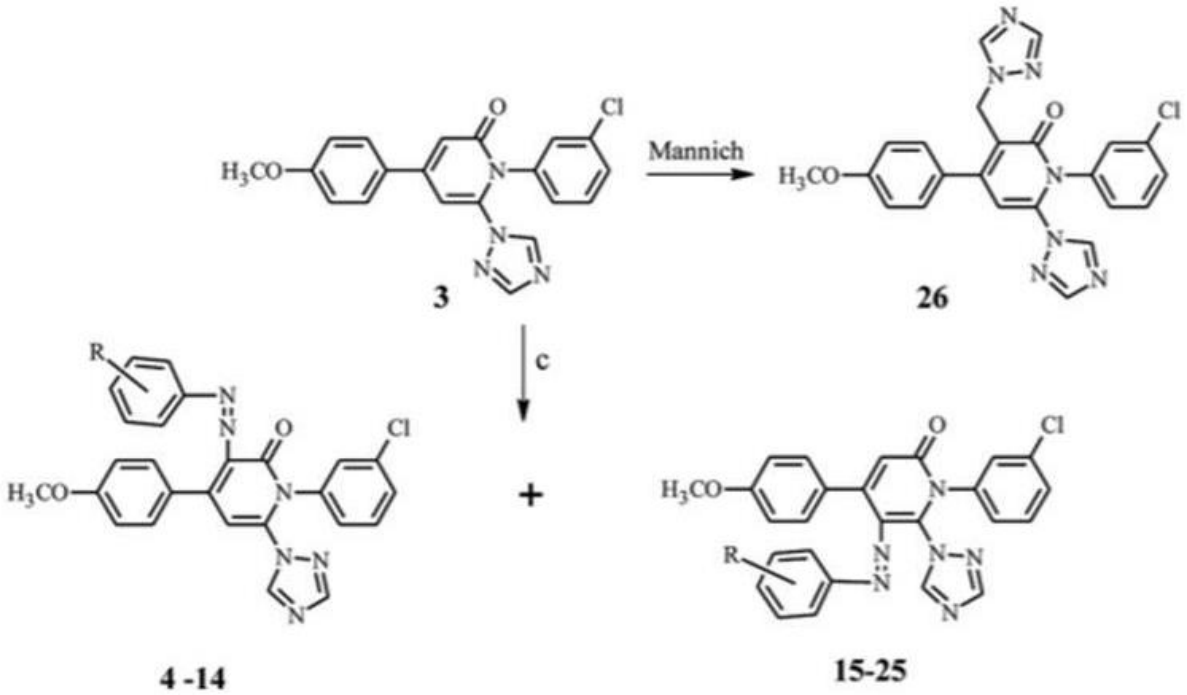
improvement in anhedonia-like behavior was observed (Nature 2018 554(7692):317-322). Together, these results suggest that GPR139 activity affects the neural activity of the habenular nucleus and may dramatically alter central nervous function or neuropsychiatric state.

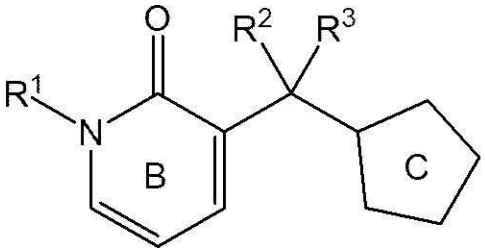
[0005] Antagonists (including inverse agonists) of the GPR139 receptor may be useful for treating CNS disorders such as depression, Alzheimer's disease, schizophrenia, drug addiction, sleep disorders, pain, and attention deficit hyperactivity disorder. Accordingly, there is a need for novel compounds exhibiting GPR139 receptor antagonist (including inverse agonist) action.

[0006] Certain heterocyclic compounds may be useful as antagonists of the GPR139 receptor. A method of synthesizing one class of heterocyclic compounds, derivatives of 6-(4H-1,2,4-triazol-4-yl)-2(1H)-pyridinones, has been previously described (Synthetic Communication 43:9, 1250-1262, 2013).



[0007] Disclosed herein are compounds exhibiting GPR139 receptor antagonist action, which may be useful in the treatment or prevention of depression, Alzheimer's disease, schizophrenia, drug addiction, sleep disorders, pain, attention deficit hyperactivity disorder, and the like.

