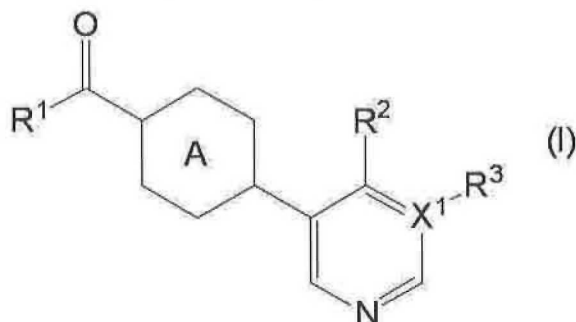


CLAIMS

1. A compound represented by the formula (I):



5 wherein

R¹ is

(1) a C₁₋₆ alkyl group optionally substituted by 1 to 3
substituents selected from

- (a) a cyano group,
- 10 (b) a C₆₋₁₄ aryl group optionally substituted by 1 to 3 C₁₋₆
alkoxy groups,
- (c) a C₆₋₁₄ aryloxy group,
- (d) a C₃₋₈ cycloalkyl group,
- (e) a pyrazolyl group,
- 15 (f) an indazolyl group, and
- (g) a dihydropyridyl group optionally substituted by 1 to 3
oxo groups,

(2) a C₁₋₆ alkoxy group optionally substituted by 1 to 3 C₆₋₁₄
aryl groups,

20 (3) an amino group optionally mono- or di-substituted by
substituent(s) selected from

- (a) a C₁₋₆ alkyl group optionally substituted by 1 to 3
substituents selected from
- (i) a halogen atom,
- 25 (ii) a cyano group,
- (iii) a C₃₋₈ cycloalkyl group,
- (iv) a C₆₋₁₄ aryl group optionally substituted by 1 to 3
substituents selected from a halogen atom and a C₁₋₆
alkoxy group,
- 30 (v) a pyridyl group, and

- (vi) an oxetanyl group optionally substituted by 1 to 3 C₁₋₆ alkyl groups,
- (b) a C₃₋₈ cycloalkyl group optionally substituted by 1 to 3 halogen atoms,
- 5 (c) a C₆₋₁₄ aryl group, and
- (d) a tetrahydropyranyl group, an oxetanyl group, a tetrahydrofuryl group and a pyrrolidinyl group, each of which is optionally substituted by 1 to 3 C₁₋₆ alkyl groups,
- (4) a C₃₋₈ cycloalkyl group optionally substituted by 1 to 3 C₆₋₁₄ aryl groups,
- 10 (5) a C₆₋₁₄ aryl group, or
- (6) a 3- to 8-membered monocyclic non-aromatic heterocyclic group or a 3,7-dioxo-9-azabicyclo[3.3.1]nonyl group, each of which is optionally substituted by 1 to 5 substituents
- 15 selected from
- (a) a halogen atom,
- (b) a cyano group,
- (c) a hydroxy group,
- (d) an oxo group,
- 20 (e) a carbamoyl group optionally mono- or di-substituted by C₁₋₆ alkyl group(s),
- (f) a C₁₋₆ alkyl group optionally substituted by 1 to 3 substituents selected from
- (i) a hydroxy group, and
- 25 (ii) a C₁₋₆ alkoxy group,
- (g) a C₁₋₆ alkoxy group optionally substituted by 1 to 3 halogen atoms,
- (h) a C₁₋₆ alkoxy-carbonyl group, and
- (i) a C₆₋₁₄ aryl group optionally substituted by 1 to 3 halogen atoms, or
- 30 R¹ is bonded to the atom on Ring A to form, together with Ring A, a 2,8-diazaspiro[4.5]decane ring substituted by oxo and optionally further substituted by 1 to 3 C₁₋₆ alkyl groups;
- R² is
- 35 (1) a C₆₋₁₄ aryl group optionally substituted by 1 to 3

substituents selected from

(a) a halogen atom, and

(b) a C₁₋₆ alkyl group optionally substituted by 1 to 3
halogen atoms, or

- 5 (2) a 5- or 6-membered monocyclic aromatic heterocyclic group
or a 8- to 12-membered fused aromatic heterocyclic group, each
of which is optionally substituted by 1 to 3 substituents
selected from

