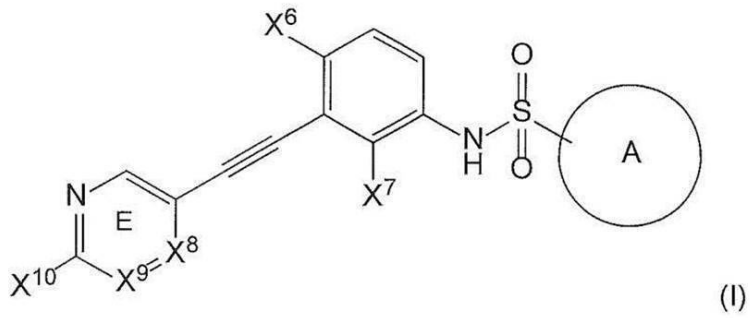
Claims

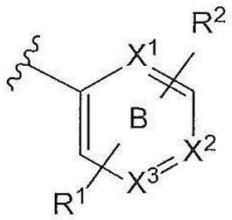
1. A compound represented by the formula (I):



(I)

wherein

ring A is the formula:



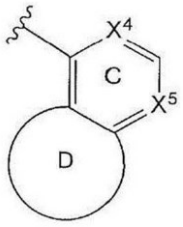
wherein ring B is an optionally further substituted 6-membered aromatic ring;

the combination of X^1, X^2 and X^3 (X^1, X^2, X^3) is (carbon atom, carbon atom, carbon atom) or (carbon atom, carbon atom, nitrogen atom);

R^1 is a (1) a chlorine atom, (2) a bromine atom, (3) methyl,(4) trifluoromethyl, or (5) a hydroxy group substituted by methyl or trifluoromethyl;

R^2 is (1) a halogen atom, (2) a C_{1-6} alkyl group optionally substituted by 1 to 3 substituents selected from the group consisting of a halogen atom and a hydroxy group, (3) a C_{1-6} alkoxy group optionally substituted by 1 to 3 halogen atoms, or

the formula:



wherein ring C is a 6-membered aromatic ring optionally further substituted by 1 to 3 halogen atoms;

ring D is a 5- to 7-membered non-aromatic heterocycle;

one of X^4 and X^5 is a carbon atom, and the other one is a carbon atom or a nitrogen atom;

X^6 is a hydrogen atom, a fluorine atom, or a chlorine atom;

X^7 is a fluorine atom or a chlorine atom;

ring E is a nitrogen-containing 6-membered aromatic ring optionally further substituted by 1 to 3 C_{1-6} alkyl groups;

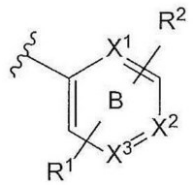
the combination of X^8 and X^9 (X^8, X^9) is (carbon atom, nitrogen atom), (nitrogen atom, carbon atom) or (nitrogen atom, nitrogen atom); and

X^{10} is an amino group optionally substituted by 1 to 2 substituents selected from the group consisting of (1) a C_{1-6} alkyl group optionally substituted by 1 to 3 hydroxy groups, (2) a C_{3-10} cycloalkyl group optionally substituted by 1 to 3 hydroxy groups and (3) a 3- to 14-membered non-aromatic heterocyclic group, or

X^9 and X^{10} are bonded to each other to form an unsubstituted 5- to 14-membered aromatic heterocycle,

or a salt thereof.

2. The compound according to claim 1, wherein ring A is the formula



wherein the combination of X^1, X^2 and X^3 (X^1, X^2, X^3) is (carbon

atom, carbon atom, carbon atom) or (carbon atom, carbon atom, nitrogen atom);

R^1 is (1) a chlorine atom, (2) a bromine atom, (3) methyl, (4) trifluoromethyl, or (5) a hydroxy group substituted by methyl or trifluoromethyl;

R^2 is (1) a halogen atom, (2) a C_{1-6} alkyl group optionally substituted by 1 to 3 substituents selected from the group consisting of a halogen atom and a hydroxy group, or (3) a C_{1-6} alkoxy group optionally substituted by 1 to 3 halogen atoms;

ring B is optionally further substituted by 1 to 3 substituents selected from the group consisting of (1) a halogen atom and (2) a C_{1-6} alkyl group optionally substituted by 1 to 3 hydroxy groups;

X^6 is a hydrogen atom, a fluorine atom or a chlorine atom;

X^7 is a fluorine atom or a chlorine atom;

the combination of X^8 and X^9 (X^8, X^9) is (carbon atom, nitrogen atom);

ring E is optionally further substituted by 1 to 3 C_{1-6} alkyl groups; and

X^{10} is an amino group optionally substituted by 1 to 2 substituents selected from the group consisting of (1) a C_{1-6} alkyl group optionally substituted by 1 to 3 hydroxy groups, (2) a C_{3-10} cycloalkyl group optionally substituted by 1 to 3 hydroxy groups and (3) a 3- to 14-membered non-aromatic heterocyclic group,

or a salt thereof.