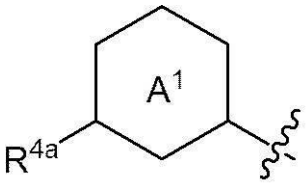
[0008] In an aspect, there is provided a compound (also called Compound (I) hereinafter) of Formula (I)

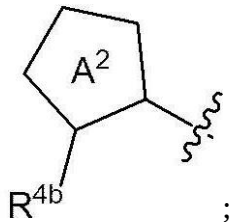


(I)

or a pharmaceutically acceptable salt thereof, wherein:

R^1 is



or


;

ring A^1 is chosen from optionally further substituted 6-membered aromatic rings;

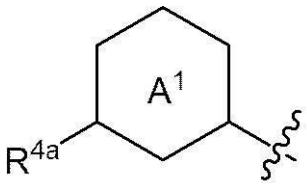
ring A^2 is chosen from optionally further substituted 5-membered monocyclic aromatic heterocyclic rings;

ring B is chosen from pyridone rings optionally further substituted with 1 to 3 substituents chosen from halogen atoms and optionally substituted C_{1-6} groups;

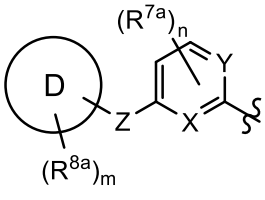
R^2 and R^3 are each independently chosen from hydrogen atom and substituents;

R^{4a} and R^{4b} are each independently chosen from substituents; and

ring C is chosen from optionally further substituted 5-membered monocyclic aromatic heterocyclic rings.



[0009] In some examples, R^1 is .



[00010] In some examples, R^1 is , wherein:

X is CH or N;

Y is CH or N;

Z is chosen from a bond, -O-, $-OR^{9a}$-*, -NH-, and $-N(R^{9b})R^{9a}$-*, wherein * denotes the connection point to ring D;

ring D is chosen from 6- to 8-membered aromatic rings, 5- to 8-membered monocyclic aromatic heterocyclic rings, C_{3-8} cycloalkyl groups, and 5- to 8-membered heterocyclic groups;

each R^{7a} is independently chosen from cyano, halogen, C_{3-6} cycloalkyl, C_{1-6} alkyl, and C_{1-6} alkoxy groups, wherein the C_{3-6} cycloalkyl, C_{1-6} alkyl, and C_{1-6} alkoxy groups are optionally substituted with 1 to 4 halogen atoms;

each R^{8a} is independently chosen from halogen, C_{1-6} alkyl, and C_{1-6} alkoxy groups, wherein the C_{1-6} alkyl and C_{1-6} alkoxy groups are optionally substituted with 1 to 4 halogen atoms;

R^{9a} is chosen from C_{1-3} alkyl groups;

R^{9b} is chosen from hydrogen atom and C_{1-3} alkyl groups;

m is 0, 1, 2, or 3; and

n is 0, 1, 2, or 3.

[00011] In some examples, Z is chosen from a bond, -O-, -NH-, -$NHCH_2$-*, and -$N(CH_3)CH_2$-*, and all other variables are as defined above.

[00012] In some examples, Z is a bond, and all other variables are as defined above. In some examples, Z is -O-, and all other variables are as defined above. In some examples, Z is -NH-, and all other variables are as defined above. In some examples, Z is -$NHCH_2$-*, and all other variables are as defined above. In some examples, Z is -$N(CH_3)CH_2$-*, and all other variables are as defined above.

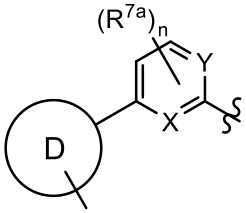
[00013] In some examples, X is N, Y is CH, and all other variables are as defined above.

[00014] In some examples, X is N, Y is N, and all other variables are as defined above.

[00015] In some examples, X is CH, Y is CH, and all other variables are as defined above.

[00016] In some examples, ring D is chosen from benzene, morpholine, oxane, piperidine, and cyclobutane, and all other variables are as defined above.

[00017] In some examples, ring D is benzene and all other variables are as defined above. In some examples, ring D is morpholine and all other variables are as defined above. In some examples, ring D is oxane and all other variables are as defined above. In some examples, ring D is piperidine and all other variables are as defined above. In some examples, ring D is cyclobutane and all other variables are as defined above.



[00018] In some examples, R^1 is , wherein X, Y, ring D, R^{7a}, R^{8a}, m, and n are as defined above.

