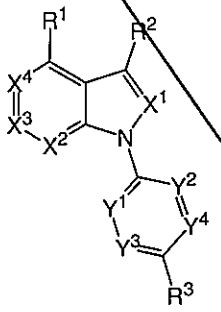
Claims

1. A compound represented by the following general formula (I) or a salt thereof:



(I)

wherein X^1 represents CH or N;

any one of X^2, X^3 and X^4 represents N, and the others represent CH;

any one or two of Y^1, Y^2, Y^3 and Y^4 represent C-R^4, and the others are the same or different and represent CH or N;

R^1 represents an optionally substituted monocyclic or bicyclic unsaturated heterocyclic group having 1 to 4 heteroatoms selected from N, S and O;

R^2 represents a hydrogen atom, an optionally substituted alkyl group having 1 to 6 carbon atoms or an optionally substituted alkenyl group having 2 to 6 carbon atoms;

R^3 represents a cyano group or -CO-R^5;

R^4(s) are the same or different and represent a hydrogen atom, a halogen atom, a cyano group, an optionally substituted alkyl group having 1 to 6 carbon atoms, an alkenyl group having 2 to 6 carbon atoms, an alkoxy group having 1 to 6 carbon atoms, an aromatic hydrocarbon group, -N(R^6)(R^7), -S-R^8 or -CO-R^9;

R^5 represents an amino group optionally having a hydroxyl group, or an optionally substituted mono- or di-alkylamino group;

R^6 and R^7 are the same or different and represent a hydrogen atom, an optionally substituted alkyl group having 1 to 6 carbon atoms,

a halogenoalkyl group having 1 to 6 carbon atoms, an optionally substituted cycloalkyl group having 3 to 7 carbon atoms, an optionally substituted aralkyl group, an optionally substituted aromatic hydrocarbon group, an optionally substituted saturated heterocyclic group or an optionally substituted unsaturated heterocyclic group, or R^6 and R^7 optionally form a saturated heterocyclic group, together with the nitrogen atom to which they are bonded;
R^8 represents an optionally substituted cycloalkyl group having 3 to 7 carbon atoms, or an optionally substituted aromatic hydrocarbon group; and
R^9 represents a hydrogen atom, a hydroxyl group, an amino group optionally having a hydroxyl group, or an optionally substituted mono- or di-alkylamino group.

2. The compound according to claim 1, or a salt thereof, wherein R^1 is an optionally substituted monocyclic 5- to 6-membered unsaturated heterocyclic group having 1 to 3 heteroatoms selected from N, S and O, or an optionally substituted bicyclic 9- to 10-membered unsaturated heterocyclic group having 1 to 3 heteroatoms selected from N, S and O.

3. The compound according to claim 1 or 2, or a salt thereof, wherein R^2 is an alkyl group having 1 to 6 carbon atoms which optionally has a halogen atom, or an alkenyl group having 2 to 6 carbon atoms.

4. The compound according to any one of claims 1 to 3, or a salt thereof, wherein R^3 is $-CO-R^5$, and R^5 is an amino group or a mono- or di-(C1-C6 alkyl)amino group.

5. The compound according to any one of claims 1 to 4, or a salt thereof, wherein X^2 is N, and X^3 and X^4 are CH.

6. The compound according to any one of claims 1 to 5, or a salt thereof, wherein R^1 is any of an optionally substituted 1H-imidazol-1-yl group, an optionally substituted pyrazol-4-yl group, an optionally substituted thiophen-3-yl group, an optionally substituted furan-2-yl group, an optionally substituted pyridin-3-yl group, an optionally substituted pyridin-4-yl group, an optionally substituted indol-5-yl group, an optionally substituted 1H-pyrrolo[2,3-b]pyridin-5-yl group, an optionally substituted benzofuran-2-yl group, an optionally substituted quinolin-3-yl group and an optionally substituted 5,6,7,8-tetrahydroquinolin-3-yl group.

