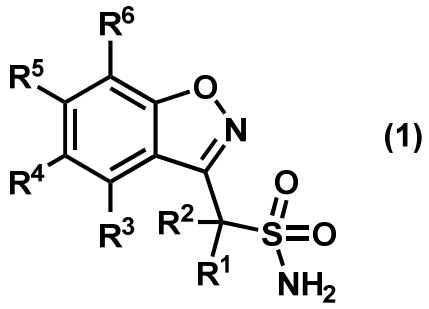
CLAIMS

1. A compound of formula (1):




(1)

or a pharmaceutically acceptable salt thereof, wherein

$R^1$ is hydrogen, halogen, $C_{1-6}$ alkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), or $C_{3-6}$ cycloalkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy),

$R^2$ is halogen, $C_{1-6}$ alkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), or $C_{3-6}$ cycloalkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy), or

$R^1$ and $R^2$ are taken together with the carbon atom to which they are attached to form $C_{3-6}$ cycloalkyl which may be substituted with 1 – 3 substituents selected independently

from the group consisting of halogen, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy, and

$R^3$, $R^4$, $R^5$, and $R^6$ are the same or different and are hydrogen, halogen, cyano, nitro, $C_{1-6}$ alkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), $C_{3-6}$ cycloalkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy), or $C_{1-6}$ alkoxy (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy).

2. The compound of claim 1 or a pharmaceutically acceptable salt thereof, wherein

$R^1$ is hydrogen, fluorine, $C_{1-6}$ alkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), or $C_{3-6}$ cycloalkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy), and

$R^2$ is fluorine, $C_{1-6}$ alkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, $C_{3-6}$ cycloalkyl, and

$C_{1-3}$ alkoxy), or $C_{3-6}$ cycloalkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy), or

$R^1$ and $R^2$ are taken together with the carbon atom to which they are attached to form $C_{3-6}$ cycloalkyl which may be substituted with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy.

3. The compound of claim 1 or 2 or a pharmaceutically acceptable salt thereof, wherein

$R^3$, $R^4$, $R^5$, and $R^6$ are the same or different and are hydrogen, halogen, cyano, nitro, $C_{1-6}$ alkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), $C_{3-6}$ cycloalkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy), or $C_{1-6}$ alkoxy (which may be substituted with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy).

4. The compound of any one of claims 1 to 3 or a pharmaceutically acceptable salt thereof, wherein

$R^1$ is hydrogen, fluorine, or $C_{1-6}$ alkyl which may be substituted with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, and $C_{1-3}$ alkoxy, and

$R^2$ is fluorine, or $C_{1-6}$ alkyl which may be substituted with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, and $C_{1-3}$ alkoxy, or

$R^1$ and $R^2$ are taken together with the carbon atom to which they are attached to form $C_{3-6}$ cycloalkyl which may be substituted with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy.

5. The compound of any one of claims 1 to 4 or a pharmaceutically acceptable salt thereof, wherein

$R^3$, $R^4$, $R^5$, and $R^6$ are the same or different and are hydrogen, halogen, or $C_{1-3}$ alkoxy which may be substituted with 1 – 3 fluorine.

6. The compound of claim 1 or a pharmaceutically acceptable salt thereof, wherein

$R^1$ is hydrogen, fluorine, or $C_{1-6}$ alkyl which may be substituted with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, and $C_{1-3}$ alkoxy,

$R^2$ is fluorine, or $C_{1-6}$ alkyl which may be substituted

with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, and $C_{1-3}$ alkoxy, or

$R^1$ and $R^2$ are taken together with the carbon atom to which they are attached to form $C_{3-6}$ cycloalkyl which may be substituted with 1 – 3 substituents selected independently from the group consisting of fluorine, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy, and

$R^3$, $R^4$, $R^5$, and $R^6$ are the same or different and are hydrogen, halogen, or $C_{1-3}$ alkoxy which may be substituted with 1 – 3 fluorine.