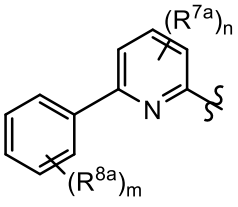
[00019] In some examples, X is N, Y is CH, and all other variables are as defined above.

[00020] In some examples, X is N, Y is N, and all other variables are as defined above.

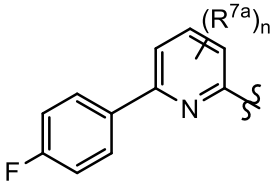
[00021] In some examples, X is CH, Y is CH, and all other variables are as defined above.

[00022] In some examples, ring D is chosen from benzene, morpholine, oxane, piperidine, and cyclobutane, and all other variables are as defined above.

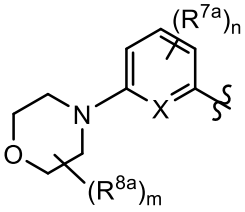
[00023] In some examples, ring D is benzene and all other variables are as defined above. In some examples, ring D is morpholine and all other variables are as defined above. In some examples, ring D is oxane and all other variables are as defined above. In some examples, ring D is piperidine and all other variables are as defined above. In some examples, ring D is cyclobutane and all other variables are as defined above.

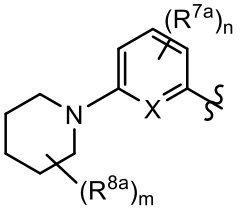


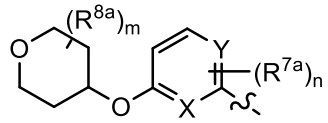
[00024] In some examples, R^1 is , wherein R^{7a}, R^{8a}, m, and n are as defined above.

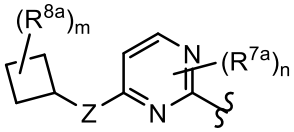


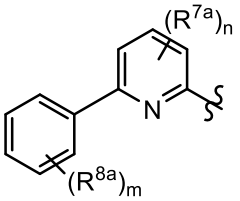
[00025] In some examples, R^1 is , wherein R^{7a} and n are as defined above.

[00026] In some examples, R^1 is , wherein X, R^{7a}, R^{8a}, m, and n are as defined above. In some examples, X is CH. In some examples, X is N.

[00027] In some examples, R^1 is , wherein X, R^{7a}, R^{8a}, m, and n are as defined above. In some examples, X is CH.

[00028] In some examples, R^1 is ,wherein X, Y, R^{7a}, R^{8a}, m, and n are as defined above. In some examples, X is N and Y is CH.

[00029] In some examples, R^1 is , wherein Z, R^{7a}, R^{8a}, m, and n are as defined above. In some examples, Z is -$NHCH_2$-*. In some examples, Z is -$N(CH_3)CH_2$-*.

[00030] In some examples, R^1 is , wherein:

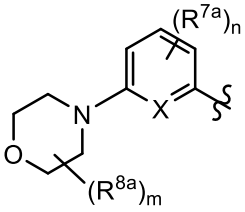
each R^{7a} is independently chosen from cyano, halogen, C_{3-6} cycloalkyl, C_{1-6} alkyl, and C_{1-6} alkoxy groups, wherein the C_{3-6} cycloalkyl, C_{1-6} alkyl, and C_{1-6} alkoxy groups are optionally substituted with 1 to 4 halogen atoms;

each R^{8a} is independently chosen from halogen atoms, C_{1-6} alkyl, and C_{1-6} alkoxy groups, wherein the C_{1-6} alkyl and C_{1-6} alkoxy groups are optionally substituted with 1 to 4 halogen atoms;

m is 0, 1, 2, or 3; and

n is 0, 1, 2, or 3.

[00031] In some examples, each R^{7a} is independently chosen from cyano, halogen, C_{1-6} alkyl, and C_{1-6} alkoxy groups, wherein the C_{1-6} alkyl and C_{1-6} alkoxy groups are optionally substituted with 1 to 4 halogen atoms; each R^{8a} is independently chosen from halogen atoms and C_{1-6} alkyl groups, wherein the C_{1-6} alkyl groups are optionally substituted with 1 to 4 halogen atoms; m is 0, 1, 2, or 3; and n is 0, 1, 2, or 3.

