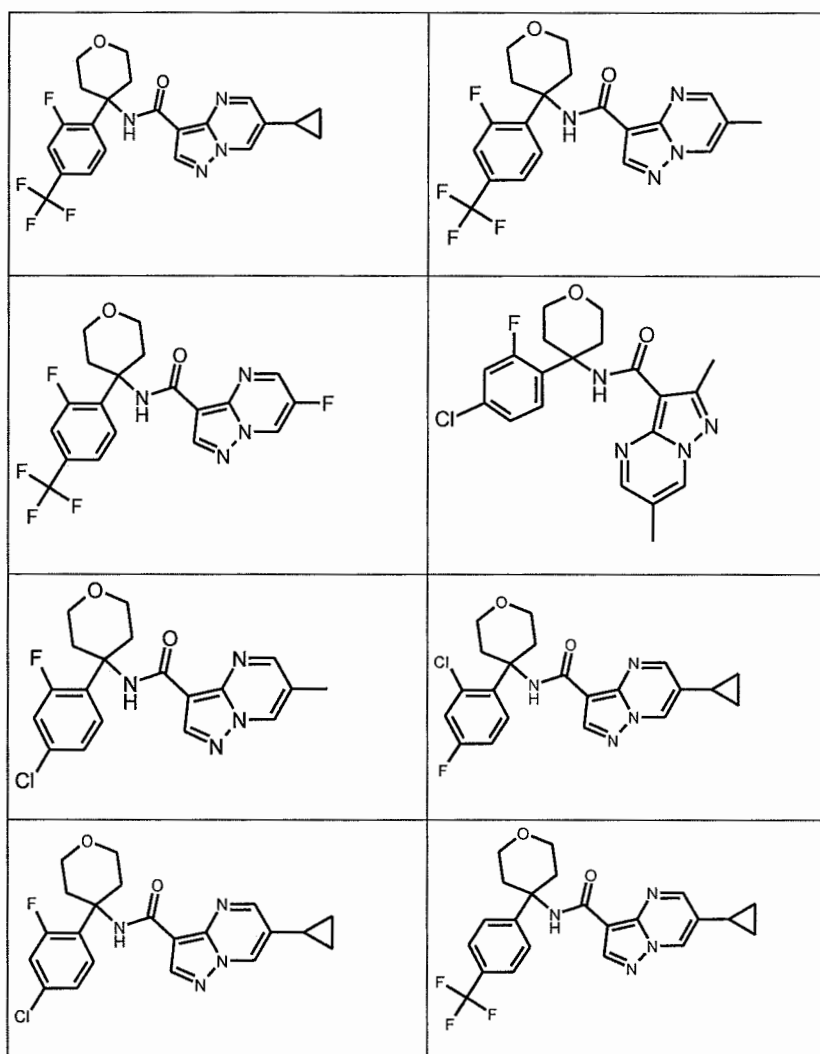
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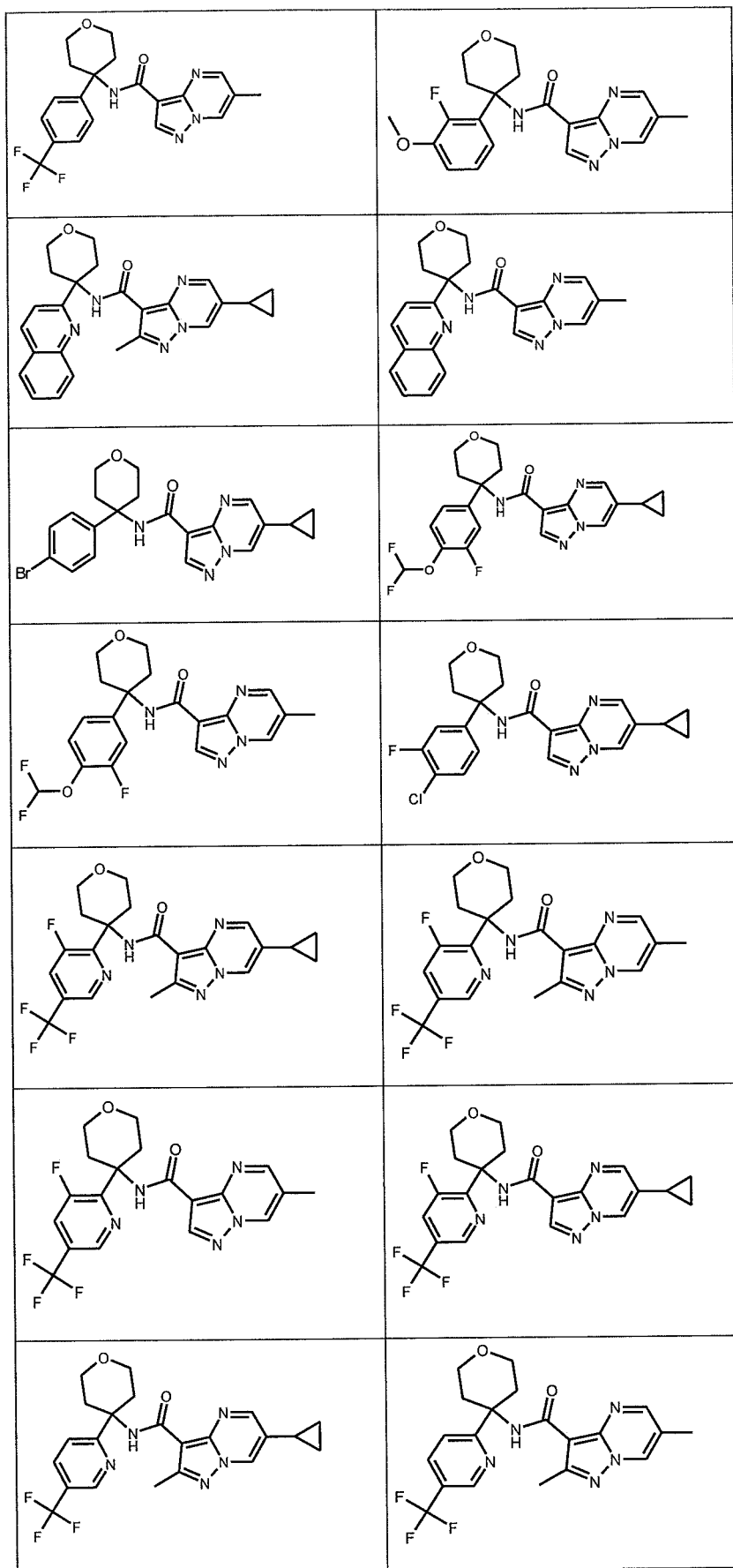
- R^5 is selected from the group R^{5a} consisting of H-, halogen, NC-, HO- and C_{1-3} -alkyl-, wherein the above mentioned C_{1-3} -alkyl-group may optionally be substituted with 1 to 5 substituents independently selected from the group consisting of HO- and F- or R^5 and R^6 together form an group O=;

R^6 is selected from the group R^{6a} consisting of
H-, halogen, NC-, HO- and C_{1-3} -alkyl-,
wherein the above mentioned C_{1-3} -alkyl-group may optionally be substituted
with 1 to 5 substituents independently selected from the group consisting of
HO- and F-
or R^5 and R^6 together form a group O=;
or a salt thereof.