(a) a halogen atom,

10 (b) a cyano group,

(c) a C₁₋₆ alkyl group optionally substituted by 1 to 3
halogen atoms, and

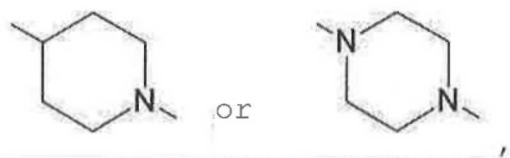
(d) a C₃₋₈ cycloalkyl group;

X¹ is a carbon atom or a nitrogen atom;

- 15 R³ is a hydrogen atom or a halogen atom when X¹ is a
carbon atom, or absent when X¹ is a nitrogen atom; and

Ring A is

(1)



- 20 each of which is optionally further substituted by 1 to 3
substituents selected from

(a) a halogen atom,

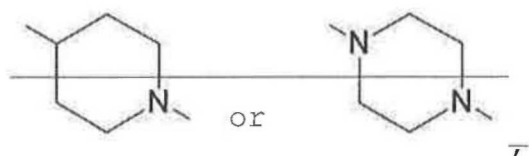
(b) a C₁₋₆ alkyl group, and

(c) an oxo group, or

- 25 (2) a 8-azabicyclo[3.2.1]octane ring, a 2,5-
diazabicyclo[2.2.1]heptane ring or a 3-azabicyclo[3.1.0]hexane
ring,

~~X¹ is a carbon atom or a nitrogen atom;~~

~~Ring A is~~



each of which is optionally further substituted and optionally bridged;

— R^1 is an optionally substituted C_{1-6} alkyl group, an optionally substituted hydroxy group, an optionally substituted amino group, an optionally substituted carbocyclic group, or an optionally substituted heterocyclic group, or R^1 is optionally bonded to the atom on Ring A to form, together with Ring A, a spiro ring or a fused ring, each of which is substituted by an oxo group and optionally further substituted;

— R^2 is an optionally substituted C_{6-14} aryl group, or an optionally substituted aromatic heterocyclic group; and

— R^3 is a hydrogen atom or a substituent when X^1 is a carbon atom, or absent when X^1 is a nitrogen atom,

(tert-butyl 4-(4-phenylpyrimidin-5-yl)piperazine-1-carboxylate is excluded) or a salt thereof.

2. The compound or salt of claim 1, wherein R^1 is an optionally substituted C_{1-6} alkyl group, an optionally substituted C_{1-6}

alkoxy group, an optionally substituted amino group, an optionally substituted C₃₋₈ cycloalkyl group, an optionally substituted C₆₋₁₄ aryl group, or an optionally substituted non-aromatic heterocyclic group (tert-butyl 4-(4-phenylpyrimidin-5-yl)piperazine-1-carboxylate is excluded).—

3. The compound or salt of claim 1, wherein
—— R¹ is —

(1) a C₁₋₆ alkyl group optionally substituted by 1 to 3
10 substituents selected from

- (a) a cyano group,—
- (b) a C₆₋₁₄ aryl group optionally substituted by 1 to 3 C₁₋₆ alkoxy groups,—
- (c) a C₆₋₁₄ aryloxy group,—
- 15 (d) a C₃₋₈ cycloalkyl group,—
- (e) a pyrazolyl group,—
- (f) an indazolyl group, and—
- (g) a dihydropyridyl group optionally substituted by 1 to 3 exo groups,—

20 (2) a C₁₋₆ alkoxy group optionally substituted by 1 to 3 C₆₋₁₄ aryl groups,—

(3) an amino group optionally mono- or di-substituted by substituent(s) selected from