[00032] In some examples, R^1 is , wherein:

X is CH or N;

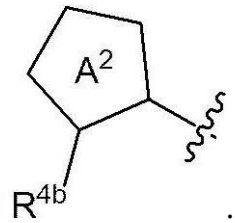
Y is CH or N;

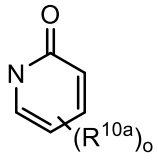
each R^{7a} is independently chosen from halogen, C_{3-6} cycloalkyl, C_{1-6} alkyl, and C_{1-6} alkoxy groups, wherein the C_{3-6} cycloalkyl, C_{1-6} alkyl, and C_{1-6} alkoxy groups are optionally substituted with 1 to 4 halogen atoms;

each R^{8a} is independently chosen from halogen atoms, C_{1-6} alkyl, and C_{1-6} alkoxy groups, wherein the C_{1-6} alkyl and C_{1-6} alkoxy groups are optionally substituted with 1 to 4 halogen atoms;

m is 0, 1, 2, or 3; and

n is 0, 1, 2, or 3.

[00033] In some examples, R^1 is .

[00034] In some examples, ring B is , wherein:

each R^{10a} is independently chosen from halogen atoms and C_{1-3} alkyl groups; and

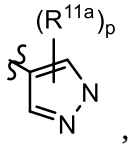
o is 0, 1, or 2.

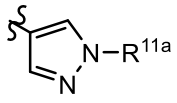
[00035] In some examples, o is 0.

[00036] In some examples, o is 1, and R^{10a} is a fluorine atom or methyl.

[00037] In some examples, o is 2, and each R^{10a} is independently chosen from a fluorine atom and methyl.

[00038] In some examples, R^2 and R^3 are each independently chosen from hydrogen and C_{1-3} alkyl groups. In some examples, R^2 and R^3 are both hydrogen atoms.

[00039] In some examples, ring C is , wherein each R^{11a} is independently chosen from C_{1-3} alkyl groups and p is 0, 1, or 2.

[00040] In some examples, ring C is , wherein R^{11a} is chosen from C_{1-3} alkyl groups. In some examples, R^{11a} is ethyl.

[00040a] In another aspect, there is also provided a pharmaceutical composition comprising at least one compound or pharmaceutically acceptable salt as defined above; and at least one pharmaceutically acceptable carrier.

[00041] In some examples, the compounds of Formula (I) and pharmaceutically acceptable salts thereof are provided for use in the treatment or preventing of a disease chosen from depression, Alzheimer's disease, schizophrenia, drug addiction, sleep disorders, pain, and attention deficit hyperactivity disorder. In some examples, a compound chosen from Examples 1-33, or a pharmaceutically acceptable salt thereof, is provided for use in the treatment or preventing of a disease chosen from depression, Alzheimer's disease, schizophrenia, drug addiction, sleep disorders, pain, and attention deficit hyperactivity disorder.

[00042] In an example, there is provided a pharmaceutical composition comprising at least one compound of Formula (I) or a pharmaceutically acceptable salt thereof. In some examples, the pharmaceutical composition comprises: at least one compound of Formula (I) or a pharmaceutically acceptable salt thereof; and at least one pharmaceutically acceptable carrier.

[00043] In an example, there is provideda compound of Formula (I) or a pharmaceutically acceptable salt thereof for use in therapy. In some examples, there is provided a compound chosen from Examples 1-33, or a pharmaceutically acceptable salt thereof, for use in therapy.

[00044] In some examples, a compound of Formula (I) or a pharmaceutically acceptable salt thereof is combined with at least one combination drug for simultaneous, separate, or sequential use in the treatment or preventing of a disease chosen from depression, Alzheimer's disease, schizophrenia, drug addiction, sleep disorders, pain, and attention deficit hyperactivity disorder. In some examples, when the use is simultaneous, the compound and the at least one combination drug are in separate pharmaceutical compositions. In some examples, when the use is simultaneous, the compound and the at least one

combination drug are together in the same pharmaceutical composition. In some examples, the compound is chosen from Examples 1-33 and pharmaceutically acceptable salts thereof.

[00045] In some examples, a combination of a compound of Formula (I) or a pharmaceutically acceptable salt thereof and a combination drug is provided for use in a method of treating or preventing a disease chosen from depression, Alzheimer's disease, schizophrenia,

drug addiction, sleep disorders, pain, and attention deficit hyperactivity disorder. In some examples, the compound and the combination drug are prepared for administration in the same pharmaceutical composition. In some examples, the compound and the combination drug are prepared for administration in separate pharmaceutical compositions. In some examples, the compound and the combination drug are prepared for simultaneous administration. In some examples, the compound and the combination drug are prepared for sequential administration. In some examples, the compound is chosen from Examples 1-33 and pharmaceutically acceptable salts thereof.