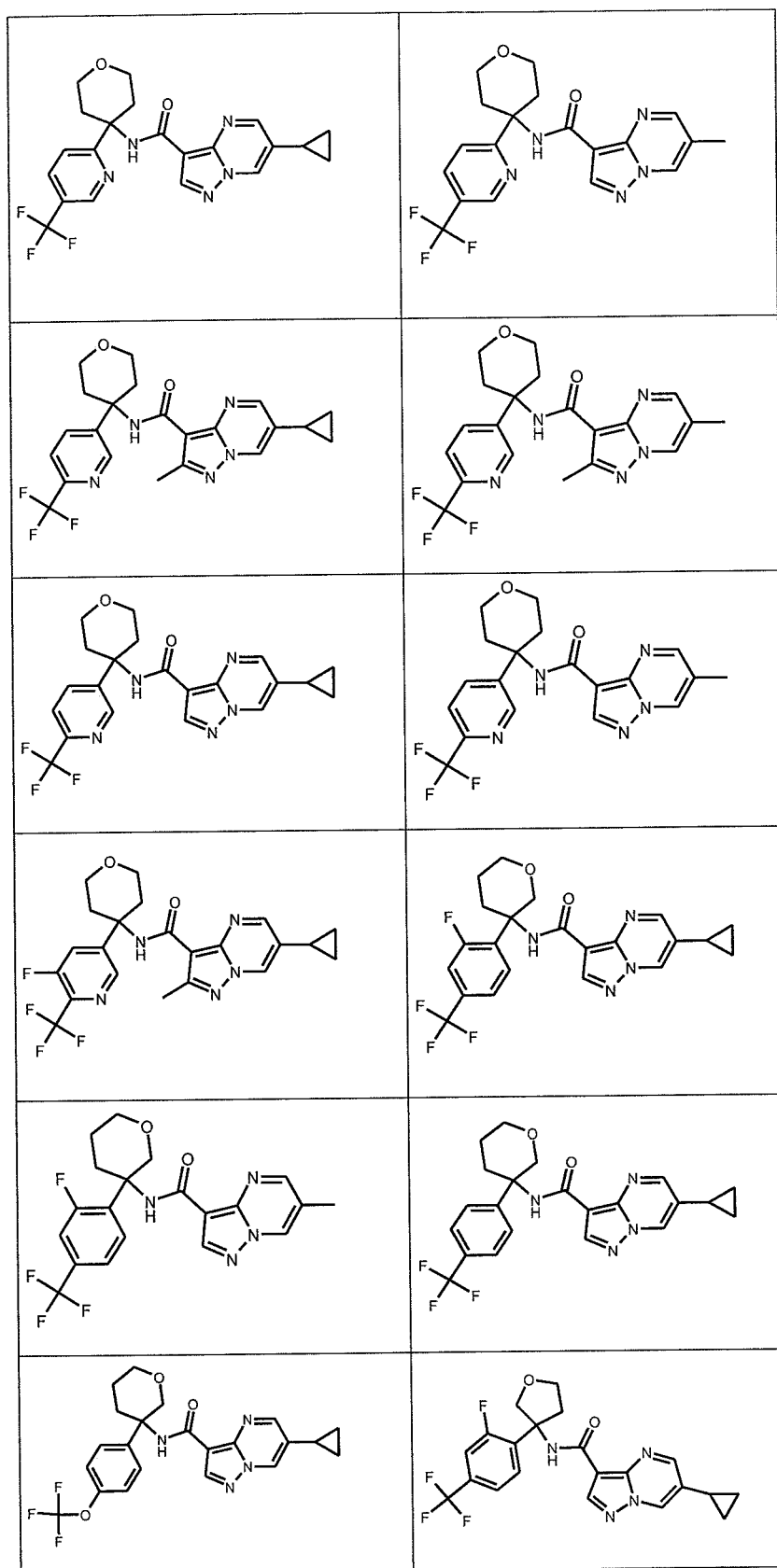
In another aspect, the present disclosure relates to a compound selected from the
group consisting of

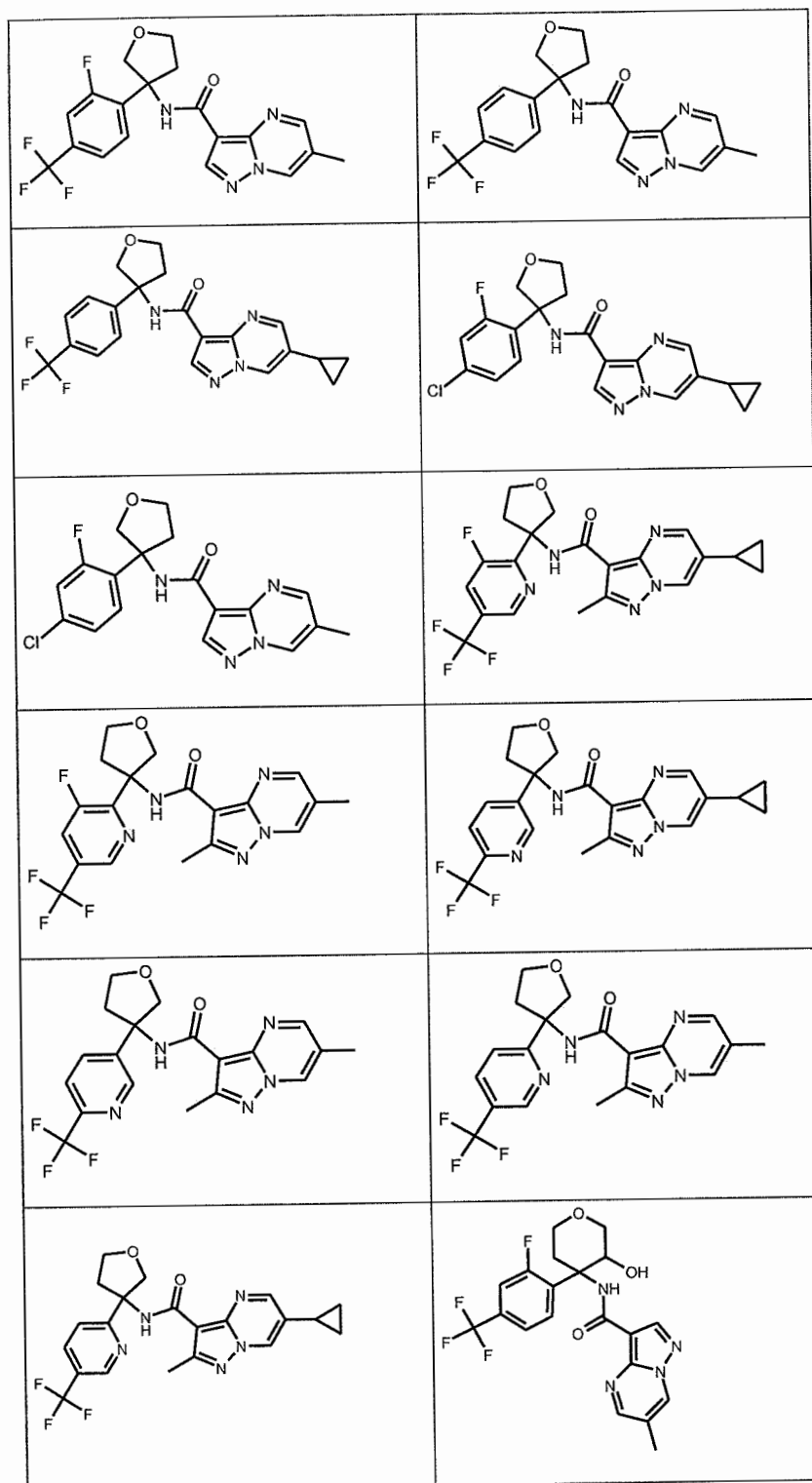
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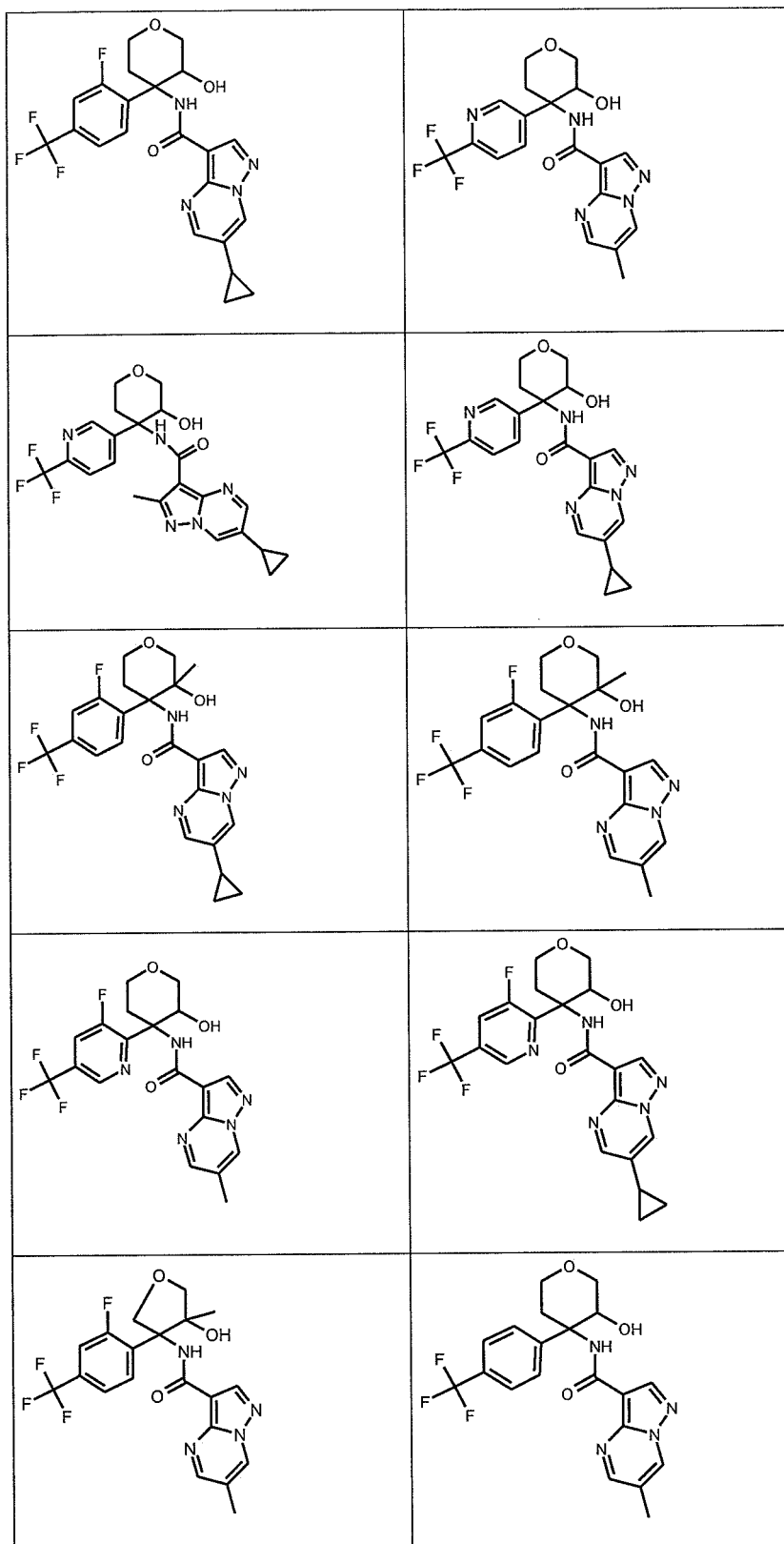