7. The compound according to any one of claims 1 to 6, or a salt thereof, wherein Y^1 and Y^3 are CH, any one or two of Y^2 and Y^4 are C-R^4, and the other is CH; and R^4 is a halogen atom, an alkyl group having 1 to 6 carbon atoms which optionally has a mono- or di-(C1-C6 alkyl)amino group or a monocyclic 5- to 7-membered saturated heterocyclic group having one or two of any heteroatom of N, S and O, an alkoxy group having 1 to 6 carbon atoms, -$N(R^6)(R^7)$, -SR^8 or -CO-R^9.

8. The compound according to any one of claims 1 to 7, or a salt thereof, wherein R^6 is a hydrogen atom or an optionally substituted alkyl group having 1 to 6 carbon atoms, and R^7 represents a hydrogen atom, an optionally substituted alkyl group having 1 to 6 carbon atoms, an optionally substituted cycloalkyl

group having 3 to 7 carbon atoms, an optionally substituted aralkyl group having 7 to 12 carbon atoms, an optionally substituted aromatic hydrocarbon group having 6 to 14 carbon atoms, a monocyclic or bicyclic optionally substituted saturated heterocyclic group having 1 to 4 heteroatoms selected from N, S and O, or a monocyclic or bicyclic optionally substituted unsaturated heterocyclic group having 1 to 4 heteroatoms selected from N, S and O, or R^6 and R^7 optionally form a 5- to 7-membered saturated heterocyclic group, together with the nitrogen atom to which they are bonded; R^8 is an optionally substituted cycloalkyl group having 3 to 7 carbon atoms, or an optionally substituted aromatic hydrocarbon group having 6 to 14 carbon atoms; and R^9 is a hydrogen atom, a hydroxyl group, an amino group or a mono- or di-(C1-C6 alkyl)amino group.

9. A pharmaceutical product containing a compound according to any one of claims 1 to 8, or a salt thereof.

10. The pharmaceutical product according to claim 9, wherein the pharmaceutical product is an anticancer agent.

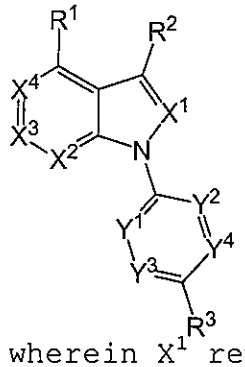
11. A pharmaceutical composition containing a compound according to any one of claims 1 to 8, or a salt thereof and a pharmaceutically acceptable carrier.

12. The compound according to any one of claims 1 to 8, or a salt thereof, for use in the treatment of cancer.

13. A method for treating cancer, comprising administering an effective amount of a compound according to any one of claims 1 to 8, or a salt thereof.

Claims

1. A compound represented by the following general formula (I) or a salt thereof:



(I)

wherein X^1 represents CH or N;
any one of X^2, X^3 and X^4 represents N, and the others represent CH;
any one or two of Y^1, Y^2, Y^3 and Y^4 represent C-R^4, and the others are the same or different and represent CH or N;
R^1 represents an optionally substituted monocyclic unsaturated 5- to 6-membered heterocyclic group having 1 to 3 heteroatoms selected from N, S and O or a bicyclic unsaturated 9- to 10-membered heterocyclic group having 1 to 3 heteroatoms selected from N, S and O;
R^2 represents a hydrogen atom, an optionally substituted alkyl group having 1 to 6 carbon atoms or an optionally substituted alkenyl group having 2 to 6 carbon atoms;
R^3 represents a cyano group or -CO-R^5;
R^4(s) are the same or different and represent a hydrogen atom, a halogen atom, a cyano group, an optionally substituted alkyl group having 1 to 6 carbon atoms, an alkenyl group having 2 to 6 carbon atoms, an alkoxy group having 1 to 6 carbon atoms, an aromatic hydrocarbon group, -N(R^6)(R^7), -S-R^8 or -CO-R^9;
R^5 represents an amino group optionally having a hydroxyl group, or an optionally substituted mono- or di-alkylamino group;
R^6 and R^7 are the same or different and represent a hydrogen atom, an optionally substituted alkyl group having 1 to 6 carbon atoms, a halogenoalkyl group having 1 to 6 carbon atoms, an optionally substituted cycloalkyl group having 3 to 7 carbon atoms, an optionally substituted aralkyl group, an optionally substituted aromatic hydrocarbon group, an optionally substituted saturated heterocyclic group or an optionally substituted unsaturated heterocyclic group, or R^6 and R^7 optionally form a saturated heterocyclic group, together with the nitrogen atom to which they are bonded;

R^8 represents an optionally substituted cycloalkyl group having 3 to 7 carbon atoms, or an optionally substituted aromatic hydrocarbon group; and
R^9 represents a hydrogen atom, a hydroxyl group, an amino group optionally having a hydroxyl group, or an optionally substituted mono- or di-alkylamino group.