[00046] In an example, there is provideda pharmaceutical composition comprising a compound of Formula (I) or a pharmaceutically acceptable salt thereof for use in therapy. In some examples, there is provided a pharmaceutical composition comprising a compound chosen from Examples 1-33, or a pharmaceutically acceptable salt thereof, for use in therapy.

[00047] In an example, there is provideda method of treating or preventing a disease chosen from depression, Alzheimer's disease, schizophrenia, drug addiction, sleep disorders, pain, and attention deficit hyperactivity disorder, the method comprising administering at least one compound of Formula (I) or a pharmaceutically acceptable salt thereof .

[00047a] In another aspect, there is also provided a use of the compound or pharmaceutically acceptable salt as defined above in the manufacture of a medicament for treating or preventing a disease in a mammal in need thereof.

[00047b] In another aspect, there is also provided a compound or pharmaceutically acceptable salt as defined above for use in therapy.

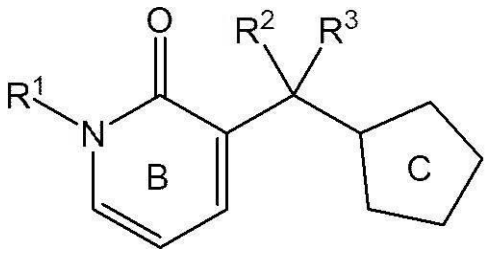
[00048] It should be understood that references herein to methods of treatment or preventing (e.g., methods of treating or preventing a disease chosen from depression, Alzheimer's disease, schizophrenia, drug addiction, sleep disorders, pain, and attention deficit hyperactivity disorder) using one or more compounds (e.g., compounds of Formula (I) and pharmaceutically acceptable salts thereof) should be interpreted as references to:

one or more compounds for use in methods of treating and/or preventing, for example, depression, Alzheimer's disease, schizophrenia, drug addiction, sleep disorders, pain, or attention deficit hyperactivity disorder; and/or

the use of one or more compounds in the manufacture of a medicament for treating and/or preventing, for example, depression, Alzheimer's disease, schizophrenia, drug addiction, sleep disorders, pain, or attention deficit hyperactivity disorder.

What is claimed is:

1. A compound of Formula (I)

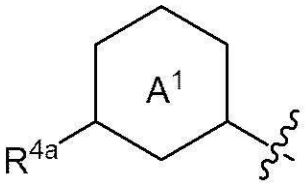


(I)

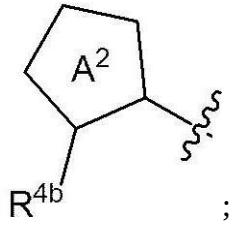
,

or a pharmaceutically acceptable salt thereof, wherein:

R^1 is



or



;

ring A^1 is chosen from optionally further substituted 6-membered aromatic rings;

ring A^2 is chosen from optionally further substituted 5-membered monocyclic aromatic heterocyclic rings;

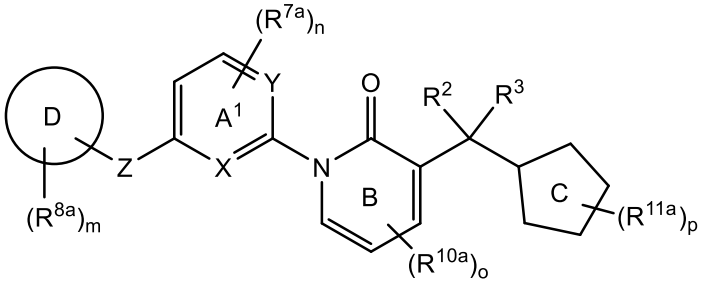
ring B is chosen from pyridone rings optionally further substituted with 1 to 3 substituents chosen from halogen atoms and optionally substituted $C_{1\text{-}6}$ groups;

R^2 and R^3 are each independently chosen from hydrogen atom and substituents;

R^{4a} and R^{4b} are each independently chosen from substituents; and

ring C is chosen from optionally further substituted 5-membered monocyclic aromatic heterocyclic rings.

