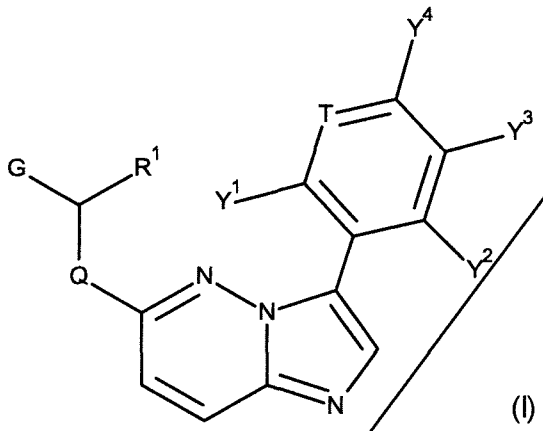
Claims

[Claim 1]

A compound represented by the general formula (I) or a pharmacologically acceptable salt thereof:

[Formula 1]



(I)

wherein

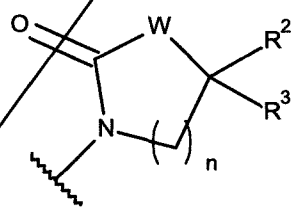
R^1 represents a hydrogen atom, a C_1-C_6 alkyl group, a fluoro-C_1-C_6 alkyl group, or a hydroxy-C_1-C_6 alkyl group;

Q represents an oxygen atom or R^aN, wherein

R^a represents a hydrogen atom or a C_1-C_6 alkyl group;

G represents a phenyl group or a 5- or 6-membered heteroaryl group having, in the ring, 1 to 3 heteroatoms independently selected from the group consisting of a nitrogen atom, an oxygen atom, and a sulfur atom, wherein the 5-membered heteroaryl group optionally has 1 or 2 substituents independently selected from the group consisting of a halogen atom, a cyano group, a C_1-C_6

alkyl group, a C_1-C_6 alkoxy group, a dihalo-C_1-C_6 alkyl group, and a trihalo-C_1-C_6 alkyl group, and
the phenyl group and the 6-membered heteroaryl group each optionally have 1 to 3 substituents independently selected from the group consisting of a 5- or 6-membered heteroaryl group having, in the ring, 1 to 3 heteroatoms independently selected from the group consisting of a nitrogen atom, an oxygen atom, and a sulfur atom, a halogen atom, a cyano group, a C_1-C_6 alkyl group, a C_1-C_6 alkoxy group, and a trihalo-C_1-C_6 alkyl group;
T represents a nitrogen atom or CR^b, wherein
R^b represents a hydrogen atom, a halogen atom, a C_1-C_6 alkyl group, a C_1-C_6 alkoxy group, or a cyano group;
Y^1 and Y^2 each independently represents a hydrogen atom, a halogen atom, a C_1-C_6 alkyl group, a C_1-C_6 alkoxy group, or a cyano group; and
Y^3 and Y^4 each independently represents a hydrogen atom, a group selected from group A described below, or a group represented by the following formula (II):
[Formula 2]



(II)

wherein
W represents an oxygen atom or CR^cR^d, wherein

R^c and R^d each independently represents a hydrogen atom, a C_1-C_6 alkyl group, or an amino group, or

R^c and R^d optionally form a C_3-C_6 cycloalkyl group together with the carbon atom bonded to R^c and R^d;

n represents 0, 1, or 2;

R^2 and R^3 each independently represents a hydrogen atom, an amino group, a C_1-C_6 alkyl group, an amino-C_1-C_6 alkyl group, a C_1-C_6 alkylamino group, or a di-C_1-C_6 alkylamino group

(provided that any one of Y^3 and Y^4 inevitably represents a hydrogen atom, and the other group represents a group other than a hydrogen atom),

group A: -O-M, -S-M, and -NH-M

(M represents a C_1-C_6 alkyl group having 1 or 2 substituents independently selected from group B described below, an amino-C_3-C_6 cycloalkyl group, a 4- to 6-membered aliphatic heterocyclic group having one nitrogen atom in the ring, or a 5- or 6-membered aliphatic heterocyclic group having 1 or 2 substituents independently selected from group D described below and having one nitrogen atom in the ring),

group B: an amino group, a hydroxy group, a C_1-C_6 alkylamino group, a di-C_1-C_6 alkylamino group, a C_3-C_6 cycloalkylamino group, an amino-C_3-C_6 cycloalkyl group, a hydroxy-C_1-C_6 alkylamino group, a 4- to 6-membered aliphatic heterocyclic group having one nitrogen atom in

the ring, and a 6-membered aliphatic heterocyclic group having one nitrogen atom and one oxygen atom in the ring