2. The compound according to claim 1, or a salt thereof, wherein R^2 is an alkyl group having 1 to 6 carbon atoms which optionally has a halogen atom, or an alkenyl group having 2 to 6 carbon atoms.

3. The compound according to claim 1or 2, or a salt thereof, wherein R^3 is $-CO-R^5$, and R^5 is an amino group or a mono- or di-(C1-C6 alkyl)amino group.

4. The compound according to any one of claims 1 to 3, or a salt thereof, wherein X^2 is N, and X^3 and X^4 are CH.

5. The compound according to any one of claims 1 to 4, or a salt thereof, wherein R^1 is monocyclic or bicyclic unsaturated heterocyclic group having imidazole, pyrazole, thiophene, furan, pyrrole, oxazole, isoxazole, thiazole, isothiazole, triazole, tetrazole, pyridine, pyrazine, pyrimidine, pyridazine, indole, isoindole, pyrrolopyridine, indazole, methylenedioxyphenyl, ethylenedioxyphenyl, benzofuran, dihydrobenzofuran, benzimidazole, benzoxazole, benzothiazole, purine, quinoline, tetrahydroquinoline, isoquinoline, quinazoline or quinoxaline.

6. The compound according to any one of claims 1 to 5, or a salt thereof, wherein R^1 is any of an optionally substituted 1H-imidazol-1-yl group, an optionally substituted pyrazol-4-yl group, an optionally substituted thiophen-3-yl group, an optionally substituted furan-2-yl group, an optionally substituted pyridin-3-yl group, an optionally substituted pyridin-4-yl group, an optionally substituted indol-5-yl group, an optionally substituted 1H-pyrrolo[2,3-b]pyridin-5-yl group, an optionally substituted benzofuran-2-yl group, an optionally substituted quinolin-3-yl group and an optionally substituted 5,6,7,8-tetrahydroquinolin-3-yl group.

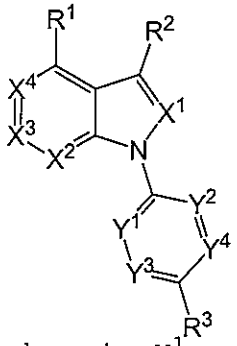
7. The compound according to any one of claims 1 to 6, or a salt thereof, wherein Y^1 and Y^3 are CH, any one or two of Y^2 and Y^4 are $C-R^4$, and the other is CH; and R^4 is a halogen atom, an alkyl group having 1 to 6 carbon atoms which

optionally has a mono- or di-(C1-C6 alkyl)amino group or a monocyclic 5- to 7-membered saturated heterocyclic group having one or two of any heteroatom of N, S and O, an alkoxy group having 1 to 6 carbon atoms, $-N(R^6)(R^7)$, $-SR^8$ or $-CO-R^9$.

8. The compound according to any one of claims 1 to 7, or a salt thereof, wherein R^6 is a hydrogen atom or an optionally substituted alkyl group having 1 to 6 carbon atoms, and R^7 represents a hydrogen atom, an optionally substituted alkyl group having 1 to 6 carbon atoms, an optionally substituted cycloalkyl group having 3 to 7 carbon atoms, an optionally substituted aralkyl group having 7 to 12 carbon atoms, an optionally substituted aromatic hydrocarbon group having 6 to 14 carbon atoms, a monocyclic or bicyclic optionally substituted saturated heterocyclic group having 1 to 4 heteroatoms selected from N, S and O, or a monocyclic or bicyclic optionally substituted unsaturated heterocyclic group having 1 to 4 heteroatoms selected from N, S and O, or R^6 and R^7 optionally form a 5- to 7-membered saturated heterocyclic group, together with the nitrogen atom to which they are bonded; R^8 is an optionally substituted cycloalkyl group having 3 to 7 carbon atoms, or an optionally substituted aromatic hydrocarbon group having 6 to 14 carbon atoms; and R^9 is a hydrogen atom, a hydroxyl group, an amino group or a mono- or di-(C1-C6 alkyl)amino group.