(a) a C₁₋₆ alkyl group optionally substituted by 1 to 3
25 substituents selected from

- (i) a halogen atom,—
- (ii) a cyano group,—
- (iii) a C₃₋₈ cycloalkyl group,—
- (iv) a C₆₋₁₄ aryl group optionally substituted by 1 to 3
30 substituents selected from a halogen atom and a C₁₋₆ alkoxy group,—
- (v) a pyridyl group, and—
- (vi) an oxetanyl group optionally substituted by 1 to 3 C₁₋₆ alkyl groups,—

35 (b) a C₃₋₈ cycloalkyl group optionally substituted by 1 to 3

halogen atoms,
(c) a C₆₋₁₄-aryl group, and
(d) a tetrahydropyranyl group, an exetanyl group, a
tetrahydrofuryl group and a pyrrolidinyl group, each of
5 which is optionally substituted by 1 to 3 C₁₋₆-alkyl groups,
(4) a C₃₋₈-cycloalkyl group optionally substituted by 1 to 3 C₆₋₁₄-aryl groups,
(5) a C₆₋₁₄-aryl group, or
(6) a 3- to 8-membered monocyclic non-aromatic heterocyclic
10 group or a 3,7-dioxo-9-azabicyclo[3.3.1]nonyl group, each of
which is optionally substituted by 1 to 5 substituents
selected from

(a) a halogen atom,
(b) a cyano group,
15 (c) a hydroxy group,
(d) an oxo group,
(e) a carbamoyl group optionally mono- or di-substituted by
C₁₋₆-alkyl group(s),
(f) a C₁₋₆-alkyl group optionally substituted by 1 to 3
20 substituents selected from
(i) a hydroxy group, and
(ii) a C₁₋₆-alkoxy group,
(g) a C₁₋₆-alkoxy group optionally substituted by 1 to 3
halogen atoms,
25 (h) a C₁₋₆-alkoxy-carbonyl group, and
(i) a C₆₋₁₄-aryl group optionally substituted by 1 to 3
halogen atoms, or

R¹ is bonded to the atom on Ring A to form, together with Ring
A, a 2,8-diazaspiro[4.5]decane ring substituted by oxo and
30 optionally further substituted by 1 to 3 C₁₋₆-alkyl groups;
—— R² is

(1) a C₆₋₁₄-aryl group optionally substituted by 1 to 3
substituents selected from
(a) a halogen atom, and
35 (b) a C₁₋₆-alkyl group optionally substituted by 1 to 3

halogen atoms, or

~~(2) a 5- or 6-membered monocyclic aromatic heterocyclic group or a 8- to 12-membered fused aromatic heterocyclic group, each of which is optionally substituted by 1 to 3 substituents~~

5 selected from

~~(a) a halogen atom,~~

~~(b) a cyano group,~~

~~(c) a C₁₋₆ alkyl group optionally substituted by 1 to 3 halogen atoms, and~~

10 ~~(d) a C₃₋₈ cycloalkyl group;~~

~~—— X¹ is a carbon atom or a nitrogen atom;~~

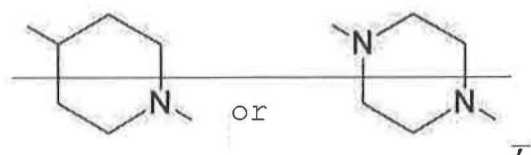
~~—— R³ is~~

~~(1) a hydrogen atom, or~~

~~(2) a halogen atom; and~~

15 ~~—— Ring A is~~

~~(1)~~



~~each of which is optionally further substituted by 1 to 3 substituents selected from~~

20 ~~(a) a halogen atom,~~

~~(b) a C₁₋₆ alkyl group, and~~

~~(c) an oxo group, or~~

~~(2) a 8-azabicyclo[3.2.1]octane ring, a 2,5-~~

~~diazabicyclo[2.2.1]heptane ring or a 3-azabicyclo[3.1.0]hexane~~
25 ~~ring,~~

~~(tert-butyl 4-(4-phenylpyrimidin-5-yl)piperazine-1-carboxylate is excluded).~~

42. The compound or salt of claim 31, wherein R¹ is

30 (1) a C₁₋₆ alkyl group optionally substituted by 1 to 3 substituents selected from

