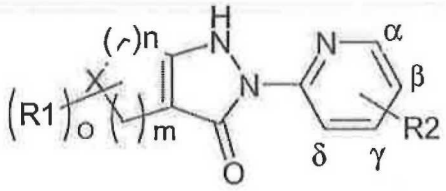
CLAIMS

1. Compound of formula (I):



in which

n is equal to 0, 1, 2, 3 or 4;

m is equal to 0, 1 or 2;

o is equal to 0 or 1;

X represents a group -CH_2, –CH(R')-, -N(R')- or a heteroatom chosen from an oxygen atom and a sulfur atom, it being understood that R' represents a group -(C1-C5)alkyl, -(C1-C5)alkoxy, -CH_2-aryl, -C(O)R5 or -COOR5 with R5 as defined below;

R1 represents an oxo group, a group -COOR5, a group -W-OH or a group -W-NR5R6, with W, R5 and R6 as defined below; and

R2 represents a hydrogen atom or a group chosen from (i) groups -(C1-C5)alkyl, (ii) groups -(C1-C5)alkoxy, (iii) groups -COOR5, (iv) groups -NR5R6, (v) groups -C(O)-NR5R6, (vi) groups -SO_2-NR3R4, (vii) heteroaryl groups optionally substituted with a group -(C1-C5)alkyl, (viii) groups -W-aryl, (ix) groups -W-heteroaryl, (x) groups -O-W-aryl, (xi) groups -O-W-heteroaryl and (xii) groups -O-W-NR5R6, with W, R3, R4, R5 and R6 as defined below;

it being understood that:

R3 and **R4,**

(i) which may be identical or different, represent, independently of each other, a hydrogen atom, a group -(C1-C5)alkyl, a group -(C3-C6)cycloalkyl, an aryl group, a heteroaryl group, a group -CH_2-heteroaryl, a group -(C1-C5)alkyl-NR5R6, a group -W-OH or a group -W-NR5R6; or

(ii) form, together with the nitrogen atom that bears them, a heterocycloalkyl group optionally substituted with one or more groups chosen from groups -(C1-C5)alkyl and groups -CH_2-aryl;

W is a group -(C1-C5)alkylene, optionally substituted with one or more hydroxyl groups; and

R5 and **R6,** which may be identical or different, represent, independently of each other, a hydrogen atom or a group chosen from groups -(C1-C5)alkyl and groups -(C3-C6)cycloalkyl;

in the form of the base or of an acid-addition salt.

2. Compound of formula (I) according to Claim 1, characterized in that

- **n** is equal to 0, 1, 2, 3 or 4;
- **m** is equal to 0, 1 or 2;
- **o** is equal to 0 or 1;
- **X** represents a group $-CH_2-$, –CH(R')-, -N(R')- or a heteroatom chosen from an oxygen atom and a sulfur atom;
- **R'** represents a group -(C1-C5)alkyl, a group -(C1-C5)alkoxy, a group $-CH_2$-aryl, a group -C(O)R5 or a group -COOR5;
- **R1** represents an oxo group, a group -COOR5, a group -W-OH or a group -W-NR5R6;
- **R2** represents a hydrogen atom, a group -(C1-C5)alkyl, a group -(C1-C5)alkoxy, a group -COOR5, a group -NR5R6, a group -C(O)-NR5R6 or a group $-SO_2$-NR3R4;
- **R3** and **R4**
  - (i) represent, independently of each other, a hydrogen atom, a group -(C1-C5)alkyl, a group -(C3-C6)cycloalkyl, an aryl group, a heteroaryl group, a group $-CH_2$-heteroaryl or a group -(C1-C5)alkyl-NR5R6; or
  - (ii) form, together with the nitrogen atom that bears them, a heterocycloalkyl group optionally substituted with a group -(C1-C5)alkyl or with an aryl group;
- **W** represents a group -(C1-C5)alkylene, optionally substituted with one or more hydroxyl groups; and/or
- **R5** and **R6** represent, independently of each other, a hydrogen atom or a

group -(C1-C5)alkyl.

3. Compound of formula (I) according to Claim 1, characterized in that

- **n** is equal to 0, 1, 2, 3 or 4;
- **m** is equal to 0, 1 or 2;
- **o** is equal to 0;
- **R1** represents an oxo group, a group -CH_2-aryl, a group -C(O)R5- or a group -COOR5, the said group R1 possibly being linked to a carbon atom or a heteroatom, the said aryl group advantageously representing a phenyl group;
- **R3** and **R4**
  - (i) represent, independently of each other, a hydrogen atom, a group -(C1-C5)alkyl, a group -(C3-C6)cycloalkyl, an aryl group, a heteroaryl group, a group -CH_2-heteroaryl or a group -(C1-C5)alkyl-NR5R6, advantageously, the said aryl group representing a phenyl group and the said heteroaryl group representing a pyridyl group or a furyl group; or
  - (ii) form, together with the nitrogen atom that bears them, a heterocycloalkyl group optionally substituted with one or more group(s) -(C1-C5)alkyl and/or aryl, advantageously, the said heterocycloalkyl group representing a piperidyl group or a hexamethyleneimino group and the said aryl group representing a phenyl group;
- **R5** represents a group -(C1-C5)alkyl or a group -(C1-C5)cycloalkyl; and/or
- **R6** represents a hydrogen atom or a group (C1-C5)alkyl.