7. The compound of claim 1 or a pharmaceutically acceptable salt thereof, wherein the compound is selected from the following compounds:

1-(1,2-benzoxazol-3-yl)ethane-1-sulfonamide,

2-(1,2-benzoxazol-3-yl)propane-2-sulfonamide,

1-(1,2-benzoxazol-3-yl)-1-fluoromethane-sulfonamide,

1-(1,2-benzoxazol-3-yl)-1,1-difluoromethane-sulfonamide ,

1-(1,2-benzoxazol-3-yl)cyclopropane-1-sulfonamide,

1-(1,2-benzoxazol-3-yl)propane-1-sulfonamide,

1-(1,2-benzoxazol-3-yl)butane-1-sulfonamide,

1-(1,2-benzoxazol-3-yl)-1-fluoroethane-1-sulfonamide,

1-(1,2-benzoxazol-3-yl)-2-methylpropane-1-sulfonamide,

1-(5-methoxy-1,2-benzoxazol-3-yl)ethane-1-sulfonamide,

1-(5-fluoro-1,2-benzoxazol-3-yl)ethane-1-sulfonamide,

1-(5-chloro-1,2-benzoxazol-3-yl)ethane-1-sulfonamide,
(1R)-1-(1,2-benzoxazol-3-yl)ethane-1-sulfonamide, or
(1S)-1-(1,2-benzoxazol-3-yl)ethane-1-sulfonamide.

8. The compound of claim 1 or a pharmaceutically acceptable salt thereof, wherein the compound is selected from the following compounds:
1-(1,2-benzoxazol-3-yl)ethane-1-sulfonamide,
2-(1,2-benzoxazol-3-yl)propane-2-sulfonamide,
1-(1,2-benzoxazol-3-yl)-1-fluoromethane-sulfonamide,
1-(1,2-benzoxazol-3-yl)-1,1-difluoromethane-sulfonamide,
1-(1,2-benzoxazol-3-yl)cyclopropane-1-sulfonamide,
1-(1,2-benzoxazol-3-yl)-1-fluoroethane-1-sulfonamide,
(1R)-1-(1,2-benzoxazol-3-yl)ethane-1-sulfonamide, or
(1S)-1-(1,2-benzoxazol-3-yl)ethane-1-sulfonamide.

9. The compound of claim 1 or a pharmaceutically acceptable salt thereof, wherein the compound is selected from the following compounds:
1-(1,2-benzoxazol-3-yl)ethane-1-sulfonamide,
2-(1,2-benzoxazol-3-yl)propane-2-sulfonamide,
1-(1,2-benzoxazol-3-yl)cyclopropane-1-sulfonamide,
(1R)-1-(1,2-benzoxazol-3-yl)ethane-1-sulfonamide, or
(1S)-1-(1,2-benzoxazol-3-yl)ethane-1-sulfonamide.

10. The compound of claim 1 or a pharmaceutically acceptable salt thereof, wherein the compound is 1-(1,2-benzoxazol-3-yl)ethane-1-sulfonamide.

11. The compound of claim 1 or a pharmaceutically acceptable salt thereof, wherein the compound is (1R)-1-(1,2-benzoxazol-3-yl)ethane-1-sulfonamide.

12. The compound of claim 1 or a pharmaceutically acceptable salt thereof, wherein the compound is (1S)-1-(1,2-benzoxazol-3-yl)ethane-1-sulfonamide.

~~10~~13. A pharmaceutical composition comprising the compound of any one of claims 1 to ~~9~~12, or a pharmaceutically acceptable salt thereof.

~~11~~14. Use of the compound of any one of claims 1 to 12 or a pharmaceutically acceptable salt thereof, in the manufacture of a ~~A~~ medicament for treating and/or preventing nervous system diseases or psychiatric diseases which are initiated by abnormality of T-type calcium channel~~, comprising the compound of any one of claims 1 to 9, or a pharmaceutically acceptable salt thereof as an active ingredient~~.