(a) a cyano group,

selected from

- (a) a halogen atom,
- (b) a cyano group,
- (c) a hydroxy group,
- 5 (d) an oxo group,
- (e) a carbamoyl group optionally mono- or di-substituted by C₁₋₆ alkyl group(s),
- (f) a C₁₋₆ alkyl group optionally substituted by 1 to 3 substituents selected from
- 10 (i) a hydroxy group, and
- (ii) a C₁₋₆ alkoxy group,
- (g) a C₁₋₆ alkoxy group optionally substituted by 1 to 3 halogen atoms,
- (h) a C₁₋₆ alkoxy-carbonyl group, and
- 15 (i) a C₆₋₁₄ aryl group optionally substituted by 1 to 3 halogen atoms, or

R¹ is bonded to the atom on Ring A to form, together with Ring A, a 2,8-diazaspiro[4.5]decane ring substituted by oxo and optionally further substituted by 1 to 3 C₁₋₆ alkyl groups.

20

53. The compound or salt of claim 1, wherein

R¹ is

- (1) an amino group optionally mono- or di-substituted by substituent(s) selected from
- 25 (a) a C₁₋₆ alkyl group optionally substituted by 1 to 3 substituents selected from
 - (i) a halogen atom, and
 - (ii) a phenyl group optionally substituted by 1 to 3 halogen atoms,
- 30 (b) a tetrahydropyranyl group, and
- (c) a tetrahydrofuryl group, or
- (2) an azetidiny l group or a pyrrolidinyl group, each of which is optionally substituted by 1 to 5 substituents selected from
 - (a) a halogen atom,
 - 35 (b) a cyano group,

- (c) a carbamoyl group,
- (d) a C₁₋₆ alkyl group, and
- (e) a C₁₋₆ alkoxy group;

R² is

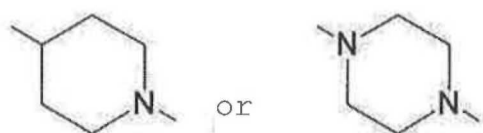
- 5 (1) a phenyl group optionally substituted by 1 to 3 halogen atoms, or
- (2) a pyrazolyl group, a thiazolyl group or a thiadiazolyl group, each of which is optionally substituted by 1 to 3 substituents selected from

- 10 (a) a halogen atom,
- (b) a C₁₋₆ alkyl group, and
- (c) a cyclopropyl group;

X¹ is a carbon atom or a nitrogen atom;

R³ is a hydrogen atom; and

- 15 Ring A is



64. The compound or salt of claim 1, wherein

- R¹ is a pyrrolidinyl group optionally substituted by 1 to
- 20 5 substituents selected from

- (a) a halogen atom, and
- (b) a cyano group;

R² is a pyrazolyl group optionally substituted by 1 to 3 substituents selected from

- 25 (a) a halogen atom, and
- (b) a C₁₋₆ alkyl group;

X¹ is a carbon atom;

R³ is a hydrogen atom; and

Ring A is



75. (2R)-1-((1-(4-(4-methyl-1H-pyrazol-1-yl)pyridin-3-yl)piperidin-4-yl)carbonyl)pyrrolidine-2-carbonitrile or a salt thereof,

5 (2R)-1-((1-(4-(4-chloro-1H-pyrazol-1-yl)pyridin-3-yl)piperidin-4-yl)carbonyl)pyrrolidine-2-carbonitrile or a salt thereof,

(2R)-4,4-difluoro-1-((1-(4-(4-methyl-1H-pyrazol-1-yl)pyridin-3-yl)piperidin-4-yl)carbonyl)pyrrolidine-2-carbonitrile or a