4. Compound of formula (I) according to Claim 1, characterized in that

- **n** is equal to 1, 2, 3 or 4;
- **m** is equal to 0, 1 or 2;
- **o** is equal to 0 or 1;
- **X** represents a group -CH_2-, a group –CH(R')-, a group -N(R')- or a

heteroatom chosen from an oxygen atom and a sulfur atom;

- **R'** represents a group -(C1-C5)alkyl, a group -(C1-C5)alkoxy, a group -CH_2-aryl, a group -C(O)R5 or a group -COOR5;
- **R1** represents an oxo group, a group COOR5, a group -W-OH or a group -W-NR5R6;
- **R2** represents a group -SO_2-NR3R4;
- **R3** and **R4**
  - (i) represent, independently of each other, a hydrogen atom, a group -(C1-C5)alkyl, a group -(C3-C6)cycloalkyl, an aryl group, a heteroaryl group or a group -CH_2-heteroaryl, or
  - (ii) form, together with the nitrogen atom that bears them, a heterocycloalkyl group; and
- **R5** and **R6** represent a group -(C1-C5)alkyl.

5. Compound of formula (I) according to Claim 1, characterized in that

- **n** is equal to 1, 2, 3 or 4;
- **m** is equal to 0, 1 or 2;
- **o** is equal to 0 or 1;
- **X** represents a group -CH_2-, a group -CH(R')-, a group -N(R')- or a heteroatom chosen from an oxygen atom and a sulfur atom;
- **R'** represents a group -(C1-C5)alkyl, a group -(C1-C5)alkoxy, a group -CH_2-aryl, a group -C(O)R5 or a group -COOR5;
- **R1** represents an oxo group;
- **R2** represents a hydrogen atom, a group -(C1-C5)alkyl, a group -(C1-C5)alkoxy, a group -COOR5, a group -NR5R6 or -C(O)-NR5R6; and
- **R5** and **R6** represent, independently of each other, a hydrogen atom, a group -(C1-C5)alkyl or a group -(C1-C5)cycloalkyl.

6. Compound of formula (I) according to Claim 1, characterized in that **R2** represents (i) a hydrogen atom, (ii) a group -(C1-C5)alkyl, (iii) a group -(C1-C5)alkoxy, (iv) a group -COOR5, (v) a group -NR5R6, (vi) a group -C(O)-

NR5R6, (vii) a heteroaryl substituted with a group -(C1-C5) alkyl, (viii) a group -O-W-aryl or (ix) a group -O-W-heteroaryl.

7. Compound of formula (I) according to Claim 1, characterized in that **R2** represents a group $-SO_2-NR3R4$.

8. Compound of formula (I) according to any one of Claims 1 to 7, characterized in that **R2** is a substituent on the atom in the beta position of pyridine.

9. Compound of formula (I) according to any one of Claims 1 to 7, characterized in that **R2** is a substituent on the atom in the gamma position of pyridine.

10. Compound of formula (I) according to any one of the preceding claims, characterized in that it is:

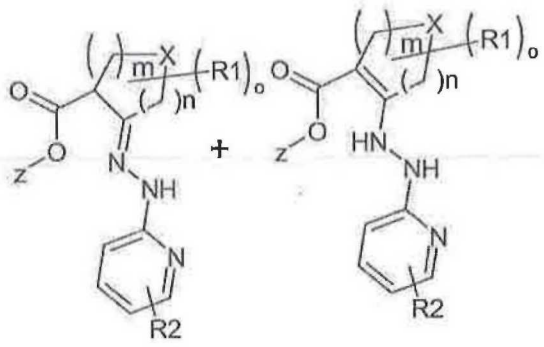
- 2-[5-(piperidin-1-ylsulfonyl)pyridin-2-yl]-1,2,4,5,6,7-hexahydro-3H-indazol-3-one;
- 6-methyl-2-[5-(piperidin-1-ylsulfonyl)pyridin-2-yl]-1,2,4,5,6,7-hexahydro-3H-indazol-3-one;
- 2-[5-(piperidin-1-ylsulfonyl)pyridin-2-yl]-1,4,5,6,7,8-hexahydrocyclo-hepta[c]pyrazol-3(2H)-one;
- N-ethyl-6-(3-oxo-1,3,4,5,6,7-hexahydro-2H-indazol-2-yl)-N-phenylpyridine-3-sulfonamide;
- 6-(5-benzyl-3-oxo-1,3,4,5,6,7-hexahydro-2H-pyrazolo[4,3-c]pyridin-2-yl)-N-ethyl-N-phenylpyridine-3-sulfonamide;
- (±)2-(5-{[(3R,5S)-3,5-dimethylpiperidin-1-yl]sulfonyl}pyridin-2-yl)-1,2,4,5,6,7-hexahydro-3H-indazol-3-one;
- 2-(4-methoxypyridin-2-yl)-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- 2-(pyridin-2-yl)-1,4,5,6-tetrahydrocyclopenta[c]pyrazol-3(2H)-one;
- (±)5-benzyl-2-(5-{[(3R,5S)-3,5-dimethylpiperidin-1-yl]sulfonyl}pyridin-2-yl)-1,2,4,5,6,7-hexahydro-3H-pyrazolo[4,3-c]pyridin-3-one;
- (±)2-(5-{[(3R,5S)-3,5-dimethylpiperidin-1-yl]sulfonyl}pyridin-2-yl)-6-methyl-1,2,4,5,6,7-hexahydro-3H-indazol-3-one;
- 6-(5-benzyl-3-oxo-1,3,4,5,6,7-hexahydro-2H-pyrazolo[4,3-c]pyridin-2-yl)-N,N-diethylpyridine-3-sulfonamide;