2. The compound or pharmaceutically acceptable salt according to claim 1, wherein the compound is chosen from compounds of Formula (I')



(I'),

and pharmaceutically acceptable salts thereof, wherein:

X is CH or N;

Y is CH or N;

Z is chosen from a bond, -O-, -OR^{9a}-*, -NH-, and -$N(R^{9b})R^{9a}$-*, wherein * denotes the connection point to ring D;

ring C is chosen from 5-membered monocyclic aromatic heterocyclic rings;

ring D is chosen from 6- to 8-membered aromatic rings, 5- to 8-membered monocyclic aromatic heterocyclic rings, C_{3-8} cycloalkyl groups, and 5- to 8-membered heterocyclic groups;

each R^{7a} is independently chosen from cyano, halogen, C_{3-6} cycloalkyl, C_{1-6} alkyl, and C_{1-6} alkoxy groups, wherein the C_{3-6} cycloalkyl, C_{1-6} alkyl, and C_{1-6} alkoxy groups are optionally substituted with 1 to 4 halogen atoms;

each R^{8a} is independently chosen from halogen, C_{1-6} alkyl, and C_{1-6} alkoxy groups, wherein the C_{1-6} alkyl and C_{1-6} alkoxy groups are optionally substituted with 1 to 4 halogen atoms;

R^{9a} is chosen from C_{1-3} alkyl groups;

R^{9b} is chosen from hydrogen atom and C_{1-3} alkyl groups;

each R^{10a} is independently chosen from halogen atoms and C_{1-3} alkyl groups;

each R^{11a} is independently chosen from C_{1-3} alkyl groups;

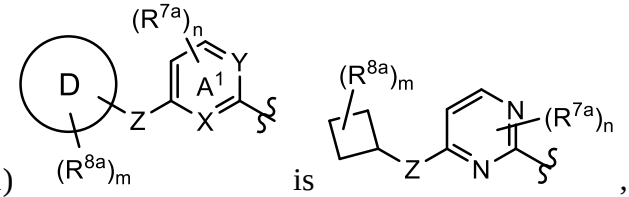
m is 0, 1, 2, or 3;

n is 0, 1, 2, or 3;

o is 0, 1, or 2; and

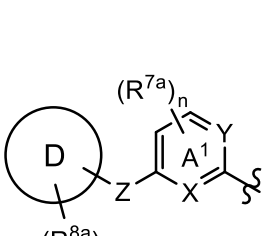
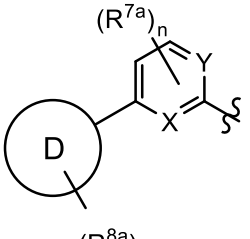
p is 0, 1, or 2.

3. The compound or pharmaceutically acceptable salt according to claim 2, wherein:

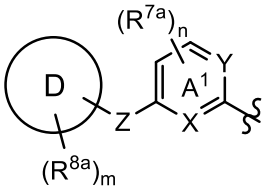
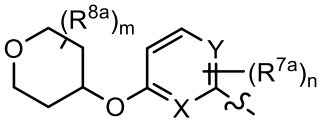
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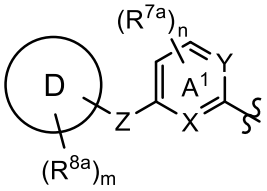
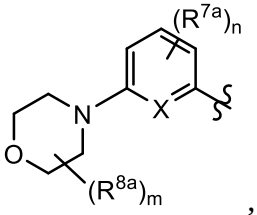
wherein Z, R^{7a}, R^{8a}, m, and n are as defined in claim 2; or

(2)  is ,

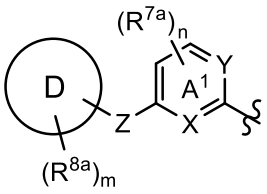
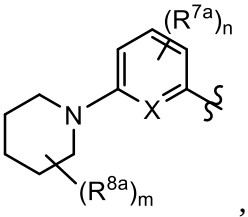
wherein X, Y, ring D, R^{7a}, R^{8a}, m, and n are as defined in claim 2; or

(3)  is ,

wherein X, Y, R^{7a}, R^{8a}, m, and n are as defined in claim 2; or

(4)  is ,

wherein X, R^{7a}, R^{8a}, m, and n are as defined in claim 2; or

(5)  is ,

wherein X, R^{7a}, R^{8a}, m, and n are as defined in claim 2.