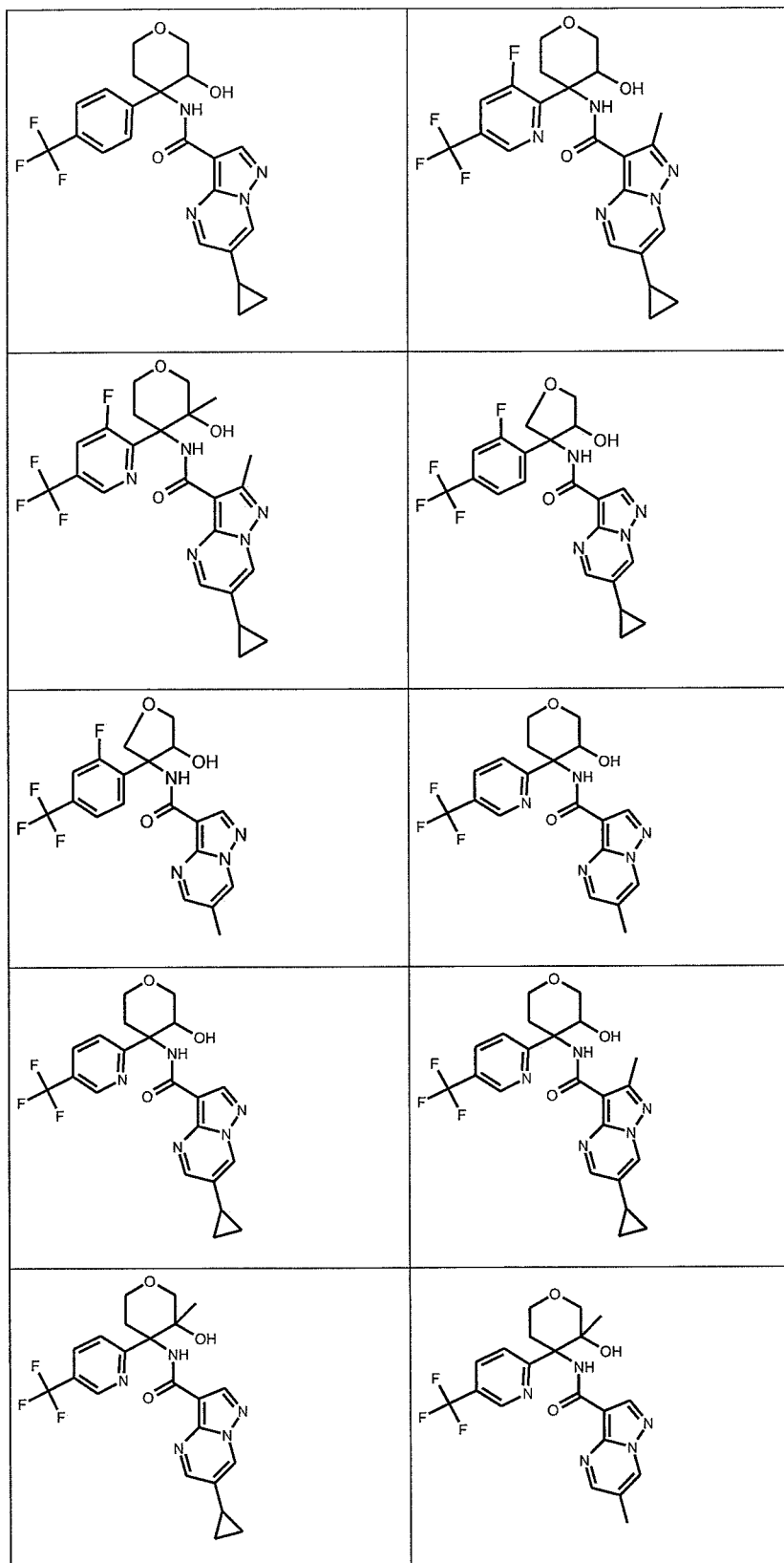


6d

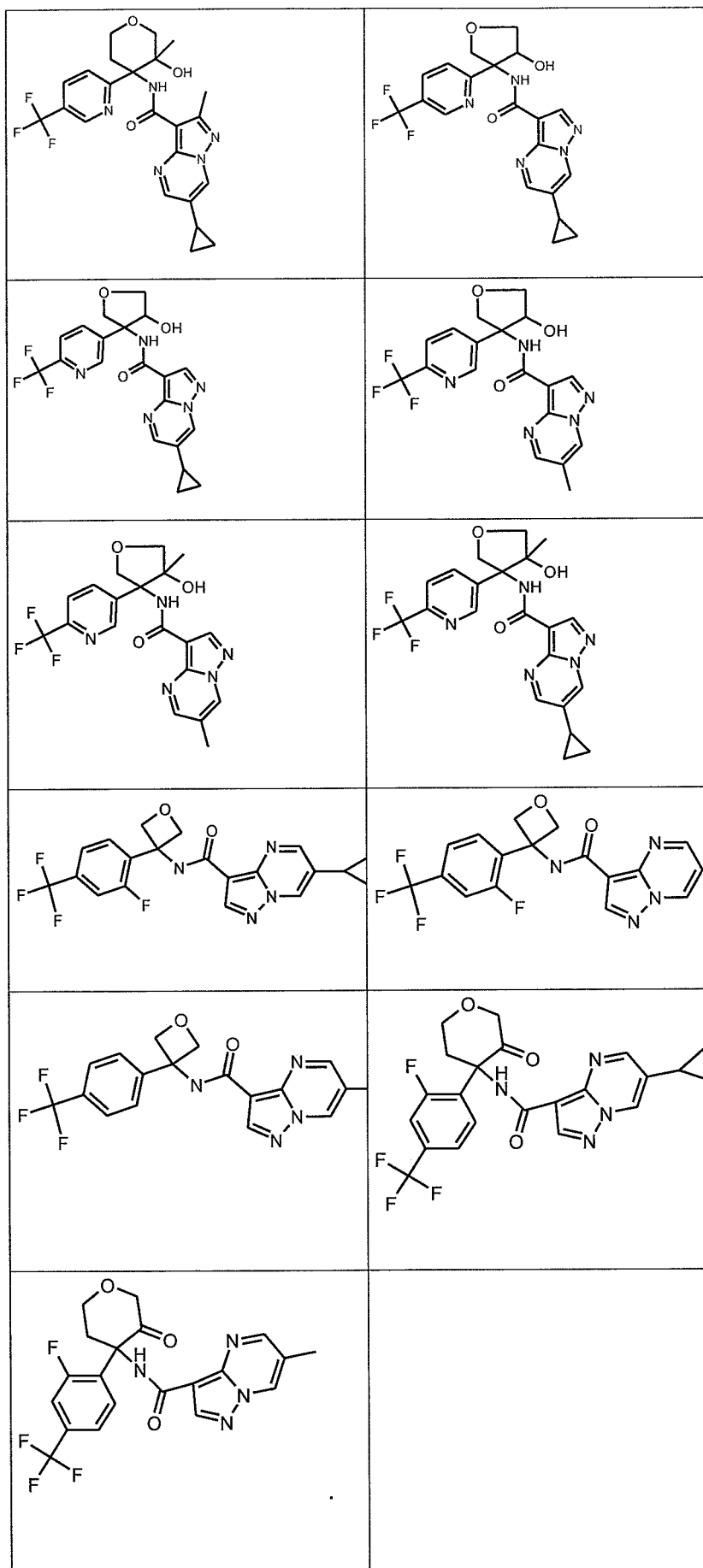




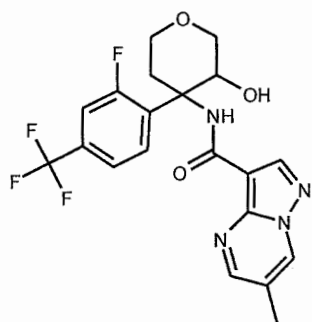




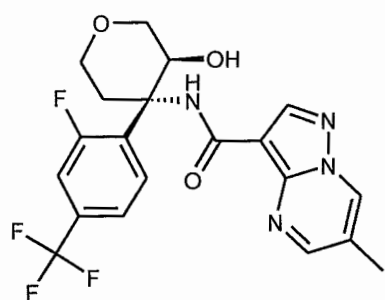
6h



In another aspect, the present disclosure relates to a compound of formula:

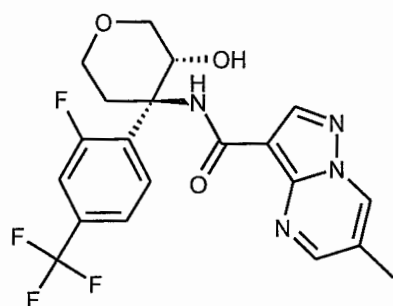


In another aspect, the present disclosure relates to a compound of formula:

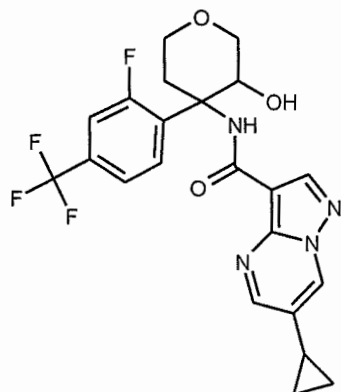


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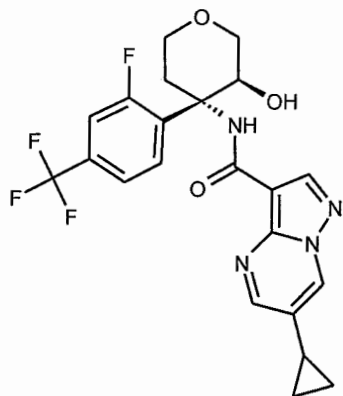
In another aspect, the present disclosure relates to a compound of formula:



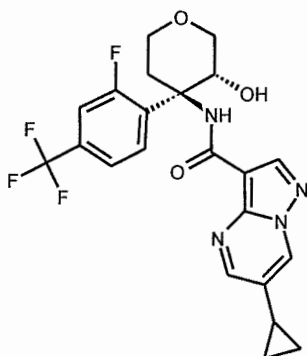
10 In another aspect, the present disclosure relates to a compound of formula:



In another aspect, the present disclosure relates to a compound of formula:

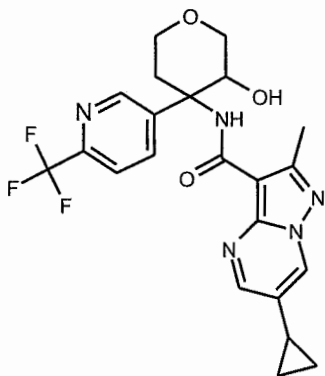


In another aspect, the present disclosure relates to a compound of formula:



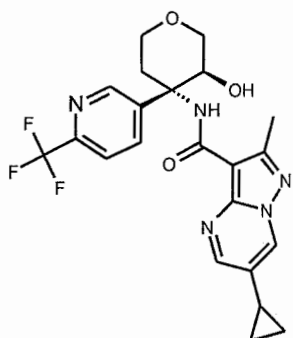
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In another aspect, the present disclosure relates to a compound of formula:

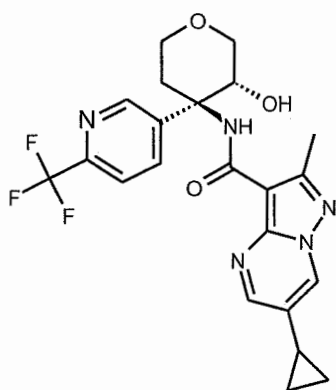


6k

In another aspect, the present disclosure relates to a compound of formula:

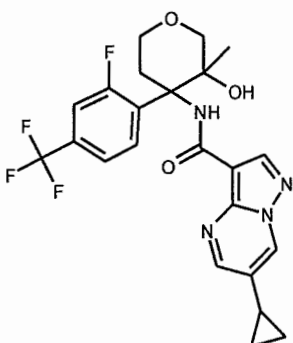


In another aspect, the present disclosure relates to a compound of formula:

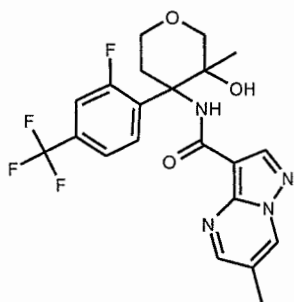


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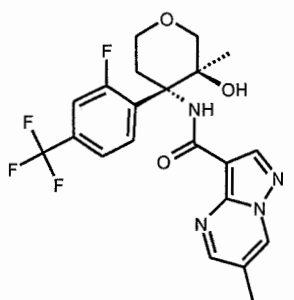
In another aspect, the present disclosure relates to a compound of formula:



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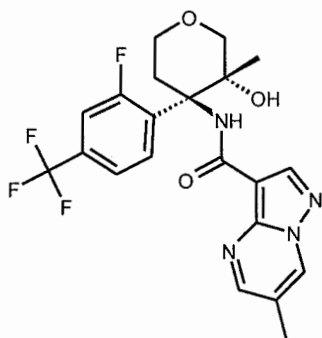


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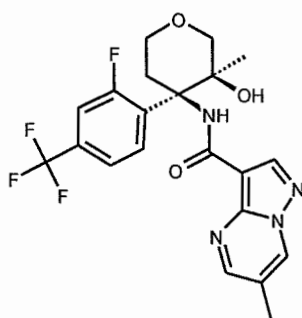


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In another aspect, the present disclosure relates to a compound of formula:

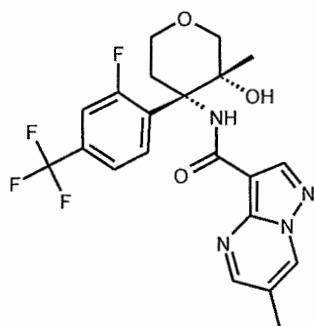


10 In another aspect, the present disclosure relates to a compound of formula:

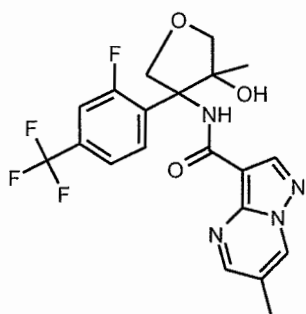


6m

In another aspect, the present disclosure relates to a compound of formula:

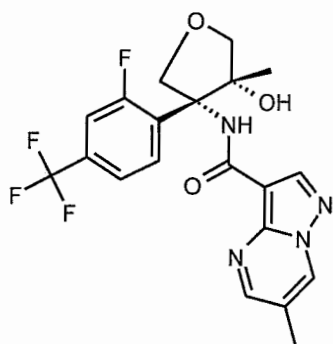


In another aspect, the present disclosure relates to a compound of formula:

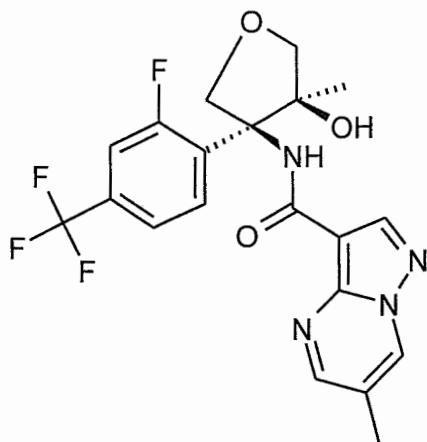


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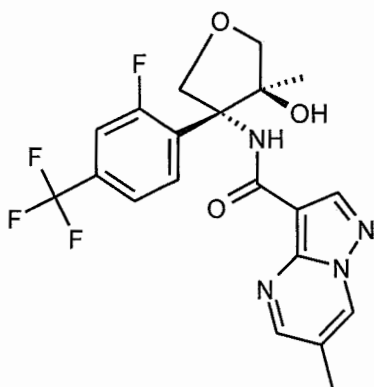
In another aspect, the present disclosure relates to a compound of formula:



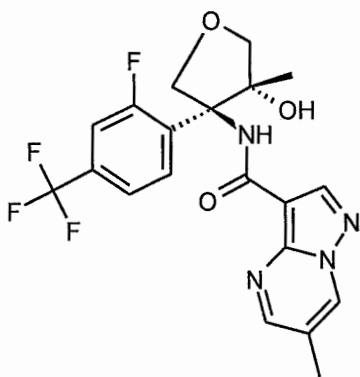
In another aspect, the present disclosure relates to a compound of formula:



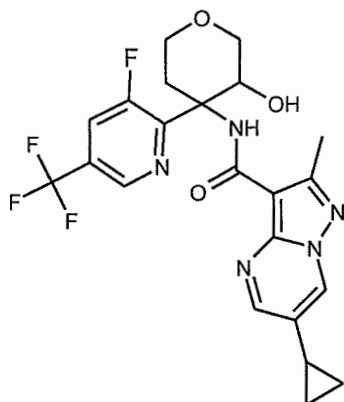
5 In another aspect, the present disclosure relates to a compound of formula:



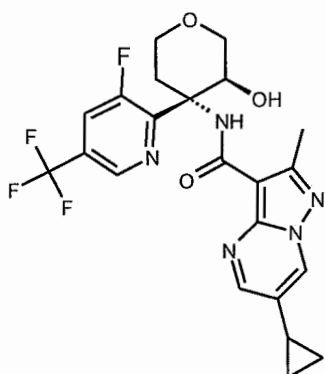
In another aspect, the present disclosure relates to a compound of formula:



In another aspect, the present disclosure relates to a compound of formula:

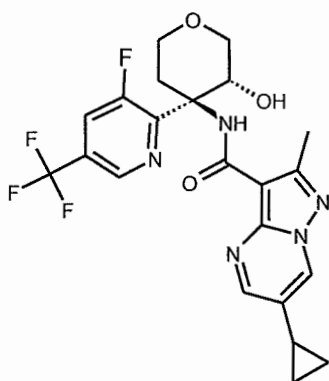


In another aspect, the present disclosure relates to a compound of formula:

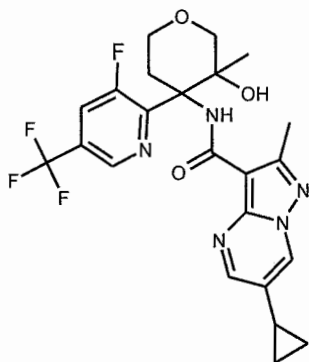


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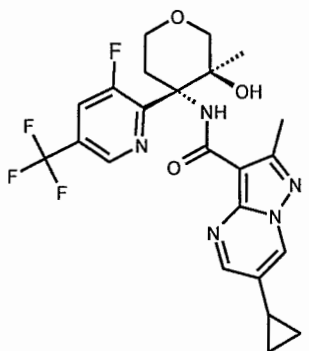
In another aspect, the present disclosure relates to a compound of formula:



In another aspect, the present disclosure relates to a compound of formula:

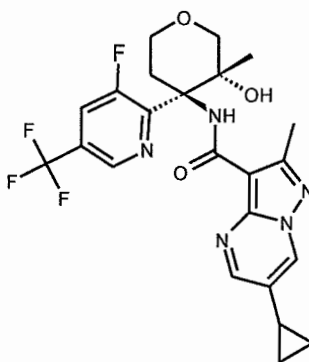


In another aspect, the present disclosure relates to a compound of formula:



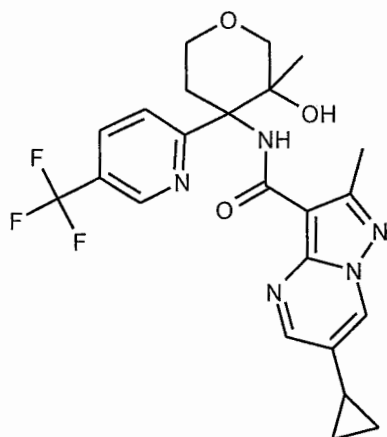
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In another aspect, the present disclosure relates to a compound of formula:



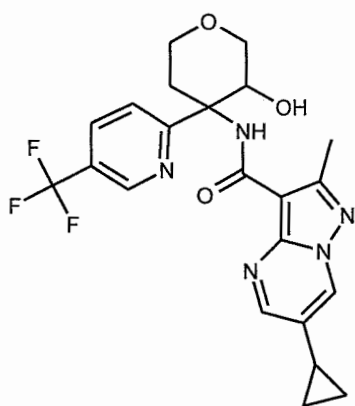
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In another aspect, the present disclosure relates to a compound of formula:

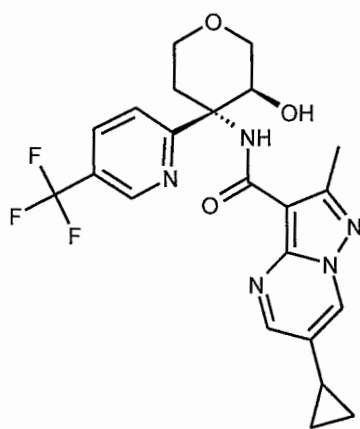


In another aspect, the present disclosure relates to a compound of formula:

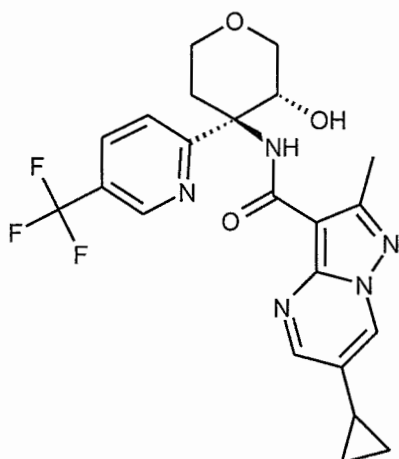
5



In another aspect, the present disclosure relates to a compound of formula:



In another aspect, the present disclosure relates to a compound of formula:



In another aspect, the present disclosure relates to a pharmaceutically acceptable
5 salt of any of the compounds of the present disclosure.