- N-ethyl-6-(3-oxo-1,3,4,5,6,7,8,9-octahydro-2H-cycloocta[c]pyrazol-2-yl)-N-phenylpyridine-3-sulfonamide;
- N-ethyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)-N-phenylpyridine-3-sulfonamide;
- 6-(5-benzyl-3-oxo-1,3,4,5,6,7-hexahydro-2H-pyrazolo[4,3-c]pyridin-2-yl)-N,N-di(propan-2-yl)pyridine-3-sulfonamide;
- 6-methoxy-2-(pyridin-2-yl)-1,4,5,6-tetrahydrocyclopenta[c]pyrazol-3(2H)-one;
- 2-(pyridin-2-yl)-1,4,6,7-tetrahydrothiopyrano[4,3-c]pyrazol-3(2H)-one;
- N-ethyl-6-(3-oxo-1,4,6,7-tetrahydrothiopyrano[4,3-c]pyrazol-2(3H)-yl)-N-phenylpyridine-3-sulfonamide;
- N-ethyl-6-(3-oxo-3,5,6,7-tetrahydrothiopyrano[3,2-c]pyrazol-2(1H)-yl)-N-phenylpyridine-3-sulfonamide;
- N,N-diethyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- N,N-dimethyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- 2-[5-(pyrrolidin-1-ylsulfonyl)pyridin-2-yl]-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- N-cyclopropyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)-N-(propan-2-yl)pyridine-3-sulfonamide;
- N-tert-butyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- N-(furan-2-ylmethyl)-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- N-cyclopentyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- N-methyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)-N-(pyridin-2-yl)pyridine-3-sulfonamide;
- 2-(pyridin-2-yl)-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- 2-[4-(dimethylamino)pyridin-2-yl]-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- 2-{5-[(4-benzylpiperidin-1-yl)sulfonyl]pyridin-2-yl}-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)-N-(pyridin-2-yl)pyridine-3-sulfonamide;

- N-ethyl-6-(3-oxo-1,4,6,7-tetrahydropyrano[4,3-c]pyrazol-2(3H)-yl)-N-phenylpyridine-3-sulfonamide;
- sodium 2-(4-ethylpyridin-2-yl)-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- 2-[5-(azepan-1-ylsulfonyl)pyridin-2-yl]-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- sodium 4-benzyl-2-{5-[ethyl(phenyl)sulfamoyl]pyridin-2-yl}-5-oxo-4,5,6,7-tetrahydro-2H-pyrazolo[4,3-b]pyridin-3-olate;
- N-methyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)-N-(pyridin-2-ylmethyl)pyridine-3-sulfonamide;
- tert-butyl 2-{5-[ethyl(phenyl)sulfamoyl]pyridin-2-yl}-3-oxo-1,2,3,4,6,7-hexahydro-5H-pyrazolo[4,3-c]pyridine-5-carboxylate;
- 6-(5-acetyl-3-oxo-1,3,4,5,6,7-hexahydro-2H-pyrazolo[4,3-c]pyridin-2-yl)-N-ethyl-N-phenylpyridine-3-sulfonamide;
- tert-butyl 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-carboxylate;
- sodium 2-(4-methylpyridin-2-yl)-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- sodium 2-{5-[tert-butyl(methyl)sulfamoyl]pyridin-2-yl}-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- sodium 2-{5-[tert-butyl(ethyl)sulfamoyl]pyridin-2-yl}-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- sodium 2-(5-methylpyridin-2-yl)-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- sodium 2-[5-(tert-butylcarbamoyl)pyridin-2-yl]-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- sodium 2-(5-methoxypyridin-2-yl)-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- N-methyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)-N-(pyridin-4-yl)pyridine-3-sulfonamide;
- sodium 2-{5-[cyclopentyl(ethyl)sulfamoyl]pyridin-2-yl}-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- sodium 2-[4-(pyridin-3-ylmethoxy)pyridin-2-yl]-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- methyl 2-{5-[ethyl(phenyl)sulfamoyl]pyridin-2-yl}-3-oxo-1,2,3,4,6,7-hexahydro-5H-pyrazolo[4,3-c]pyridine-5-carboxylate;
- cyclopentyl 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-carboxylate;
- 2-methylpropyl 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-carboxylate;
- 2-[4-(propan-2-yl)pyridin-2-yl]-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;