4. The compound or pharmaceutically acceptable salt according to claim 2 or 3, wherein:

Z is chosen from a bond, -O-, -NH-, $-NHCH_2-*$, and $-N(CH_3)CH_2-*$.

5. The compound or pharmaceutically acceptable salt according to any one of claims 2-4, wherein:

Z is a bond or Z is -O-.

6. The compound or pharmaceutically acceptable salt according to any one of claims 2-4, wherein:

Z is -$NHCH_2$-* or Z is -$N(CH_3)CH_2$-*.

7. The compound or pharmaceutically acceptable salt according to any one of claims 2-6, wherein:

ring D is chosen from benzene, morpholine, oxane, piperidine, and cyclobutane.

8. The compound or pharmaceutically acceptable salt according to any one of claims 2-7, wherein:

X is CH.

9. The compound or pharmaceutically acceptable salt according to any one of claims 2-7, wherein:

X is N.

10. The compound or pharmaceutically acceptable salt according to any one of claims 2-9, wherein:

Y is CH.

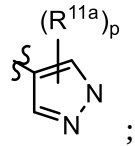
11. The compound or pharmaceutically acceptable salt according to any one of claims 2-9 wherein:

Y is N.

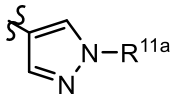
12. The compound or pharmaceutically acceptable salt according to any one of claims 2-11, wherein:

R^2 and R^3 are both hydrogen atoms.

13. The compound or pharmaceutically acceptable salt according to any one of claims 2-12, wherein:

ring C is 

;

optionally, wherein ring C is .

14. The compound or pharmaceutically acceptable salt according to any one of claims 2-13, wherein:

each R^{7a} is independently chosen from halogen, C_{3-6} cycloalkyl, C_{1-6} alkyl, and C_{1-6} alkoxy groups, wherein the C_{3-6} cycloalkyl, C_{1-6} alkyl, and C_{1-6} alkoxy groups are optionally substituted with 1 to 4 halogen atoms.

15. The compound or pharmaceutically acceptable salt according to any one of claims 2-23, wherein:

o is 1 and R^{10a} is methyl; or

o is 1 and R^{10a} is a fluorine atom; or

o is 0.

16. The compound or pharmaceutically acceptable salt according to claim 1, wherein the compound is chosen from:

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-6'-(4-fluorophenyl)-4'-(trifluoromethyl)-2H-[1,2'-bipyridin]-2-one;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-6'-(4-fluorophenyl)-2-oxo-4'-(trifluoromethyl)-2H-[1,2'-bipyridine]-3'-carbonitrile;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-6'-(4-fluorophenyl)-2-oxo-4'-(2,2,2-trifluoroethoxy)-2H-[1,2'-bipyridine]-3'-carbonitrile;

4'-(2,2-difluoroethoxy)-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-6'-(4-fluorophenyl)-2-oxo-2H-[1,2'-bipyridine]-3'-carbonitrile;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-6'-(4-fluorophenyl)-6-methyl-2-oxo-4'-(trifluoromethyl)-2H-[1,2'-bipyridine]-3'-carbonitrile;

4'-(difluoromethyl)-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-6'-(4-fluorophenyl)-2-oxo-2H-[1,2'-bipyridine]-3'-carbonitrile;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-3'-fluoro-6'-[(2R)-2-methylmorpholin-4-yl]-4'-(trifluoromethyl)-2H-[1,2'-bipyridin]-2-one;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-5'-methyl-6'-[(2R)-2-methylmorpholin-4-yl]-4'-(trifluoromethyl)-2H-[1,2'-bipyridin]-2-one;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-1-{2-fluoro-5-[(2R)-2-methylmorpholin-4-yl]-3-(trifluoromethyl)phenyl}pyridin-2(1H)-one;

6'-[2-(difluoromethyl)morpholin-4-yl]-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-3'-fluoro-4'-(trifluoromethyl)-2H-[1,2'-bipyridin]-2-one;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-3'-fluoro-4-methyl-6'-[(2R)-2-methylmorpholin-4-yl]-4'-(trifluoromethyl)-2H-[1,2'-bipyridin]-2-one;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-3'-fluoro-5-methyl-6'-[(2R)-2-methylmorpholin-4-yl]-4'-(trifluoromethyl)-2H-[1,2'-bipyridin]-2-one;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-3'-fluoro-6'-[(oxan-4-yl)oxy]-4'-(trifluoromethyl)-2H-[1,2'-bipyridin]-2-one;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-1-[4-{[(1-fluorocyclobutyl)methyl]amino}-6-(trifluoromethyl)pyrimidin-2-yl]pyridin-2(1H)-one;