(the 4- to 6-membered aliphatic heterocyclic group having one nitrogen atom in the ring and the 6-membered aliphatic heterocyclic group having one nitrogen atom and one oxygen atom in the ring each optionally having 1 or 2 substituents independently selected from group C described below),

group C: a halogen atom, a C_1-C_6 alkyl group, and a hydroxy-C_1-C_6 alkyl group, and

group D: an amino group and a halogen atom.

[Claim 2]

A compound according to claim 1 or a pharmacologically acceptable salt thereof, wherein in the formula (I),

Q represents an oxygen atom.

[Claim 3]

A compound according to claim 1 or a pharmacologically acceptable salt thereof, wherein in the formula (I),

Q represents R^aN, wherein

R^a represents a hydrogen atom or a C_1-C_6 alkyl group.

[Claim 4]

A compound according to any one of claims 1 to 3 or a pharmacologically acceptable salt thereof, wherein in the formula (I),

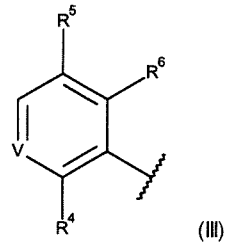
Y^3 represents a hydrogen atom.

[Claim 5]

A compound according to any one of claims 1 to 4 or a pharmacologically acceptable salt thereof, wherein in the formula (I),

G is represented by the following formula (III):

[Formula 3]



(III)

wherein

V represents CR^e or a nitrogen atom; and

R^4, R^5, R^6, and R^e each independently represents a hydrogen atom, a halogen atom, a cyano group, or a 5- or 6-membered heteroaryl group having, in the ring, 1 to 3 heteroatoms independently selected from the group consisting of a nitrogen atom, an oxygen atom, and a sulfur atom

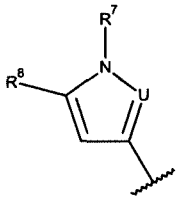
(provided that when V represents CR^e, at least one of R^4, R^5, R^6, and R^e represents a hydrogen atom).

[Claim 6]

A compound according to any one of claims 1 to 4 or a pharmacologically acceptable salt thereof, wherein in the formula (I),

G is represented by the following formula (IV):

[Formula 4]



(IV)

wherein

U represents a nitrogen atom or CH;

R^7 represents a hydrogen atom or a C_1-C_6 alkyl group; and

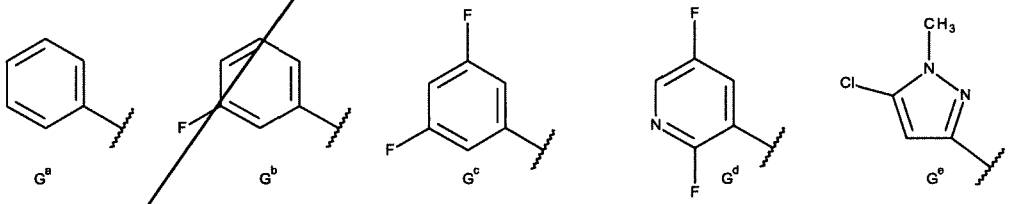
R^8 represents a hydrogen atom, a C_1-C_6 alkyl group, or a halogen atom.

[Claim 7]

A compound according to any one of claims 1 to 4 or a pharmacologically acceptable salt thereof, wherein in the formula (I),

G is any of the following G^a to G^e:

[Formula 5]



[Claim 8]

A compound according to any one of claims 1 to 7 or a pharmacologically acceptable salt thereof, wherein in the formula (I),