- sodium 2-[5-(propan-2-yl)pyridin-2-yl]-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- methyl 2-{5-[ethyl(phenyl)sulfamoyl]pyridin-2-yl}-3-oxo-2,3,4,6-tetrahydro-1H-thieno[3,4-c]pyrazole-4-carboxylate;
- propan-2-yl 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-carboxylate;
- sodium 2-{5-[ethyl(phenyl)sulfamoyl]pyridin-2-yl}-6-methoxy-2,4,5,6-tetrahydrocyclopenta[c]pyrazol-3-olate;
- N-ethyl-6-(3-oxo-3,4,5,6-tetrahydrocyclopenta[c]pyrazol-2(1H)-yl)-N-phenylpyridine-3-sulfonamide;
- sodium 2-[4-(pyridin-3-ylmethoxy)pyridin-2-yl]-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- 2,2-dimethylpropyl 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-carboxylate;
- 2-[5-(5-tert-butyl-1,2,4-oxadiazol-3-yl)pyridin-2-yl]-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- N-cyclopentyl-N-methyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- N-cyclopentyl-N-ethyl-6-(3-oxo-3,4,5,6-tetrahydrocyclopenta[c]pyrazol-2(1H)-yl)pyridine-3-sulfonamide;
- N-cyclopentyl-N-(2,3-dihydroxypropyl)-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- 2,2-dimethylpropyl 6-[5-(methylsulfonyl)-3-oxo-1,3,4,5,6,7-hexahydro-2H-pyrazolo[4,3-c]pyridin-2-yl]pyridine-3-carboxylate;
- 2-[5-(3-tert-butyl-1,2,4-oxadiazol-5-yl)pyridin-2-yl]-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one.

11. Process for preparing a compound of formula (I) according to any one of Claims 1 to 10, characterized in that a compound of formula (IV), which is in the form of a compound of formula (IVa) or (IVb) or both:

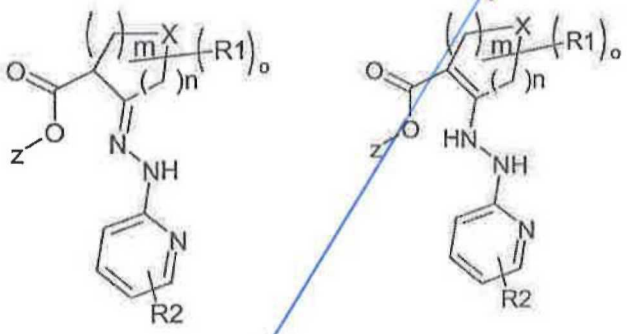


(IVa) (IVb)

in which X, R1, R2, n, m and are as defined in Claim 1, and z represents an alkyl group,

is reacted with an organic base.

12. Compounds of formulae (IVa) and (IVb)



(IVa) (IVb)

in which X, R1, R2, n, m and o are as defined in Claim 1, and z represents an alkyl group.

13. Medicament, characterized in that it comprises a compound of formula (I) according to any one of Claims 1 to 10, or an addition salt of this compound with a pharmaceutically acceptable acid of the compound of formula (I).

14. Pharmaceutical composition, characterized in that it comprises a compound of formula (I) according to any one of Claims 1 to 10, or a

pharmaceutically acceptable salt of this compound, and also at least one pharmaceutically acceptable excipient.

15. Use of a compound of formula (I) according to any one of Claims 1 to 10, for the preparation of a medicament for the treatment/prophylaxis of cardiovascular diseases.

16. Use of a compound of formula (I) according to any one of Claims 1 to 10, for the preparation of a medicament for the treatment/prophylaxis of ischaemia of the lower limbs, cardiac insufficiency, coronary diseases of ischaemic origin, for instance angina pectoris or myocardial infarction, arteriosclerosis, strokes of ischaemic origin, pulmonary hypertension and any pathology caused by partial or total vascular occlusion.

17. Use of a compound of formula (I) according to any one of Claims 1 to 10, for the preparation of a medicament for the treatment/prophylaxis of glaucoma, renal diseases or cerebral diseases of neurodegenerative origin or otherwise, anaemia, or a medicament for promoting cicatrization, or agents for shortening the post-operative convalescence period, or a medicament for treating general fatigue conditions, or alternatively a medicament used for the purpose of obtaining blood in the context of autotransfusions necessary following major surgical interventions such as cranial or chest surgery, or heart, carotid or aortic operations.

18. Use of a compound of formula (I) according to any one of Claims 1 to 10, for the preparation of a medicament for the treatment/prophylaxis of cardiac or peripheral diseases of ischaemic origin via regenerative medicine using stem cells.

19. Combination of a compound of formula (I) according to any one of Claims 1 to 10 with one or more active compound(s) that is (are) useful in the treatment of hypertension, cardiac insufficiency, diabetes and anaemia.

20. Uniform test for the direct measurement by beta-galactosidase complementation of the amount of HIF1-alpha protein in the nuclei of cells, preferably HEK cells, after treating the said cells with one or more of the test compounds, which consists in:

(a) inoculating the said cells in a suitable culture medium;

(b) adding the test compound(s) at a suitable concentration in a suitable solvent to the cells previously inoculated in the said culture medium;

(c) incubating the said cells thus prepared in an incubator at about 37°C, advantageously for about 6 hours;

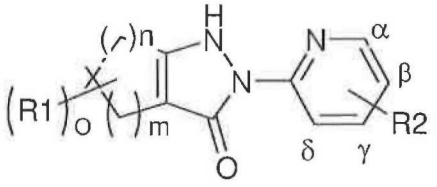
(d) lysing the cells with a lysis buffer containing a chemiluminescent substrate for beta-galactosidase;

(e) incubating in the absence of light before reading and measuring the luminescence, which is a function of the beta-galactosidase activity.