1-[4-{[(3,3-difluorocyclobutyl)methyl]amino}-6-(trifluoromethyl)pyrimidin-2-yl]-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]pyridin-2(1H)-one;

1-[4-{[(3,3-difluorocyclobutyl)methyl](methyl)amino}-6-(trifluoromethyl)pyrimidin-2-yl]-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]pyridin-2(1H)-one;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-1-[4-{[(1-fluorocyclobutyl)methyl](methyl)amino}-6-(trifluoromethyl)pyrimidin-2-yl]pyridin-2(1H)-one;

1-{3-cyclopropyl-2-fluoro-5-[(2R)-2-methylmorpholin-4-yl]phenyl}-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]pyridin-2(1H)-one;

1-[3-cyclopropyl-5-(2,2-dimethylmorpholin-4-yl)-2-fluorophenyl]-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]pyridin-2(1H)-one;

1-{3-cyclopropyl-2-fluoro-5-[(oxan-4-yl)oxy]phenyl}-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]pyridin-2(1H)-one;

1-{3-bromo-2-fluoro-5-[(oxan-4-yl)oxy]phenyl}-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]pyridin-2(1H)-one;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-1-{2-fluoro-5-[(2R)-2-methylmorpholin-4-yl]-3-(trifluoromethoxy)phenyl}pyridin-2(1H)-one;

1-{3-cyclopropyl-2-fluoro-5-[(2R)-2-methylmorpholin-4-yl]phenyl}-3-{[1-(propan-2-yl)-1H-pyrazol-4-yl]methyl}pyridin-2(1H)-one;

1-{3-cyclopropyl-2-fluoro-5-[(2R)-2-methylmorpholin-4-yl]phenyl}-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-4-fluoropyridin-2(1H)-one;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-1-{2-fluoro-5-[(2R)-2-methylmorpholin-4-yl]-3-(propan-2-yl)phenyl}pyridin-2(1H)-one;

3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-1-{2-fluoro-5-[(2R)-2-methylmorpholin-4-yl]-3-(2,2,2-trifluoroethyl)phenyl}pyridin-2(1H)-one;

1-{3-cyclopropyl-5-[(2R)-2-methylmorpholin-4-yl]phenyl}-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-6-methylpyridin-2(1H)-one;

1-[3-(2,2-difluorocyclopropyl)-5-(4,4-difluoropiperidin-1-yl)-2-fluorophenyl]-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]pyridin-2(1H)-one;

1-{3-cyclopropyl-5-[(2R)-2-methylmorpholin-4-yl]phenyl}-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-6-fluoropyridin-2(1H)-one;

1-{3-cyclopropyl-2-fluoro-5-[(2R)-2-methylmorpholin-4-yl]phenyl}-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-5-methylpyridin-2(1H)-one; and

1-{3-cyclopropyl-2-fluoro-5-[(2R)-2-methylmorpholin-4-yl]phenyl}-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]-4-methylpyridin-2(1H)-one, or

a pharmaceutically acceptable salt of any of the foregoing.

17. The compound or pharmaceutically acceptable salt of claim 22, which is selected from:

1-{3-cyclopropyl-2-fluoro-5-[(2R)-2-methylmorpholin-4-yl]phenyl}-3-[(1-ethyl-1H-pyrazol-4-yl)methyl]pyridin-2(1H)-one; and

a pharmaceutically acceptable salt thereof.

18. A pharmaceutical composition comprising:

at least one compound or pharmaceutically acceptable salt according to any one of claims 1-17; and

at least one pharmaceutically acceptable carrier.

19. Use of the compound or pharmaceutically acceptable salt according to any one of claims 1-17;

or the pharmaceutical composition of claim 18;

in the manufacture of a medicament for treating or preventing a disease in a mammal in need thereof.

20. The use according to claim 19, wherein:

the disease is chosen from depression, Alzheimer’s disease, schizophrenia, drug addiction, sleep disorders, pain, and attention deficit hyperactivity disorder.

21. The use according to any one of claims 19-20, wherein at least one combination drug is to be further administered to the mammal.

22. A compound or pharmaceutically acceptable salt according to any one of claims 1-17; or the pharmaceutical composition of claim 18 for use in therapy.