Y^4 represents a group selected from group A^1:

group A^1: -O-M^1, -S-M^1, and -NH-M^1

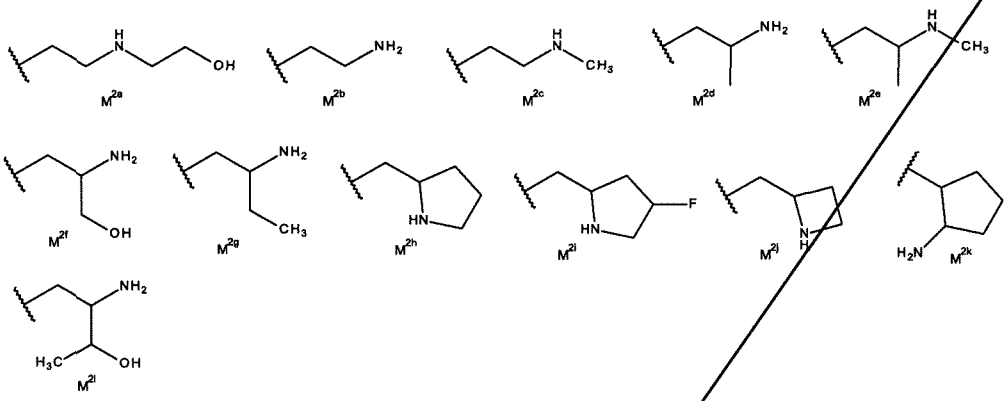
(M^1 represents a C_1-C_6 alkyl group having 1 or 2 substituents independently selected from group B^1 described below, an amino-C_3-C_6 cycloalkyl group, a 4- to 6-membered aliphatic heterocyclic group having one nitrogen atom in the ring, or a 5- or 6-membered aliphatic heterocyclic group substituted by 1 or 2 halogen atoms and having one nitrogen atom in the ring),
group B^1: an amino group, a hydroxy group, a C_1-C_6 alkylamino group, a di-C_1-C_6 alkylamino group, a C_3-C_6 cycloalkylamino group, an amino-C_3-C_6 cycloalkyl group, a hydroxy-C_1-C_6 alkylamino group, and a 4- to 6-membered aliphatic heterocyclic group having one nitrogen atom in the ring

(the 4- to 6-membered aliphatic heterocyclic group having one nitrogen atom in the ring optionally having 1 or 2 substituents independently selected from group C^1 described below), and
group C^1: a halogen atom, a C_1-C_6 alkyl group, and a hydroxy-C_1-C_6 alkyl group.

[Claim 9]

A compound according to any one of claims 1 to 7 or a pharmacologically acceptable salt thereof, wherein in the formula (I),
Y^4 represents -O-M^2, wherein
M^2 is any of the following M^{2a} to M^{21}:

[Formula 6]

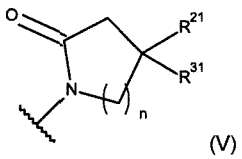


[Claim 10]

A compound according to any one of claims 1 to 7 or a pharmacologically acceptable salt thereof, wherein in the formula (I),

Y^4 is represented by the following formula (V):

[Formula 7]



(V)

wherein

n represents 1 or 2; and

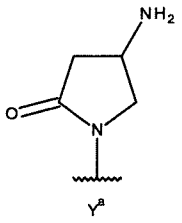
R^{21} and R^{31} each independently represents a hydrogen atom, an amino group, a C_1-C_6 alkyl group, an amino-C_1-C_6 alkyl group, or a C_1-C_6 alkylamino group.

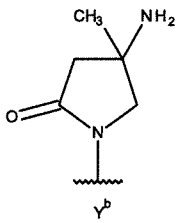
[Claim 11]

A compound according to any one of claims 1 to 7 or a pharmacologically acceptable salt thereof, wherein in the formula (I),

Y^4 is the following Y^a or Y^b:

[Formula 8]





[Claim 12]

Any one compound selected from the following group or a pharmacologically acceptable salt thereof:

N-[(1R)-1-(3-fluorophenyl)ethyl]-3-[4-[[(2S)-pyrrolidin-2-yl]methoxy]phenyl]imidazo[1,2-b]pyridazin-6-amine,

N-[(1R)-1-(3-fluorophenyl)ethyl]-3-[4-[2-(methylamino)ethoxy]phenyl]imidazo[1,2-b]pyridazin-6-amine,

3-[4-[[(2S)-azetidin-2-yl]methoxy]phenyl]-N-[(1R)-1-(3-fluorophenyl)ethyl]imidazo[1,2-b]pyridazin-6-amine,