21. Test according to the preceding claim, characterized in that the test compound(s) is (are) chosen from the compounds according to any one of Claims 1 to 10.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. Compound of formula (I):



in which

n is equal to 0, 1, 2, 3 or 4;

m is equal to 0, 1 or 2;

o is equal to 0 or 1;

X represents a group -CH_2, –CH(R')-, -N(R')- or a heteroatom chosen from an oxygen atom and a sulfur atom, it being understood that R' represents a group -(C1-C5)alkyl, -(C1-C5)alkoxy, -CH_2-aryl, -C(O)R5 or -COOR5 with R5 as defined below;

R1 represents an oxo group, a group -CH_2-aryl, a group -C(O)R5-, a group -COOR5, a group -W-OH or a group -W-NR5R6, with W, R5 and R6 as defined below; and

R2 represents a hydrogen atom or a group chosen from (i) groups -(C1-C5)alkyl, (ii) groups -(C1-C5)alkoxy, (iii) groups -COOR5, (iv) groups -NR5R6, (v) groups -C(O)-NR5R6, (vi) groups -SO_2-NR3R4, (vii) heteroaryl groups optionally substituted with a group -(C1-C5)alkyl, (viii) groups -W-aryl, (ix) groups -W-heteroaryl, (x) groups -O-W-aryl, (xi) groups -O-W-heteroaryl and (xii) groups -O-W-NR5R6, with W, R3, R4, R5 and R6 as defined below;
it being understood that:

R3 and **R4,**

(i) which may be identical or different, represent, independently of each other, a hydrogen atom, a group -(C1-C5)alkyl, a group -(C3-C6)cycloalkyl, an aryl group, a heteroaryl group, a group -CH_2-heteroaryl, a group -(C1-C5)alkyl-NR5R6, a group -W-OH or a group -W-NR5R6; or

(ii) form, together with the nitrogen atom that bears them, a heterocycloalkyl group optionally substituted with one or more groups chosen from groups -(C1-C5)alkyl and/or aryl and groups -CH_2-aryl;,

W is a group -(C1-C5)alkylene, optionally substituted with one or more hydroxyl groups; and

R5 and **R6,** which may be identical or different, represent, independently of each other, a hydrogen atom or a group chosen from groups -(C1-C5)alkyl and groups -(C3-C6)cycloalkyl;

in the form of the base or of an acid-addition salt.

2. Compound of formula (I) according to Claim 1, wherein

- **n** is equal to 0, 1, 2, 3 or 4;
- **m** is equal to 0, 1 or 2;
- **o** is equal to 0 or 1;
- **X** represents a group -CH_2-, –CH(R')-, -N(R')- or a heteroatom chosen from an oxygen atom and a sulfur atom;
- **R'** represents a group -(C1-C5)alkyl, a group -(C1-C5)alkoxy, a group -CH_2-aryl, a group -C(O)R5 or a group -COOR5;
- **R1** represents an oxo group, a group -COOR5, a group -W-OH or a group -W-NR5R6;
- **R2** represents a hydrogen atom, a group -(C1-C5)alkyl, a group -(C1-C5)alkoxy, a group -COOR5, a group -NR5R6, a group -C(O)-NR5R6 or a group -SO_2-NR3R4;
- **R3** and **R4**
  - (i) represent, independently of each other, a hydrogen atom, a group -(C1-C5)alkyl, a group -(C3-C6)cycloalkyl, an aryl group, a heteroaryl group, a group -CH_2-heteroaryl or a group -(C1-C5)alkyl-NR5R6; or
  - (ii) form, together with the nitrogen atom that bears them, a heterocycloalkyl group optionally substituted with a group -(C1-C5)alkyl or with an aryl group;

- **W** represents a group -(C1-C5)alkylene, optionally substituted with one or more hydroxyl groups; and/or
- **R5** and **R6** represent, independently of each other, a hydrogen atom or a group -(C1-C5)alkyl.

3. Compound of formula (I) according to Claim 1, wherein

- **n** is equal to 0, 1, 2, 3 or 4;
- **m** is equal to 0, 1 or 2;
- **o** is equal to 0;
- **R1** represents an oxo group, a group -CH_2-aryl, a group -C(O)R5- or a group -COOR5, the said group R1 possibly being linked to a carbon atom or a heteroatom, the said aryl group advantageously representing a phenyl group;
- **R3** and **R4**
  - (i) represent, independently of each other, a hydrogen atom, a group -(C1-C5)alkyl, a group -(C3-C6)cycloalkyl, an aryl group, a heteroaryl group, a group -CH_2-heteroaryl or a group -(C1-C5)alkyl-NR5R6, advantageously, the said aryl group representing a phenyl group and the said heteroaryl group representing a pyridyl group or a furyl group; or
  - (ii) form, together with the nitrogen atom that bears them, a heterocycloalkyl group optionally substituted with one or more group(s) -(C1-C5)alkyl and/or aryl, advantageously, the said heterocycloalkyl group representing a piperidyl group or a hexamethyleneimino group and the said aryl group representing a phenyl group;
- **R5** represents a group -(C1-C5)alkyl or a group -(C3-C5)cycloalkyl; and/or
- **R6** represents a hydrogen atom or a group (C1-C5)alkyl.