In another aspect, the present disclosure relates to a compound of the present disclosure, or a pharmaceutically acceptable salt thereof for use as a medicament.

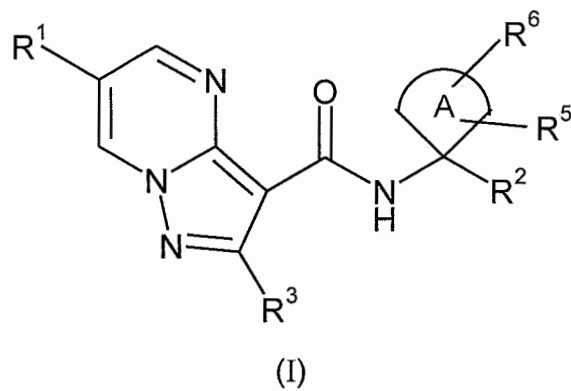
In another aspect, the present disclosure relates to pharmaceutical compositions
10 containing at least one compound of the present disclosure or a pharmaceutically acceptable salt thereof together with one or more pharmaceutically acceptable carrier.

In another aspect, the present disclosure relates to a compound of the present
15 disclosure, or a pharmaceutically acceptable salt thereof or a pharmaceutical composition of the present disclosure for use in the prevention or treatment of (1) disorders comprising the symptom of cognitive deficiency; (2) organic, including symptomatic, mental disorders, dementia; (3) mental retardation; (4) mood [affective] disorders; (5) neurotic, stress-related and somatoform disorders including anxiety
20 disorders; (6) behavioural and emotional disorders with onset usually occurring in childhood and adolescence, attention deficit hyperactivity syndrome (ADHD) and Autism spectrum disorders; (7) disorders of psychological development, developmental disorders of scholastic skills; (8) schizophrenia and other psychotic disorders; (9) disorders of adult personality and behaviour; (10) mental and
25 behavioural disorders due to psychoactive substance use; (11) extrapyramidal and movement disorders; (12) episodic and paroxysmal disorders, epilepsy;

(13) Systemic atrophies primarily affecting the central nervous system, ataxia; (14) Behavioural syndromes associated with physiological disturbances and physical factors; (15) sexual dysfunction comprising excessive sexual drive; (16) factitious disorders; (17) Treatment, amelioration and / or prevention of cognitive impairment being related to perception, concentration, cognition, learning or memory; (18) Treatment amelioration and / or prevention of cognitive impairment being related to age-associated learning and memory impairments; (19) Age-associated memory losses; (20) Vascular dementia; (21) Craniocerebral trauma; (22) Stroke; (23) Dementia occurring after strokes (post stroke dementia); (24) Post-traumatic dementia; (25) General concentration impairments; (26) Concentration impairments in children with learning and memory problems; (27) Alzheimer's disease; (28) Lewy body dementia; (29) Dementia with degeneration of the frontal lobes; including Pick's syndrome; (30) Parkinson's disease; (31) Progressive nuclear palsy; (32) Dementia with corticobasal degeneration; (33) Amyotrophic lateral sclerosis (ALS); (34) Huntington's disease; (35) Multiple sclerosis; (36) Thalamic degeneration; (37) Creutzfeld-Jacob dementia; (38) HIV dementia; (38) Schizophrenia with dementia or Korsakoff's psychosis; (39) Sleep disorders; (40) Bipolar disorder; (41) Metabolic syndrome; (42) Obesity; (43) Diabetis mellitus; (44) Hyperglycemia; (45) Dyslipidemia; (46) Impaired glucose tolerance; (47) Disease of the testes, brain, small intestine, skeletal muscle, heart, lung, thymus or spleen; (48) pain disorders; (49) neuropsychiatric symptoms (e.g. depressive symptoms in Alzheimer's disease); (50) mixed dementia; (51) cognitive impairment in schizoaffective disorder; (52) cognitive impairment in bipolar disorder; (53) cognitive impairment in major depressive disorder and (54) cognitive impairment associated with schizophrenia.

Detailed description

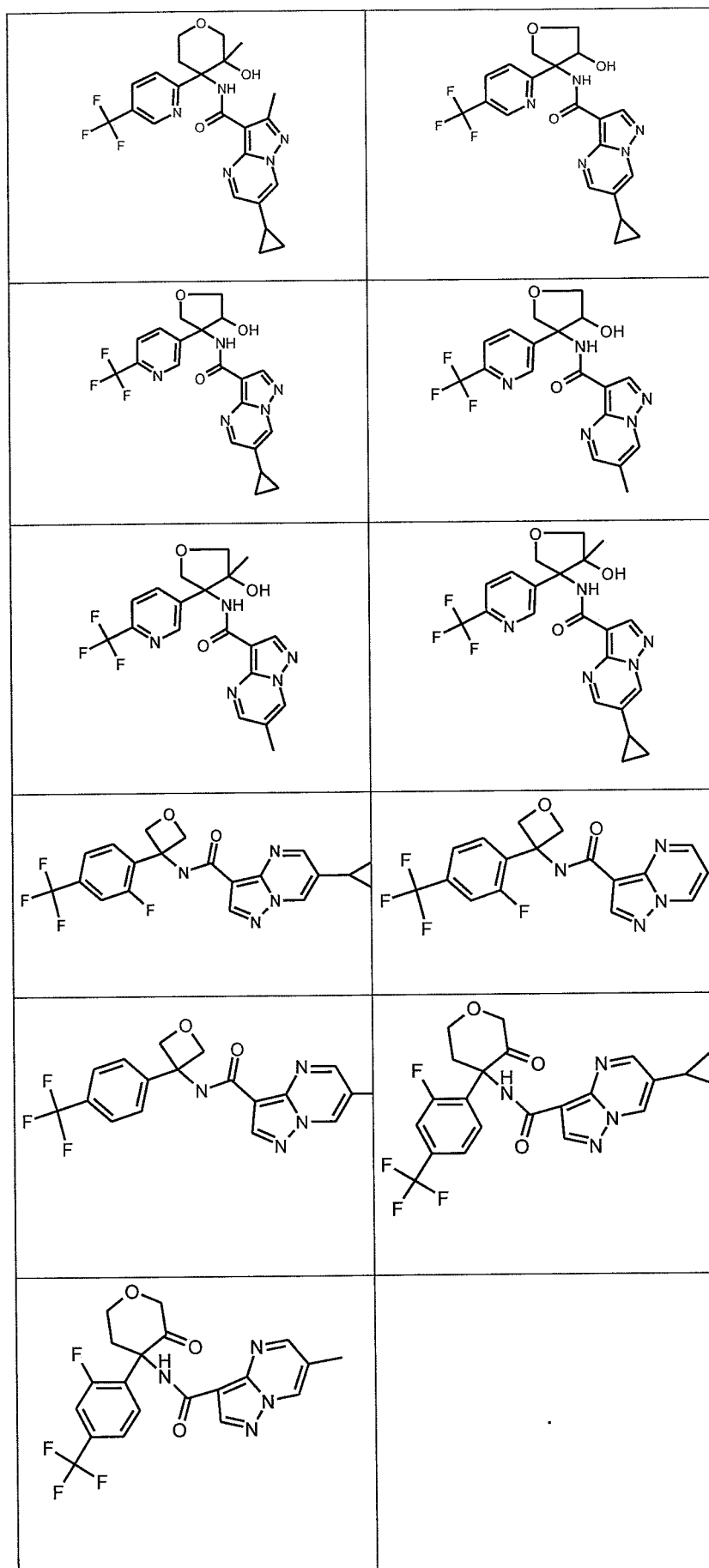
In a first aspect the present invention relates to compounds of general formula (I)



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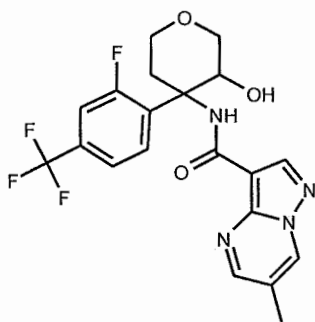
wherein