10 salt thereof,

(3-fluoroazetidin-1-yl)(1-(4-(4-fluorophenyl)pyrimidin-5-yl)piperidin-4-yl)methanone or a salt thereof,

(1-(4-(4-chloro-1H-pyrazol-1-yl)pyridin-3-yl)piperidin-4-yl)(3-fluoroazetidin-1-yl)methanone or a salt thereof,

15 (1-(4-(4-chloro-1H-pyrazol-1-yl)pyridin-3-yl)piperidin-4-yl)((3S)-3-fluoropyrrolidin-1-yl)methanone or a salt thereof,

(1-(4-(4-fluorophenyl)pyrimidin-5-yl)piperidin-4-yl)((3S)-3-fluoropyrrolidin-1-yl)methanone or a salt thereof,

N-benzyl-N-(2-fluoroethyl)-4-(4-phenylpyrimidin-5-

20 yl)piperazine-1-carboxamide or a salt thereof,

N-(4-fluorobenzyl)-N-(2-fluoroethyl)-4-(4-(4-methyl-1H-pyrazol-1-yl)pyridin-3-yl)piperazine-1-carboxamide or a salt thereof,

((3S)-3-fluoropyrrolidin-1-yl)(1-(4-(5-methyl-1,3-thiazol-2-

25 yl)pyridin-3-yl)piperidin-4-yl)methanone or a salt thereof,

(3-fluoroazetidin-1-yl)(1-(4-(5-methyl-1,3-thiazol-2-yl)pyridin-3-yl)piperidin-4-yl)methanone or a salt thereof,

(1-(4-(4-bromo-1H-pyrazol-1-yl)pyridin-3-yl)piperidin-4-yl)(3-fluoroazetidin-1-yl)methanone or a salt thereof, or

30 (1-(4-(4-cyclopropyl-1H-pyrazol-1-yl)pyridin-3-yl)piperidin-4-yl)(3-fluoroazetidin-1-yl)methanone or a salt thereof.

86. (2R)-1-((1-(4-(4-methyl-1H-pyrazol-1-yl)pyridin-3-yl)piperidin-4-yl)carbonyl)pyrrolidine-2-carbonitrile or a

35 salt thereof.

~~97.~~ (2R)-1-((1-(4-(4-chloro-1H-pyrazol-1-yl)pyridin-3-yl)piperidin-4-yl)carbonyl)pyrrolidine-2-carbonitrile or a salt thereof.

5

~~108.~~ (2R)-4,4-difluoro-1-((1-(4-(4-methyl-1H-pyrazol-1-yl)pyridin-3-yl)piperidin-4-yl)carbonyl)pyrrolidine-2-carbonitrile or a salt thereof.

10 ~~119.~~ A medicament comprising the compound or salt of claim 1.

~~1210.~~ The medicament of claim ~~119~~, which is a cholesterol 24 hydroxylase inhibitor.

15 ~~1311.~~ The medicament of claim ~~119~~, which is an agent for the prophylaxis or treatment of epilepsy or neurodegenerative disease.

~~1412.~~ The medicament of claim ~~1311~~, wherein the
20 neurodegenerative disease is Alzheimer's disease, mild cognitive disorder, Huntington's disease, Parkinson's disease or multiple sclerosis.

~~1513.~~ The compound or salt of claim 1 for use in the
25 prophylaxis or treatment of epilepsy or neurodegenerative disease.

~~1614.~~ The compound or salt of claim ~~1513~~, wherein the
30 neurodegenerative disease is Alzheimer's disease, mild cognitive disorder, Huntington's disease, Parkinson's disease or multiple sclerosis.

35

| 1715. Use of the compound or salt of claim 1 for the
production of an agent for the prophylaxis or treatment of
epilepsy or neurodegenerative disease.

| 5 ~~18~~16. The use of claim ~~17~~15, wherein the neurodegenerative
disease is Alzheimer's disease, mild cognitive disorder,
Huntington's disease, Parkinson's disease or multiple
sclerosis.