4. Compound of formula (I) according to Claim 1, wherein

- **n** is equal to 1, 2, 3 or 4;

- **m** is equal to 0, 1 or 2;
- **o** is equal to 0 or 1;
- **X** represents a group -CH_2-, a group –CH(R')-, a group -N(R')- or a heteroatom chosen from an oxygen atom and a sulfur atom;
- **R'** represents a group -(C1-C5)alkyl, a group -(C1-C5)alkoxy, a group -CH_2-aryl, a group -C(O)R5 or a group -COOR5;
- **R1** represents an oxo group, a group COOR5, a group -W-OH or a group -W-NR5R6;
- **R2** represents a group -SO_2-NR3R4;
- **R3** and **R4**
  - (i) represent, independently of each other, a hydrogen atom, a group -(C1-C5)alkyl, a group -(C3-C6)cycloalkyl, an aryl group, a heteroaryl group or a group -CH_2-heteroaryl, or
  - (ii) form, together with the nitrogen atom that bears them, a heterocycloalkyl group; and
- **R5** and **R6** represent a group -(C1-C5)alkyl.

5. Compound of formula (I) according to Claim 1, wherein

- **n** is equal to 1, 2, 3 or 4;
- **m** is equal to 0, 1 or 2;
- **o** is equal to 0 or 1;
- **X** represents a group -CH_2-, a group –CH(R')-, a group -N(R')- or a heteroatom chosen from an oxygen atom and a sulfur atom;
- **R'** represents a group -(C1-C5)alkyl, a group -(C1-C5)alkoxy, a group -CH_2-aryl, a group -C(O)R5 or a group -COOR5;
- **R1** represents an oxo group;
- **R2** represents a hydrogen atom, a group -(C1-C5)alkyl, a group -(C1-C5)alkoxy, a group -COOR5, a group -NR5R6 or -C(O)-NR5R6; and
- **R5** and **R6** represent, independently of each other, a hydrogen atom, a group -(C1-C5)alkyl or a group -(C3-C5)cycloalkyl.

6. Compound of formula (I) according to Claim 1, wherein **R2** represents (i) a hydrogen atom, (ii) a group -(C1-C5)alkyl, (iii) a group -(C1-C5)alkoxy, (iv) a group -COOR5, (v) a group -NR5R6, (vi) a group -C(O)-NR5R6, (vii) a heteroaryl substituted with a group -(C1-C5) alkyl, (viii) a group -O-W-aryl or (ix) a group -O-W-heteroaryl.

7. Compound of formula (I) according to Claim 1, wherein **R2** represents a group $-SO_2-NR3R4$.

8. Compound of formula (I) according to any one of Claims 1 to 7, wherein **R2** is a substituent on the atom in the beta position of pyridine.

9. Compound of formula (I) according to any one of Claims 1 to 7, wherein **R2** is a substituent on the atom in the gamma position of pyridine.

10. Compound of formula (I) according to any one of the preceding claims, wherein it is:

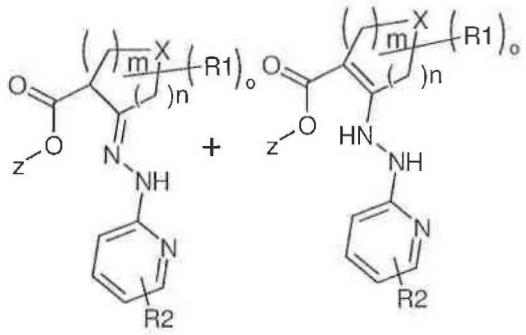
- 2-[5-(piperidin-1-ylsulfonyl)pyridin-2-yl]-1,2,4,5,6,7-hexahydro-3H-indazol-3-one;
- 6-methyl-2-[5-(piperidin-1-ylsulfonyl)pyridin-2-yl]-1,2,4,5,6,7-hexahydro-3H-indazol-3-one;
- 2-[5-(piperidin-1-ylsulfonyl)pyridin-2-yl]-1,4,5,6,7,8-hexahydrocyclo-hepta[c]pyrazol-3(2H)-one;
- N-ethyl-6-(3-oxo-1,3,4,5,6,7-hexahydro-2H-indazol-2-yl)-N-phenylpyridine-3-sulfonamide;
- 6-(5-benzyl-3-oxo-1,3,4,5,6,7-hexahydro-2H-pyrazolo[4,3-c]pyridin-2-yl)-N-ethyl-N-phenylpyridine-3-sulfonamide;
- (±)2-(5-{[(3R,5S)-3,5-dimethylpiperidin-1-yl]sulfonyl}pyridin-2-yl)-1,2,4,5,6,7-hexahydro-3H-indazol-3-one;
- 2-(4-methoxypyridin-2-yl)-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- 2-(pyridin-2-yl)-1,4,5,6-tetrahydrocyclopenta[c]pyrazol-3(2H)-one;
- (±)5-benzyl-2-(5-{[(3R,5S)-3,5-dimethylpiperidin-1-yl]sulfonyl}pyridin-2-yl)-1,2,4,5,6,7-hexahydro-3H-pyrazolo[4,3-c]pyridin-3-one;