~~12~~15. The ~~medicament~~ use of claim ~~11~~14, wherein the

nervous system diseases or psychiatric diseases which are initiated by abnormality of T-type calcium channel are various diseases or disorders, including epilepsy; seizure disorder; motor dysfunction (e.g. muscle spasm-related disorder including convulsion; tremor; essential tremor; Huntington's disease; myoclonus; tic; restless legs syndrome; and dystonia); movement disorder including akinesia and stiff-man syndrome, and parkinsonism (which includes Parkinson's disease (including a symptom such as tremor, muscle stiffness/muscle rigidity, akinesia/bradykinesia, impairment of postural reflex, smell disorder, REM sleep disorder, constipation, sleep disorder, memory impairment, depression, anxiety, headache, and backache), episodic and drug-induced parkinsonism, postencephalitic parkinsonism, progressive supranuclear palsy, multiple system atrophy, corticobasal degeneration, dementia with Lewy body, cerebellar ataxia, parkinsonism-ALS dementia complex, and basal ganglia calcification); levodopa-induced dyskinesia in Parkinson's disease; drug-induced dyskinesia; nociceptive pain (including traumatic pain, migraine, headache, chronic pain (e.g. low back pain, rheumatoid arthralgia, fibromyalgia, osteoarthritis, and the like), inflammatory pain); neuropathic pain (including zoster-associated pain, trigeminal neuralgia, complex regional pain syndrome, peripheral neuropathy (e.g. diabetic neuropathy, leprosy, and the like), chemotherapy-

induced peripheral neuropathy, phantom pain, central pain (e.g. spinal post-injury pain, post-stroke pain, and the like), pain associated with Guillain-Barre syndrome, pain associated with multiple sclerosis, pain associated with Parkinson's disease, and hyperalgesia or allodynia associated with neuropathic pain); fatigue (e.g. Parkinson fatigue, multiple sclerosis fatigue, fatigue caused by sleep disorder or circadian rhythm disorder, chronic fatigue syndrome including drug-induced parkinsonism, and the like); migraine; schizophrenia; autism; Gilles de la Tourette syndrome; bipolar disorder; depressive disorder; anxiety (including generalized anxiety disorder, panic disorder, and obsessive-compulsive disorder); sleep disorder (including insomnia, hypersomnia, narcolepsy, and REM sleep disorder); sleep disorder in depressive disorder; cardiac arrhythmia; hypertension; cancer; diabetes; infertility; and sexual dysfunction.

~~13~~16. The ~~medicament~~ use of claim ~~11~~14, wherein the nervous system diseases or psychiatric diseases which are initiated by abnormality of T-type calcium channel are Parkinson's disease (including a symptom such as tremor, muscle stiffness/muscle rigidity, akinesia/bradykinesia, impairment of postural reflex, smell disorder, REM sleep disorder, constipation, sleep disorder, memory impairment, depression, anxiety, headache, and backache), levodopa-

induced dyskinesia in Parkinson's disease, essential tremor, anxiety (including generalized anxiety disorder), or neuropathic pain (including zoster-associated pain, trigeminal neuralgia, complex regional pain syndrome, peripheral neuropathy (e.g. diabetic neuropathy, leprosy, and the like), chemotherapy-induced peripheral neuropathy, phantom pain, central pain (e.g. spinal post-injury pain, post-stroke pain, and the like), pain associated with Guillain-Barre syndrome, pain associated with multiple sclerosis, pain associated with Parkinson's disease, and hyperalgesia or allodynia associated with neuropathic pain).

~~14~~17. The ~~medicament~~ use of claim ~~11~~14, wherein the nervous system diseases or psychiatric diseases which are initiated by abnormality of T-type calcium channel are Parkinson's disease (including tremor, muscle stiffness/muscle rigidity, akinesia/bradykinesia, and impairment of postural reflex), essential tremor, or chemotherapy-induced peripheral neuropathy.

~~15. A method for treating and/or preventing nervous system diseases or psychiatric diseases which are initiated by abnormality of T-type calcium channel, comprising administering a therapeutically effective amount of the compound of any one of claims 1 to 9, or a pharmaceutically acceptable salt thereof to a patient in need thereof.~~

~~16. Use of the compound of any one of claims 1 to 9 or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for treating and/or preventing nervous system diseases or psychiatric diseases which are initiated by abnormality of T-type calcium channel.~~

18~~17~~. The compound of any one of claims 1 to 12~~9~~ or a pharmaceutically acceptable salt thereof for use in treating and/or preventing nervous system diseases or psychiatric diseases which are initiated by abnormality of T-type calcium channel.

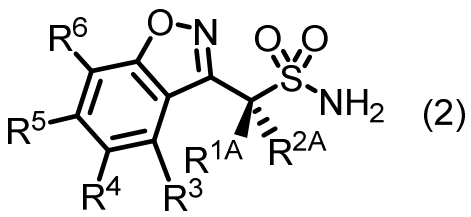
19~~18~~. A medicament for treating a disease associated with abnormality of T-type calcium channel, comprising the compound of any one of claims 1 to ~~9~~12, or a pharmaceutically acceptable salt thereof, which is used in combination with at least one drug selected from the drug-group classified as drugs for treating Parkinson's disease, drugs for treating essential tremor, or drugs for treating neuropathic pain.