A is selected from the group A^a consisting of

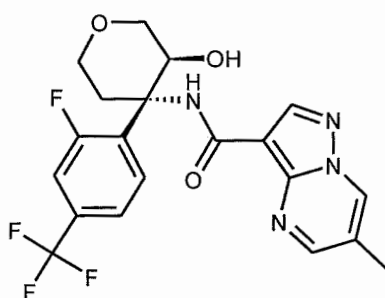


147a

14. A compound of formula:

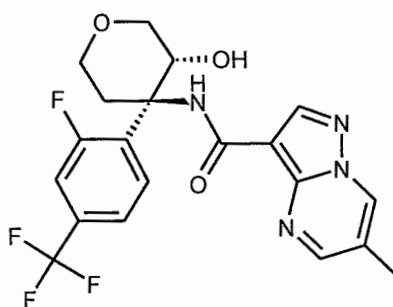


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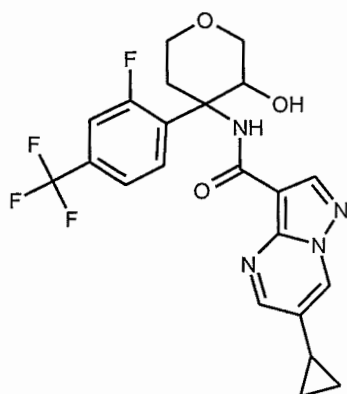


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16. A compound of formula:

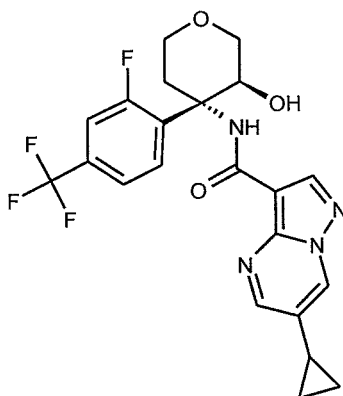


10 17. A compound of formula:

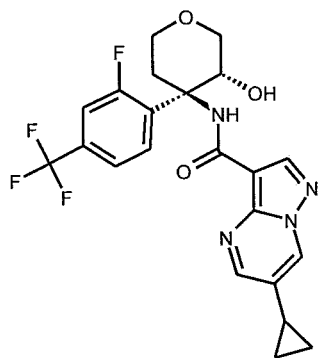


147b

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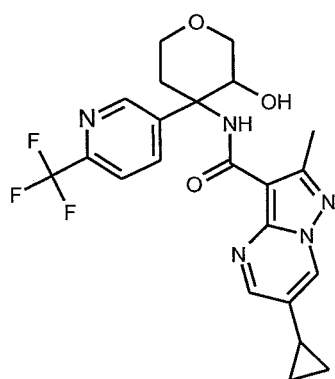


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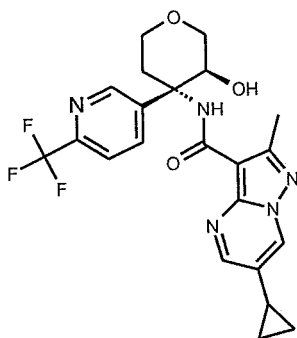
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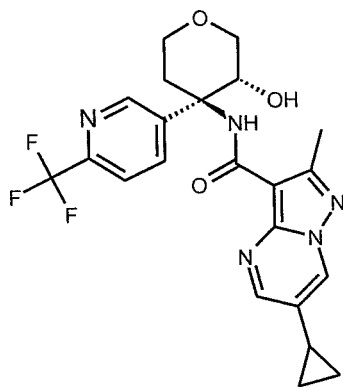


147c

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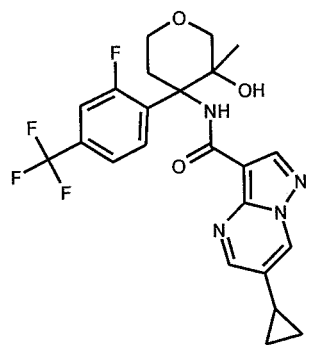


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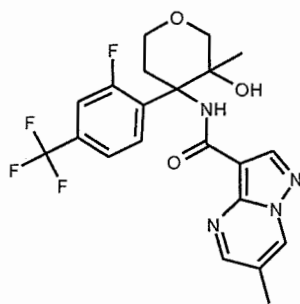


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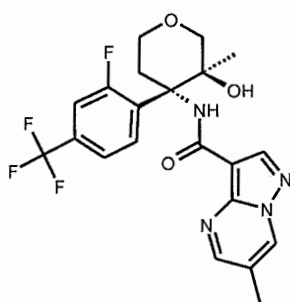
23. A compound of formula:



24. A compound of formula:

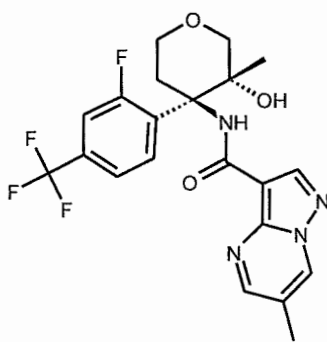


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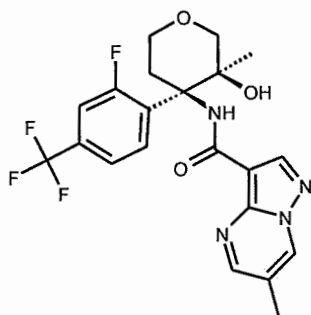


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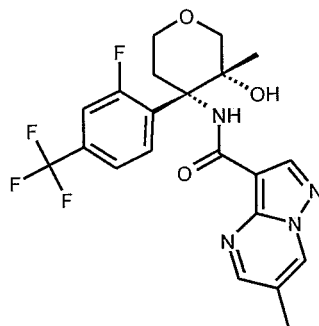


10 27. A compound of formula:

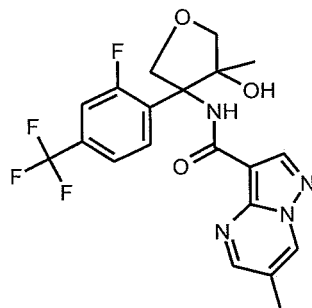


147e

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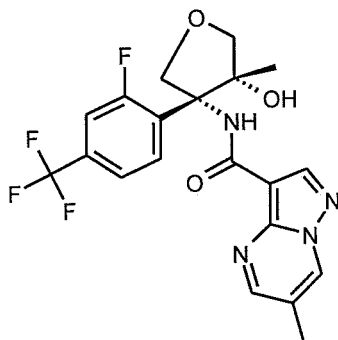


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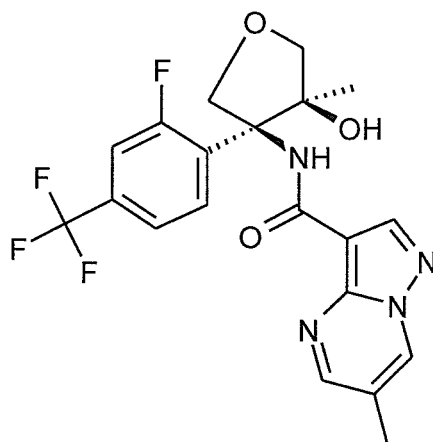


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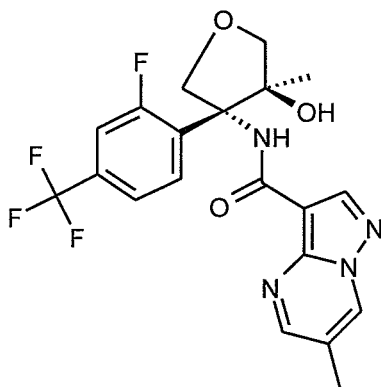
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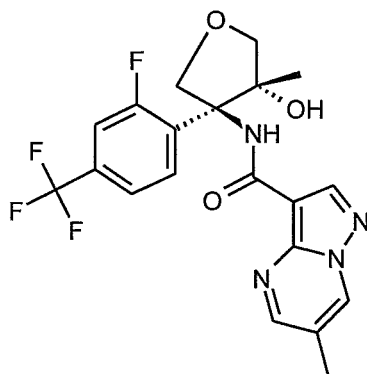
31. A compound of formula:



5 32. A compound of formula:

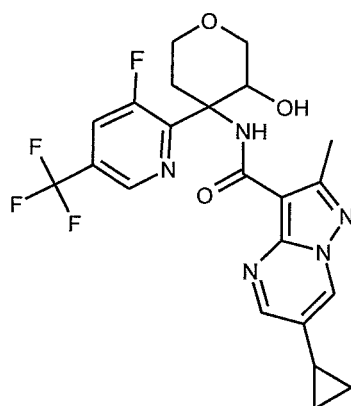


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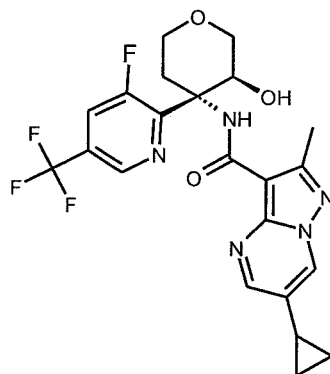


147g

34. A compound of formula:

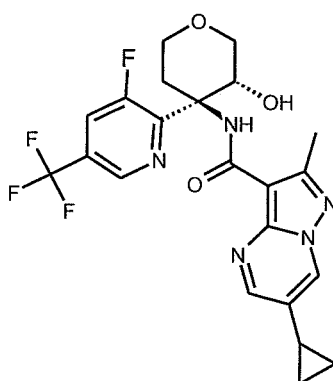


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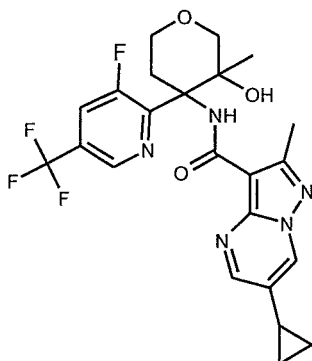
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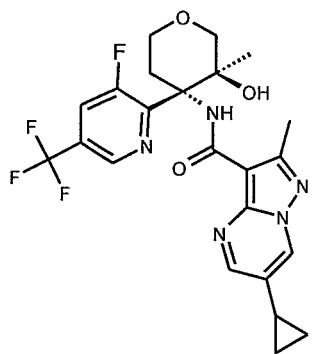


147h

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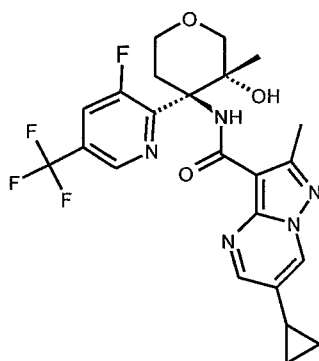


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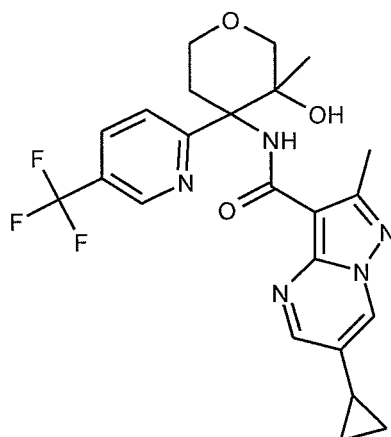
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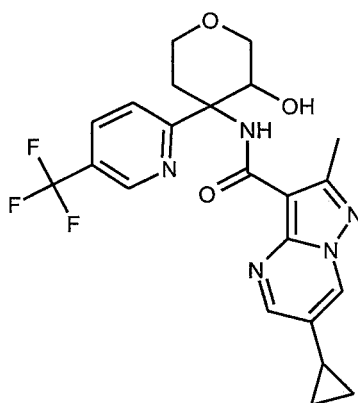
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40. A compound of formula:

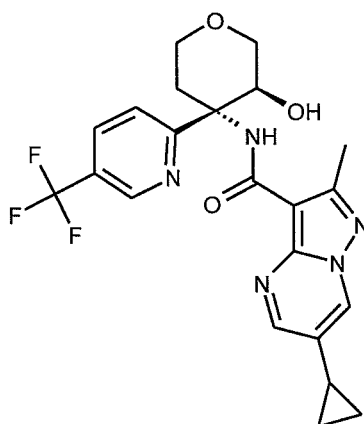


41. A compound of formula:

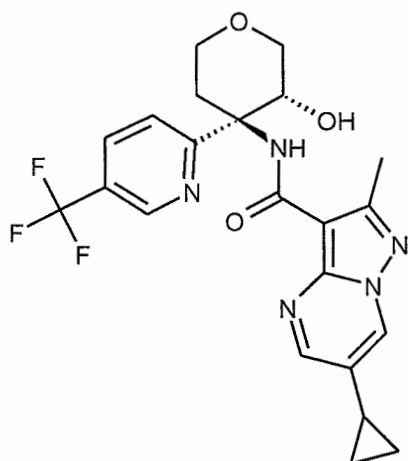
5



42. A compound of formula:



43. A compound of formula:



44. A pharmaceutically acceptable salt of any of the compounds according to claims

5 13 to 43.

45. A compound according to any one or more of claims 1 to 43, or a pharmaceutically acceptable salt thereof for use as a medicament.

46. Pharmaceutical compositions containing at least one compound according to one or more of the claims 1 to 43 or a pharmaceutically acceptable salt thereof together with one or more pharmaceutically acceptable carrier.

47. A compound according to one or more of claims 1 to 43, or a pharmaceutically acceptable salt thereof or a pharmaceutical composition according to claim 46 for use in the prevention or treatment of (1) disorders comprising the symptom of cognitive deficiency; (2) organic, including symptomatic, mental disorders, dementia; (3) mental retardation; (4) mood [affective] disorders; (5) neurotic, stress-related and somatoform disorders including anxiety disorders; (6) behavioural and emotional disorders with onset usually occurring in childhood and adolescence, attention deficit hyperactivity syndrome (ADHD) and Autism spectrum disorders; (7) disorders of psychological development, developmental disorders of scholastic skills; (8) schizophrenia and other psychotic disorders; (9) disorders of adult personality and behaviour; (10) mental and behavioural disorders due to psychoactive substance use; (11) extrapyramidal and movement disorders; (12) episodic and paroxysmal disorders, epilepsy; (13) Systemic atrophies primarily affecting the central nervous system, ataxia; (14) Behavioural syndromes associated with physiological disturbances and physical factors; (15) sexual dysfunction comprising excessive sexual drive; (16) factitious disorders; (17) Treatment, amelioration and / or prevention of cognitive impairment being related to perception, concentration, cognition, learning or memory; (18) Treatment amelioration and / or prevention of cognitive impairment being related to age-associated learning and memory impairments; (19) Age-associated memory losses; (20) Vascular dementia; (21) Craniocerebral trauma; (22) Stroke; (23) Dementia occurring after strokes (post stroke dementia); (24) Post-traumatic dementia; (25) General concentration impairments; (26) Concentration impairments in children with learning and memory

problems; (27) Alzheimer's disease; (28) Lewy body dementia; (29) Dementia with degeneration of the frontal lobes; including Pick's syndrome; (30) Parkinson's disease; (31) Progressive nuclear palsy; (32) Dementia with corticobasal degeneration; (33) Amyotrophic lateral sclerosis (ALS); (34) Huntington's disease; (35) Multiple sclerosis; (36) Thalamic degeneration; (37) Creutzfeld-Jacob dementia; (38) HIV dementia; (38) Schizophrenia with dementia or Korsakoff's psychosis; (39) Sleep disorders; (40) Bipolar disorder; (41) Metabolic syndrome; (42) Obesity; (43) Diabetes mellitus; (44) Hyperglycemia; (45) Dyslipidemia; (46) Impaired glucose tolerance; (47) Disease of the testes, brain, small intestine, skeletal muscle, heart, lung, thymus or spleen; (48) pain disorders; (49) neuropsychiatric symptoms (e.g. depressive symptoms in Alzheimer's disease); (50) mixed dementia; (51) cognitive impairment in schizoaffective disorder; (52) cognitive impairment in bipolar disorder; (53) cognitive impairment in major depressive disorder and (54) cognitive impairment associated with schizophrenia.