- (±)2-(5-{[(3R,5S)-3,5-dimethylpiperidin-1-yl]sulfonyl}pyridin-2-yl)-6-methyl-1,2,4,5,6,7-hexahydro-3H-indazol-3-one;
- 6-(5-benzyl-3-oxo-1,3,4,5,6,7-hexahydro-2H-pyrazolo[4,3-c]pyridin-2-yl)-N,N-diethylpyridine-3-sulfonamide;
- N-ethyl-6-(3-oxo-1,3,4,5,6,7,8,9-octahydro-2H-cycloocta[c]pyrazol-2-yl)-N-phenylpyridine-3-sulfonamide;
- N-ethyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)-N-phenylpyridine-3-sulfonamide;
- 6-(5-benzyl-3-oxo-1,3,4,5,6,7-hexahydro-2H-pyrazolo[4,3-c]pyridin-2-yl)-N,N-di(propan-2-yl)pyridine-3-sulfonamide;
- 6-methoxy-2-(pyridin-2-yl)-1,4,5,6-tetrahydrocyclopenta[c]pyrazol-3(2H)-one;
- 2-(pyridin-2-yl)-1,4,6,7-tetrahydrothiopyrano[4,3-c]pyrazol-3(2H)-one;
- N-ethyl-6-(3-oxo-1,4,6,7-tetrahydrothiopyrano[4,3-c]pyrazol-2(3H)-yl)-N-phenylpyridine-3-sulfonamide;
- N-ethyl-6-(3-oxo-3,5,6,7-tetrahydrothiopyrano[3,2-c]pyrazol-2(1H)-yl)-N-phenylpyridine-3-sulfonamide;
- N,N-diethyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- N,N-dimethyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- 2-[5-(pyrrolidin-1-ylsulfonyl)pyridin-2-yl]-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- N-cyclopropyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)-N-(propan-2-yl)pyridine-3-sulfonamide;
- N-tert-butyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- N-(furan-2-ylmethyl)-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- N-cyclopentyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- N-methyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)-N-(pyridin-2-yl)pyridine-3-sulfonamide;
- 2-(pyridin-2-yl)-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;

- 2-[4-(dimethylamino)pyridin-2-yl]-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- 2-{5-[(4-benzylpiperidin-1-yl)sulfonyl]pyridin-2-yl}-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)-N-(pyridin-2-yl)pyridine-3-sulfonamide;
- N-ethyl-6-(3-oxo-1,4,6,7-tetrahydropyrano[4,3-c]pyrazol-2(3H)-yl)-N-phenylpyridine-3-sulfonamide;
- sodium 2-(4-ethylpyridin-2-yl)-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- 2-[5-(azepan-1-ylsulfonyl)pyridin-2-yl]-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- sodium 4-benzyl-2-{5-[ethyl(phenyl)sulfamoyl]pyridin-2-yl}-5-oxo-4,5,6,7-tetrahydro-2H-pyrazolo[4,3-b]pyridin-3-olate;
- N-methyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)-N-(pyridin-2-ylmethyl)pyridine-3-sulfonamide;
- tert-butyl 2-{5-[ethyl(phenyl)sulfamoyl]pyridin-2-yl}-3-oxo-1,2,3,4,6,7-hexahydro-5H-pyrazolo[4,3-c]pyridine-5-carboxylate;
- 6-(5-acetyl-3-oxo-1,3,4,5,6,7-hexahydro-2H-pyrazolo[4,3-c]pyridin-2-yl)-N-ethyl-N-phenylpyridine-3-sulfonamide;
- tert-butyl 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-carboxylate;
- sodium 2-(4-methylpyridin-2-yl)-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- sodium 2-{5-[tert-butyl(methyl)sulfamoyl]pyridin-2-yl}-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- sodium 2-{5-[tert-butyl(ethyl)sulfamoyl]pyridin-2-yl}-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- sodium 2-(5-methylpyridin-2-yl)-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- sodium 2-[5-(tert-butylcarbamoyl)pyridin-2-yl]-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- sodium 2-(5-methoxypyridin-2-yl)-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- N-methyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)-N-(pyridin-4-yl)pyridine-3-sulfonamide;
- sodium 2-{5-[cyclopentyl(ethyl)sulfamoyl]pyridin-2-yl}-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- sodium 2-[4-(pyridin-3-ylmethoxy)pyridin-2-yl]-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;