9. The compound according to any one of claims 1 to 8, or a salt thereof, wherein the substituent(s) in the monocyclic or bicyclic unsaturated heterocyclic group represented by R^1 are 1 to 3 substituents selected from an alkyl group, an alkoxy group, an alkoxy-alkyl group, an aralkyl group, an aralkyloxy-alkyl group, a halogen atom, a halogenoalkyl group, an acyl group, an optionally substituted saturated or unsaturated heterocyclic group and an optionally substituted aromatic hydrocarbon group, more preferably 1 to 3 substituents selected from: an alkyl group; an alkoxy group; an unsaturated heterocyclic group optionally having an alkyl group, a halogenoalkyl group, an aralkyl group or a hydroxyalkyl group; and an aromatic hydrocarbon group optionally having an alkyl group, an alkoxy group or a carbamoyl group.

10. A pharmaceutical product containing a compound represented by the following general formula (I) or a salt thereof:



(I)

wherein X^1 represents CH or N;
any one of X^2, X^3 and X^4 represents N, and the others represent CH;
any one or two of Y^1, Y^2, Y^3 and Y^4 represent C-R^4, and the others are the same or different and represent CH or N;
R^1 represents an optionally substituted monocyclic unsaturated 5- to 6-membered heterocyclic group having 1 to 3 heteroatoms selected from N, S and O or a bicyclic unsaturated 9- to 10-membered heterocyclic group having 1 to 3 heteroatoms selected from N, S and O;
R^2 represents a hydrogen atom, an optionally substituted alkyl group having 1 to 6 carbon atoms or an optionally substituted alkenyl group having 2 to 6 carbon atoms;
R^3 represents a -CO-R^5;
R^4(s) are the same or different and represent a hydrogen atom, a halogen atom, a cyano group, an optionally substituted alkyl group having 1 to 6 carbon atoms, an alkenyl group having 2 to 6 carbon atoms, an alkoxy group having 1 to 6 carbon atoms, an aromatic hydrocarbon group, -N(R^6)(R^7), -S-R^8 or -CO-R^9;
R^5 represents an amino group optionally having a hydroxyl group, or an optionally substituted mono- or di-alkylamino group;
R^6 and R^7 are the same or different and represent a hydrogen atom, an optionally substituted alkyl group having 1 to 6 carbon atoms, a halogenoalkyl group having 1 to 6 carbon atoms, an optionally substituted cycloalkyl group having 3 to 7 carbon atoms, an optionally substituted aralkyl group, an optionally substituted aromatic hydrocarbon group, an optionally substituted saturated heterocyclic group or an optionally substituted unsaturated heterocyclic group, or R^6 and R^7 optionally form a saturated heterocyclic group, together with the nitrogen atom to which they are bonded;
R^8 represents an optionally substituted cycloalkyl group having 3 to 7 carbon atoms, or an optionally substituted aromatic hydrocarbon group; and

R^9 represents a hydrogen atom, a hydroxyl group, an amino group optionally having a hydroxyl group, or an optionally substituted mono- or di-alkylamino group.

11. The pharmaceutical product according to claim 10, wherein R^2 is an alkyl group having 1 to 6 carbon atoms which optionally has a halogen atom, or an alkenyl group having 2 to 6 carbon atoms.

12. The pharmaceutical product according to claim 10 or 11, wherein R^5 is an amino group or a mono- or di-(C1-C6 alkyl)amino group.