3-[4-[(2R)-2-aminopropoxy]phenyl]-N-[(1R)-1-(3-fluorophenyl)ethyl]imidazo[1,2-b]pyridazin-6-amine,

3-[4-[(2S)-2-aminopropoxy]phenyl]-N-[(1R)-1-(3-fluorophenyl)ethyl]imidazo[1,2-b]pyridazin-6-amine,

(4S)-4-amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one,

(4S)-4-amino-1-[4-[6-[[(1R)-1-(3-fluorophenyl)ethyl]amino]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one,

(4S)-4-amino-1-[5-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]-2-pyridyl]pyrrolidin-2-one,

(4S)-4-amino-1-[4-[6-[(3-fluorophenyl)methyl-methylamino]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one, and (4S)-4-amino-1-[4-[6-[(3-fluorophenyl)methyl-methylamino]imidazo[1,2-b]pyridazin-3-yl]-3-methoxyphenyl]pyrrolidin-2-one.

[Claim 13]

N-[(1R)-1-(3-Fluorophenyl)ethyl]-3-[4-[[(2S)-pyrrolidin-2-yl]methoxy]phenyl]imidazo[1,2-b]pyridazin-6-amine.

[Claim 14]

3-[4-[(2R)-2-Aminopropoxy]phenyl]-N-[(1R)-1-(3-fluorophenyl)ethyl]imidazo[1,2-b]pyridazin-6-amine.

[Claim 15]

(4S)-4-Amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one.

[Claim 16]

(4S)-4-Amino-1-[4-[6-[(3-fluorophenyl)methyl-methylamino]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one.

[Claim 17]

N-[(1R)-1-(3-Fluorophenyl)ethyl]-3-[4-[[(2S)-pyrrolidin-2-yl]methoxy]phenyl]imidazo[1,2-b]pyridazin-6-amine maleate.

[Claim 18]

N-[(1R)-1-(3-Fluorophenyl)ethyl]-3-[4-[[(2S)-pyrrolidin-2-yl]methoxy]phenyl]imidazo[1,2-b]pyridazin-6-amine adipate.

[Claim 19]

3-[4-[(2R)-2-Aminopropoxy]phenyl]-N-[(1R)-1-(3-fluorophenyl)ethyl]imidazo[1,2-b]pyridazin-6-amine methanesulfonate.

[Claim 20]

3-[4-[(2R)-2-Aminopropoxy]phenyl]-N-[(1R)-1-(3-fluorophenyl)ethyl]imidazo[1,2-b]pyridazin-6-amine adipate.

[Claim 21]

(4S)-4-Amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one benzenesulfonate.

[Claim 22]

(4S)-4-Amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one hydrochloride.

[Claim 23]

(4S)-4-Amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one adipate.

[Claim 24]

(4S)-4-Amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one lactate.

[Claim 25]

(4S)-4-Amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one benzoate.

[Claim 26]

(4S)-4-Amino-1-[4-[6-[(3-fluorophenyl)methyl-methylamino]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one benzenesulfonate.

[Claim 27]

(4S)-4-Amino-1-[4-[6-[(3-fluorophenyl)methyl-methylamino]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one adipate.

[Claim 28]

(4S)-4-Amino-1-[4-[6-[(3-fluorophenyl)methyl-methylamino]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one camphorate.

[Claim 29]

A ROS1 kinase enzyme activity inhibitor comprising a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof as an active ingredient.

[Claim 30]

An NTRK kinase enzyme activity inhibitor comprising a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof as an active ingredient.

[Claim 31]

A pharmaceutical composition comprising a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof as an active ingredient.

[Claim 32]

An antitumor agent comprising a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof as an active ingredient.

[Claim 33]

An antitumor agent according to claim 32, wherein the tumor is hematological malignant tumor (leukemia, lymphoma, or multiple myeloma), brain tumor, head and neck cancer, esophageal cancer, gastric cancer, appendix cancer, colon cancer, anus cancer, gallbladder cancer, bile duct cancer, pancreatic cancer, gastrointestinal stromal tumor, lung cancer, liver cancer, mesothelioma, thyroid cancer, kidney cancer, prostate cancer, neuroendocrine tumor, melanoma, breast cancer, uterine body cancer, uterine cervical cancer, ovary cancer, osteosarcoma, soft tissue sarcoma, Kaposi's sarcoma, myosarcoma, urinary bladder cancer, or testicular cancer.