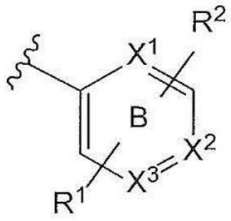
3. N-(3-((2-Aminopyrimidin-5-yl)ethynyl)-2,4-difluorophenyl)-5-chloro-2-methoxypyridine-3-sulfonamide or a salt thereof.

4. 5-Chloro-N-(2,4-difluoro-3-((2-((trans-4-hydroxycyclohexyl)amino)pyrimidin-5-yl)ethynyl)phenyl)-2-methoxypyridine-3-sulfonamide or a salt thereof.

5. 2,5-Dichloro-N-(2,4-difluoro-3-((2-(((2R)-1-hydroxypropan-2-yl)amino)pyrimidin-5-yl)ethynyl)phenyl)-3-(hydroxymethyl)benzenesulfonamide or a salt thereof.

6. A medicament comprising the compound according to claim 1 or a salt thereof, and a pharmacologically acceptable carrier.

7. The compound according to claim 1, wherein ring A is the formula:



wherein

the combination of X^1, X^2 and X^3 (X^1, X^2, X^3) is (carbon atom, carbon atom, carbon atom);

R^1 is (1) a chlorine atom, (2) a bromine atom, (3) methyl, (4) trifluoromethyl, or (5) a hydroxy group substituted by methyl or trifluoromethyl;

R^2 is (1) a halogen atom, (2) a C_{1-6} alkyl group optionally substituted by 1 to 3 substituents selected from the group consisting of a halogen atom and a hydroxy group, or (3) a C_{1-6} alkoxy group optionally substituted by 1 to 3 halogen atoms;

ring B is further substituted by a substituent selected from the group consisting of (1) a halogen atom and (2) a C_{1-6} alkyl group optionally substituted by 1 to 3 hydroxy groups;

X^6 is a hydrogen atom, a fluorine atom, or a chlorine atom;

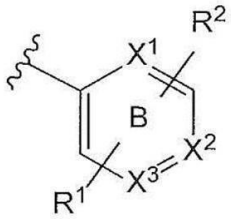
X^7 is a fluorine atom or a chlorine atom;

the combination of X^8 and X^9 (X^8, X^9) is (carbon atom, nitrogen atom);

ring E is optionally further substituted by 1 to 3 C_{1-6} alkyl groups; and

X^{10} is an amino group optionally substituted by 1 to 2 substituents selected from the group consisting of (1) a C_{1-6} alkyl group optionally substituted by 1 to 3 hydroxy groups, (2) a C_{3-10} cycloalkyl group optionally substituted by 1 to 3 hydroxy groups and (3) a 3- to 14-membered non-aromatic heterocyclic group,
or a salt thereof.

8. The compound according to claim 1, wherein ring A is the formula:



wherein the combination of X^1, X^2 and X^3 (X^1, X^2, X^3) is (carbon atom, carbon atom, nitrogen atom);

R^1 is (1) a chlorine atom, (2) a bromine atom, (3) methyl, (4) trifluoromethyl, or (5) a hydroxy group substituted by methyl or trifluoromethyl;

R^2 is (1) a halogen atom, (2) a C_{1-6} alkyl group optionally substituted by 1 to 3 substituents selected from the group consisting of a halogen atom and a hydroxy group, or (3) a C_{1-6} alkoxy group optionally substituted by 1 to 3 halogen atoms;

X^6 is a hydrogen atom, a fluorine atom, or a chlorine atom;

X^7 is a fluorine atom or a chlorine atom;

the combination of X^8 and X^9 (X^8, X^9) is (carbon atom, nitrogen atom);

ring E is optionally further substituted by 1 to 3 C_{1-6} alkyl groups; and

X^{10} is an amino group optionally substituted by 1 to 2 substituents selected from the group consisting of (1) a C_{1-6} alkyl group optionally substituted by 1 to 3 hydroxy groups,

(2) a C_{3-10} cycloalkyl group optionally substituted by 1 to 3 hydroxy groups and (3) a 3- to 14-membered non-aromatic heterocyclic group,
or a salt thereof.

9. The medicament according to claim 6 which is a prophylactic or therapeutic agent for cancer.

10. The medicament according to claim 6 which is a GCN2 inhibitor.

11. Use of the compound according to claim 1 or a salt thereof in the manufacture of a medicament for the prophylaxis or treatment of cancer.

12. The use according to claim 11, wherein the cancer is selected from the group consisting of osteosarcoma, acute lymphocytic leukemia, acute myeloid leukemia, pancreatic cancer, colorectal cancer, melanoma, lung cancer, ovarian cancer, hepatoma, malignant lymphoma and multiple myeloma.

13. The compound according to claim 1 or a salt thereof for use in inhibiting GCN2 in a mammal.

14. The compound according to claim 1 or a salt thereof for use in the prophylaxis or treatment of cancer.

15. The compound according to claim 14, wherein the cancer is selected from the group consisting of osteosarcoma, acute lymphocytic leukemia, acute myeloid leukemia, pancreatic cancer, colorectal cancer, melanoma, lung cancer, ovarian cancer, hepatoma, malignant lymphoma and multiple myeloma.

16. The compound according to claim 1 or a salt thereof for use in medicine.