13. The pharmaceutical product according to any one of claims 10 to 12, wherein X^2 is N, and X^3 and X^4 are CH.

14. The pharmaceutical product according to any one of claims 10 to 13, wherein R^1 is monocyclic or bicyclic unsaturated heterocyclic group having imidazole, pyrazole, thiophene, furan, pyrrole, oxazole, isoxazole, thiazole, isothiazole, triazole, tetrazole, pyridine, pyrazine, pyrimidine, pyridazine, indole, isoindole, pyrrolopyridine, indazole, methylenedioxyphenyl, ethylenedioxyphenyl, benzofuran, dihydrobenzofuran, benzimidazole, benzoxazole, benzothiazole, purine, quinoline, tetrahydroquinoline, isoquinoline, quinazoline or quinoxaline.

15. The pharmaceutical product according to any one of claims 10 to 14, wherein R^1 is any of an optionally substituted 1H-imidazol-1-yl group, an optionally substituted pyrazol-4-yl group, an optionally substituted thiophen-3-yl group, an optionally substituted furan-2-yl group, an optionally substituted pyridin-3-yl group, an optionally substituted pyridin-4-yl group, an optionally substituted indol-5-yl group, an optionally substituted 1H-pyrrolo[2,3-b]pyridin-5-yl group, an optionally substituted benzofuran-2-yl group, an optionally substituted quinolin-3-yl group and an optionally substituted 5,6,7,8-tetrahydroquinolin-3-yl group.

16. The pharmaceutical product according to any one of claims 10 to 15, wherein Y^1 and Y^3 are CH, any one or two of Y^2 and Y^4 are C-R^4, and the other is CH; and R^4 is a halogen atom, an alkyl group having 1 to 6 carbon atoms which optionally has a mono- or di-(C1-C6 alkyl)amino group or a monocyclic 5- to 7-membered saturated heterocyclic group having one or two of any heteroatom of N, S and O, an

alkoxy group having 1 to 6 carbon atoms, $-N(R^6)(R^7)$, $-SR^8$ or $-CO-R^9$.

17. The pharmaceutical product according to any one of claims 10 to 16, wherein R^6 is a hydrogen atom or an optionally substituted alkyl group having 1 to 6 carbon atoms, and R^7 represents a hydrogen atom, an optionally substituted alkyl group having 1 to 6 carbon atoms, an optionally substituted cycloalkyl group having 3 to 7 carbon atoms, an optionally substituted aralkyl group having 7 to 12 carbon atoms, an optionally substituted aromatic hydrocarbon group having 6 to 14 carbon atoms, a monocyclic or bicyclic optionally substituted saturated heterocyclic group having 1 to 4 heteroatoms selected from N, S and O, or a monocyclic or bicyclic optionally substituted unsaturated heterocyclic group having 1 to 4 heteroatoms selected from N, S and O, or R^6 and R^7 optionally form a 5- to 7-membered saturated heterocyclic group, together with the nitrogen atom to which they are bonded; R^8 is an optionally substituted cycloalkyl group having 3 to 7 carbon atoms, or an optionally substituted aromatic hydrocarbon group having 6 to 14 carbon atoms; and R^9 is a hydrogen atom, a hydroxyl group, an amino group or a mono- or di-(C1-C6 alkyl)amino group.

18. The pharmaceutical product according to any one of claims 10 to 17, wherein the substituent(s) in the monocyclic or bicyclic unsaturated heterocyclic group represented by R^1 are 1 to 3 substituents selected from an alkyl group, an alkoxy group, an alkoxy-alkyl group, an aralkyl group, an aralkyloxy-alkyl group, a halogen atom, a halogenoalkyl group, an acyl group, an optionally substituted saturated or unsaturated heterocyclic group and an optionally substituted aromatic hydrocarbon group, more preferably 1 to 3 substituents selected from: an alkyl group; an alkoxy group; an unsaturated heterocyclic group optionally having an alkyl group, a halogenoalkyl group, an aralkyl group or a hydroxyalkyl group; and an aromatic hydrocarbon group optionally having an alkyl group, an alkoxy group or a carbamoyl group.

19. The pharmaceutical product according to any one of claims 10 to 18, wherein the pharmaceutical product is an anticancer agent.

20. The pharmaceutical composition according to any one of claims 10 to 19, further containing a pharmaceutically acceptable carrier.