[Claim 34]

A therapeutic agent for a tumor having a detectable increase in the expression level of ROS1 gene, comprising a compound according to any one of claims 1 to 28 or a

pharmacologically acceptable salt thereof as an active ingredient.

[Claim 35]

A therapeutic agent for a tumor having a detectable increase in the expression level of NTRK gene, comprising a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof as an active ingredient.

[Claim 36]

A therapeutic agent for a tumor having a detectable expression of ROS1 fusion gene, comprising a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof as an active ingredient.

[Claim 37]

A therapeutic agent for a tumor having a detectable expression of NTRK fusion gene, comprising a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof as an active ingredient.

[Claim 38]

A therapeutic agent for a tumor that is treatable by the inhibition of ROS1 kinase enzyme activity, comprising a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof as an active ingredient.

[Claim 39]

A therapeutic agent for a tumor that is treatable by the inhibition of NTRK kinase enzyme activity, comprising a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof as an active ingredient.

[Claim 40]

A method for treating a tumor, comprising administering a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof.

[Claim 41]

A method for treating a tumor according to claim 40, wherein the tumor is hematological malignant tumor (leukemia, lymphoma, or multiple myeloma), brain tumor, head and neck cancer, esophageal cancer, gastric cancer, appendix cancer, colon cancer, anus cancer, gallbladder cancer, bile duct cancer, pancreatic cancer, gastrointestinal stromal tumor, lung cancer, liver cancer, mesothelioma, thyroid cancer, prostate cancer, neuroendocrine tumor, melanoma, breast cancer, uterine body cancer, uterine cervical cancer, ovary cancer, osteosarcoma, soft tissue sarcoma, Kaposi's sarcoma, myosarcoma, kidney cancer, urinary bladder cancer, or testicular cancer.

[Claim 42]

A method for treating a tumor having a detectable increase in the expression level of ROS1 gene, comprising administering a compound according to any one of claims 1

to 28 or a pharmacologically acceptable salt thereof as an active ingredient.

[Claim 43]

An agent for treating a tumor having a detectable increase in the expression level of NTRK gene, comprising a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof as an active ingredient.

[Claim 44]

A method for treating a tumor having a detectable expression of ROS1 fusion gene, comprising administering a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof.

[Claim 45]

A method for treating a tumor having a detectable expression of NTRK fusion gene, comprising administering a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof.

[Claim 46]

A method for treating a tumor that is treatable by the inhibition of ROS1 kinase enzyme activity, comprising administering a compound according to any one of claims 1 to 28 or a pharmacologically acceptable salt thereof.

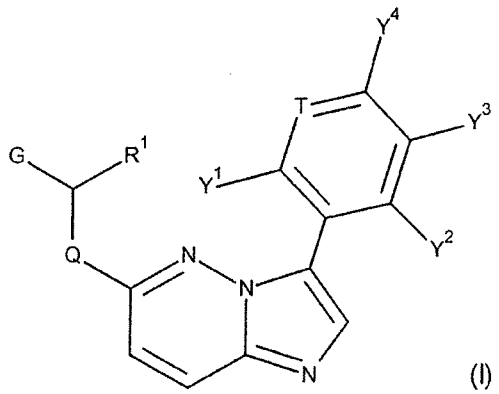
[Claim 47]

A method for treating a tumor that is treatable by the inhibition of NTRK kinase enzyme activity, comprising a compound according to any one of claims 1 to 28 or a

pharmacologically acceptable salt thereof as an active ingredient.

Claims

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



(I)

wherein

R^1 represents a hydrogen atom, a C_1-C_6 alkyl group, a fluoro-C_1-C_6 alkyl group, or a hydroxy-C_1-C_6 alkyl group;

Q represents an oxygen atom or R^aN, wherein

R^a represents a hydrogen atom or a C_1-C_6 alkyl group;

G represents a phenyl group or a 5- or 6-membered heteroaryl group having, in the ring, 1 to 3 heteroatoms independently selected from the group consisting of a nitrogen atom, an oxygen atom, and a sulfur atom, wherein the 5-membered heteroaryl group optionally has 1 or 2 substituents independently selected from the group consisting of a halogen atom, a cyano group, a C_1-C_6 alkyl group, a C_1-C_6 alkoxy group, a dihalo-C_1-C_6 alkyl group, and a trihalo-C_1-C_6 alkyl group, and