20~~19~~. A medicament comprising the compound of any one of claims 1 to ~~9~~12, or a pharmaceutically acceptable salt thereof with at least one drug selected from the drug-group classified as drugs for treating Parkinson's disease, drugs

for treating essential tremor, or drugs for treating neuropathic pain.

21~~20~~. A medicament for treating nervous system disease or psychiatric disease, comprising the compound of any one of claims 1 to ~~9~~12, or a pharmaceutically acceptable salt thereof, which is used in combination with at least one drug selected from the drug-group classified as drugs for treating Parkinson's disease, drugs for treating essential tremor, or drugs for treating neuropathic pain.

22~~21~~. A process for preparing a compound of formula (2):




(2)

or a pharmaceutically acceptable salt thereof, wherein

$R^{1A}$ is hydrogen, halogen, $C_{1-6}$ alkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), or $C_{3-6}$ cycloalkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy),

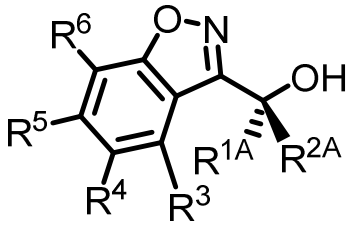
$R^{2A}$ is halogen, $C_{1-6}$ alkyl (which may be substituted

with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), or $C_{3-6}$ cycloalkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy), provided that $R^{1A}$ and $R^{2A}$ are different, and

$R^3$, $R^4$, $R^5$, and $R^6$ are the same or different and are hydrogen, halogen, cyano, nitro, $C_{1-6}$ alkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), $C_{3-6}$ cycloalkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy), or $C_{1-6}$ alkoxy (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy),

which comprises Steps 1 to 3 below,

(Step 1) reacting a compound of formula (3):




(3)

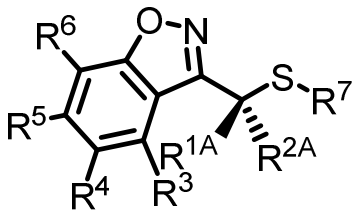
or a salt thereof, wherein $R^{1A}$, $R^{2A}$, $R^3$, $R^4$, $R^5$, and $R^6$ are as defined above, and

a compound of formula (4a) or (4b):

$R^7$—SH (4a)  $R^7$-S-S-$R^7$ (4b)

or a salt thereof, wherein $R^7$ is a leaving group selected from 2-(methoxycarbonyl)ethyl, mesitylenecarbonyloxymethyl, 2-benzothiazolyl (the benzene ring of which may be substituted with 1 - 3 substituents selected independently from the group consisting of halogen, $C_{1-6}$ alkyl (which may be substituted with 1 - 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), $C_{1-6}$ alkoxy (which may be substituted with 1 - 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), hydroxy, cyano, nitro, amino (which may be substituted with 1 - 2 $C_{1-3}$ alkyl), carboxylic acid, carbamoyl (the amino moiety of which may be substituted with 1 - 2 $C_{1-3}$ alkyl), and $C_{1-6}$ alkoxycarbonyl), 2-pyridyl, 2-pyrimidinyl, or 2-(trimethylsilyl)ethyl, which can release a sulfinic acid salt in the reaction

to prepare a compound of formula (5):

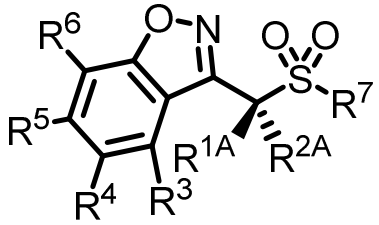



(5)

or a salt thereof, wherein $R^{1A}$, $R^{2A}$, $R^3$, $R^4$, $R^5$, $R^6$, and $R^7$ are as defined above,

(Step 2) oxidizing the compound of formula (5) or a

salt thereof to prepare a compound of formula (6):



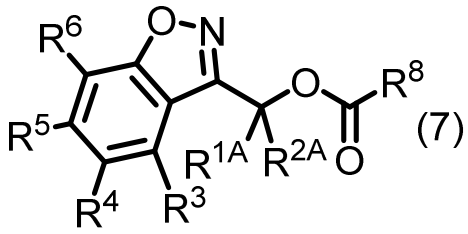
(6)

or a salt thereof, wherein $R^{1A}$, $R^{2A}$, $R^3$, $R^4$, $R^5$, $R^6$, and $R^7$ are as defined above, and

(Step 3) removing $R^7$ from the compound of formula (6) or a salt thereof and sulfonamidating the site to prepare the compound of formula (2) or a pharmaceutically acceptable salt thereof.