- methyl 2-{5-[ethyl(phenyl)sulfamoyl]pyridin-2-yl}-3-oxo-1,2,3,4,6,7-hexahydro-5H-pyrazolo[4,3-c]pyridine-5-carboxylate;
- cyclopentyl 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-carboxylate;
- 2-methylpropyl 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-carboxylate;
- 2-[4-(propan-2-yl)pyridin-2-yl]-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- sodium 2-[5-(propan-2-yl)pyridin-2-yl]-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- methyl 2-{5-[ethyl(phenyl)sulfamoyl]pyridin-2-yl}-3-oxo-2,3,4,6-tetrahydro-1H-thieno[3,4-c]pyrazole-4-carboxylate;
- propan-2-yl 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-carboxylate;
- sodium 2-{5-[ethyl(phenyl)sulfamoyl]pyridin-2-yl}-6-methoxy-2,4,5,6-tetrahydrocyclopenta[c]pyrazol-3-olate;
- N-ethyl-6-(3-oxo-3,4,5,6-tetrahydrocyclopenta[c]pyrazol-2(1H)-yl)-N-phenylpyridine-3-sulfonamide;
- sodium 2-[4-(pyridin-3-ylmethoxy)pyridin-2-yl]-2,6-dihydro-4H-thieno[3,4-c]pyrazol-3-olate;
- 2,2-dimethylpropyl 6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-carboxylate;
- 2-[5-(5-tert-butyl-1,2,4-oxadiazol-3-yl)pyridin-2-yl]-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one;
- N-cyclopentyl-N-methyl-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- N-cyclopentyl-N-ethyl-6-(3-oxo-3,4,5,6-tetrahydrocyclopenta[c]pyrazol-2(1H)-yl)pyridine-3-sulfonamide;
- N-cyclopentyl-N-(2,3-dihydroxypropyl)-6-(3-oxo-4,6-dihydro-1H-thieno[3,4-c]pyrazol-2(3H)-yl)pyridine-3-sulfonamide;
- 2,2-dimethylpropyl 6-[5-(methylsulfonyl)-3-oxo-1,3,4,5,6,7-hexahydro-2H-pyrazolo[4,3-c]pyridin-2-yl]pyridine-3-carboxylate;
- 2-[5-(3-tert-butyl-1,2,4-oxadiazol-5-yl)pyridin-2-yl]-1,2,4,6-tetrahydro-3H-thieno[3,4-c]pyrazol-3-one.

11. Process for preparing a compound of formula (I) according to any one of Claims 1 to 10, wherein a compound of formula (IV), which is in the form of a compound of formula (IVa) or (IVb) or both:

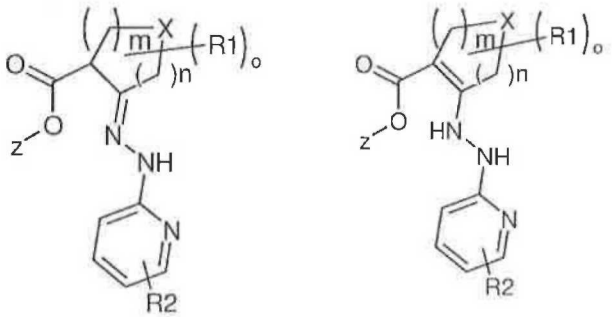


(IVa) (IVb)

in which X, R1, R2, n, m and are as defined in Claim 1, and z represents an alkyl group,

is reacted with an organic base.

12. Compounds of formulae (IVa) and (IVb)



(IVa) (IVb)

in which R1, R2, n, m and o are as defined in Claim 1, z represents an alkyl group, and **X** represents a group–CH(R')-, -N(R')- or a heteroatom chosen from an oxygen atom and a sulfur atom, it being understood that R' represents a group -(C1-C5)alkyl, -(C1-C5)alkoxy, -CH_2-aryl, -C(O)R5 or -COOR5 with R5 as defined in claim 1.

13. Medicament, comprising a compound of formula (I) according to any one of Claims 1 to 10, or an addition salt of this compound with a pharmaceutically acceptable acid of the compound of formula (I).

14. Pharmaceutical composition, comprising a compound of formula (I) according to any one of Claims 1 to 10, or a pharmaceutically acceptable salt of this compound, and also at least one pharmaceutically acceptable excipient.

15. Use of a compound of formula (I) according to any one of Claims 1 to 10, or a pharmaceutically acceptable salt of this compound for the preparation of a medicament for the treatment/prophylaxis of cardiovascular diseases.

16. Use of a compound of formula (I) according to any one of Claims 1 to 10, or a pharmaceutically acceptable salt of this compound for the preparation of a medicament for the treatment/prophylaxis of ischaemia of the lower limbs, cardiac insufficiency, coronary diseases of ischaemic origin, strokes of ischaemic origin, pulmonary hypertension and any pathology caused by partial or total vascular occlusion.

17. Use of a compound of formula (I) according to any one of Claims 1 to 10, or a pharmaceutically acceptable salt of this compound for the preparation of a medicament for the treatment/prophylaxis of glaucoma, renal diseases or cerebral diseases of neurodegenerative origin or otherwise, anaemia, or a medicament for promoting cicatrization, or agents for shortening the post-operative convalescence period, or alternatively a medicament used for the purpose of obtaining blood in the context of autotransfusions necessary following major surgical interventions.

18. Use of a compound of formula (I) according to any one of Claims 1 to 10, or a pharmaceutically acceptable salt of this compound for the preparation of a medicament for the treatment/prophylaxis of cardiac or peripheral diseases of ischaemic origin via regenerative medicine using stem cells.

19. Combination of a compound of formula (I) according to any one of Claims 1 to 10, or a pharmaceutically acceptable salt of this compound with one or more active compound(s) that is (are) useful in the treatment of hypertension, cardiac insufficiency, diabetes and anaemia.