23~~22~~. The process of claim 22~~21~~, which further comprises the following step;

(Step 4a) optically-selectively hydrolyzing a compound of formula (7):



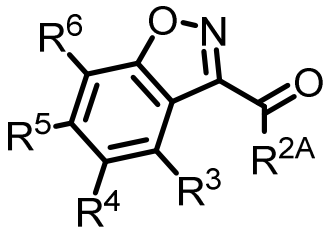
(7)

or a salt thereof, wherein $R^{1A}$, $R^{2A}$, $R^3$, $R^4$, $R^5$, and $R^6$ are as defined in Item 27, and $R^8$ is $C_{1-6}$ alkyl (which may be substituted with 1 - 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), $C_{1-6}$ alkoxy, or $C_{1-6}$ alkylcarbonyloxymethoxy,

with a hydrolase selected from lipase, esterase, amidase, or protease to prepare the compound of formula (3).

24~~23~~. The process of claim 22~~21~~, wherein $R^{1A}$ is hydrogen, which further comprises the following step;

(Step 4b) optically-selectively reducing a compound of formula (8):



(8)

or a salt thereof, wherein $R^{2A}$, $R^3$, $R^4$, $R^5$, and $R^6$ are as defined in claim 21,

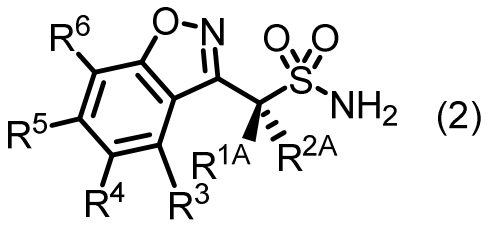
with reductase and a coenzyme selected from NADH or NADPH to prepare the compound of formula (3).

25~~24~~. The process of any one of claims 22~~21~~ to 24~~23~~, wherein $R^7$ is 2-benzothiazolyl.

26~~25~~. The process of claim 23~~22~~ or 25~~24~~, wherein $R^8$ is methyl, and the hydrolase is lipase.

27~~26~~. The process of claim 24~~23~~ or 25~~24~~, wherein $R^{2A}$ is methyl, and the reductase is carbonyl reductase or alcohol dehydrogenase.

28~~27~~. A process for preparing a compound of formula (2):



(2)

or a pharmaceutically acceptable salt thereof, wherein

$R^{1A}$ is hydrogen, halogen, $C_{1-6}$ alkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), or $C_{3-6}$ cycloalkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy),

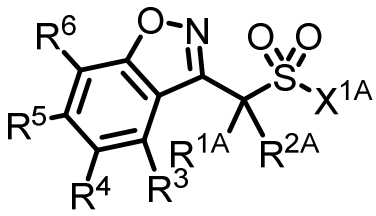
$R^{2A}$ is halogen, $C_{1-6}$ alkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), or $C_{3-6}$ cycloalkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy), provided that $R^{1A}$ and $R^{2A}$ are different, and

$R^3$, $R^4$, $R^5$, and $R^6$ are the same or different and are hydrogen, halogen, cyano, nitro, $C_{1-6}$ alkyl (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy), $C_{3-6}$ cycloalkyl (which may be

substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{1-3}$ alkyl, and $C_{1-3}$ alkoxy), or $C_{1-6}$ alkoxy (which may be substituted with 1 – 3 substituents selected independently from the group consisting of halogen, hydroxy, $C_{3-6}$ cycloalkyl, and $C_{1-3}$ alkoxy),

which comprises Steps 1 to 2 below,

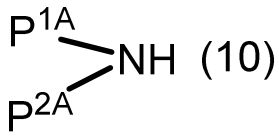
(Step 1) reacting a compound of formula (9):



(9)

or a salt thereof, wherein $R^{1A}$, $R^{2A}$, $R^3$, $R^4$, $R^5$, and $R^6$ are as defined above, and $X^{1A}$ is halogen, and

an optically-active compound of formula (10):

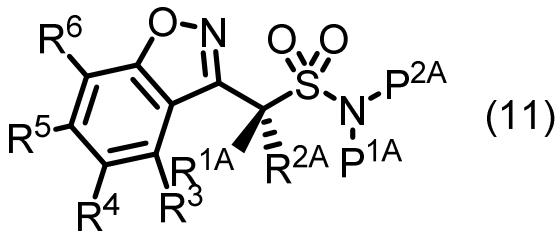


(10)

or a salt thereof, wherein $P^{1A}$ is 2-indanol-1-yl, 2-phenylethan-1-ol-2-yl, or 3-methylbutan-1-ol-2-yl, $P^{2A}$ is hydrogen or benzyl (the benzene ring of which may be substituted with 1 – 5 substituents selected independently from the group consisting of halogen, $C_{1-6}$ alkyl, and $C_{1-6}$ alkoxy, and

dividing the prepared diastereomers to prepare a

compound of formula (11):



(11)

or a salt thereof, wherein $R^{1A}$, $R^{2A}$, $R^3$, $R^4$, $R^5$, $R^6$, $P^{1A}$, and $P^{2A}$ are as defined above, and

(Step 2) deprotecting the compound of formula (11) or a salt thereof to prepare the compound of formula (2) or a pharmaceutically acceptable salt thereof.

29~~28~~. The process of claim 28~~27~~, wherein $R^{1A}$ is hydrogen, and $R^{2A}$ is methyl.

30~~29~~. The process of claim 28~~27~~ or 29~~28~~, wherein $P^{1A}$ is 2-indanol-1-yl, and $P^{2A}$ is hydrogen.

31~~30~~. (1R)-1-(1,2-Benzoxazol-3-yl)ethane-1-sulfonamide in crystalline form of form I which is characterized by a powder x-ray diffraction pattern having diffraction angle (2θ°) peaks of 5.7° ± 0.2 and 17.3° ± 0.2°.

32~~31~~. (1R)-1-(1,2-Benzoxazol-3-yl)ethane-1-sulfonamide in crystalline form of form I which is characterized by a powder x-ray diffraction pattern having four or more diffraction angle (2θ°) peaks selected from 5.7° ± 0.2,

14.1 ± 0.2°, 17.3° ± 0.2°, 19.1° ± 0.2°, 19.3 ± 0.2°, 21.6° ± 0.2°, 22.5 ± 0.2°, 23.1° ± 0.2°, 23.3° ± 0.2°, and 26.5° ± 0.2°.

3332. (1R)-1-(1,2-Benzoxazol-3-yl)ethane-1-sulfonamide in crystalline form of form II which is characterized by a powder x-ray diffraction pattern having diffraction angle (2θ°) peaks of 8.7° ± 0.2° and 17.6° ± 0.2°.

3433. (1R)-1-(1,2-Benzoxazol-3-yl)ethane-1-sulfonamide in crystalline form of form II which is characterized by a powder x-ray diffraction pattern having four or more diffraction angle (2θ°) peaks selected from 8.7° ± 0.2°, 13.5° ± 0.2°, 15.5° ± 0.2°, 17.6° ± 0.2°, 20.3° ± 0.2°, 21.6° ± 0.2°, 22.6° ± 0.2°, 26.2° ± 0.2°, 26.8° ± 0.2°, and 35.2° ± 0.2°.

3534. (1R)-1-(1,2-Benzoxazol-3-yl)ethane-1-sulfonamide in crystalline form of form III which is characterized by a powder x-ray diffraction pattern having diffraction angle (2θ°) peaks of 11.1° ± 0.2° and 20.3° ± 0.2°.

3635. (1R)-1-(1,2-Benzoxazol-3-yl)ethane-1-sulfonamide in crystalline form of form III which is characterized by a powder x-ray diffraction pattern having four or more diffraction angle (2θ°) peaks selected from 11.1° ± 0.2°,

13.8° ± 0.2°, 17.0° ± 0.2°, 20.3° ± 0.2°, 21.4° ± 0.2°, 22.1° ± 0.2°, 22.4° ± 0.2°, 24.8° ± 0.2°, 26.3° ± 0.2°, and 27.9° ± 0.2°.