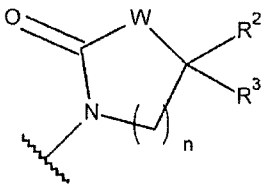
the phenyl group and the 6-membered heteroaryl group each optionally have 1 to 3 substituents independently selected from the group consisting of a 5- or 6-membered heteroaryl group having, in the ring, 1 to 3 heteroatoms independently selected from the group consisting of a nitrogen atom, an oxygen atom, and a sulfur atom, a halogen atom, a cyano group, a C_1-C_6 alkyl group, a C_1-C_6 alkoxy group, and a trihalo-C_1-C_6 alkyl group;

T represents a nitrogen atom or CR^b, wherein

R^b represents a hydrogen atom, a halogen atom, a C_1-C_6 alkyl group, a C_1-C_6 alkoxy group, or a cyano group;

Y^1 and Y^2 each independently represents a hydrogen atom, a halogen atom, a C_1-C_6 alkyl group, a C_1-C_6 alkoxy group, or a cyano group; and

Y^3 and Y^4 each independently represents a hydrogen atom, a group selected from group A as defined below, or a group represented by the following formula (II):



(II)

wherein

W represents an oxygen atom or CR^cR^d, wherein

R^c and R^d each independently represents a hydrogen atom, a C_1-C_6 alkyl group, or an amino group, or

R^c and R^d optionally form a C_3-C_6 cycloalkyl group together with the carbon atom bonded to R^c and R^d;

n represents 0, 1, or 2;

R^2 and R^3 each independently represents a hydrogen atom, an amino group, a C_1-C_6 alkyl group, an amino-C_1-C_6 alkyl group, a C_1-C_6 alkylamino group, or a di-C_1-C_6 alkylamino group

provided that any one of Y^3 and Y^4 inevitably represents a hydrogen atom, and the other group represents a group other than a hydrogen atom,

group A: -O-M, -S-M, and -NH-M

where M represents a C_1-C_6 alkyl group having 1 or 2 substituents independently selected from group B as defined below, an amino-C_3-C_6 cycloalkyl group, a 4- to 6-membered aliphatic heterocyclic group having one nitrogen atom in the ring, or a 5- or 6-membered aliphatic heterocyclic group having 1 or 2 substituents independently selected from group D as defined below and having one nitrogen atom in the ring,

group B: an amino group, a hydroxy group, a C_1-C_6 alkylamino group, a di-C_1-C_6 alkylamino group, a C_3-C_6 cycloalkylamino group, an amino-C_3-C_6 cycloalkyl group, a hydroxy-C_1-C_6 alkylamino group, a 4- to 6-membered aliphatic heterocyclic group having one nitrogen atom in the ring, and a 6-membered aliphatic heterocyclic group having one nitrogen atom and one oxygen atom in the ring,

the 4- to 6-membered aliphatic heterocyclic group having one nitrogen atom in the ring and the 6-membered aliphatic heterocyclic group having one nitrogen atom and one oxygen atom in the ring each optionally having 1 or 2

substituents independently selected from group C as defined below,
group C: a halogen atom, a C_1-C_6 alkyl group, and a hydroxy-C_1-C_6 alkyl group, and
group D: an amino group and a halogen atom.

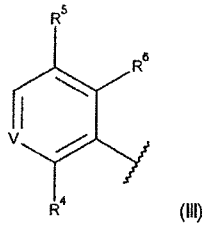
2. A compound according to claim 1 or a pharmacologically acceptable salt thereof, wherein in the formula (I),
Q represents an oxygen atom.

3. A compound according to claim 1 or a pharmacologically acceptable salt thereof, wherein in the formula (I),
Q represents R^aN, wherein
R^a represents a hydrogen atom or a C_1-C_6 alkyl group.

4. A compound according to any one of claims 1 to 3 or a pharmacologically acceptable salt thereof, wherein in the formula (I),
Y^3 represents a hydrogen atom.

5. A compound according to any one of claims 1 to 4 or a pharmacologically acceptable salt thereof, wherein in the formula (I),

G is represented by the following formula (III):



(III)

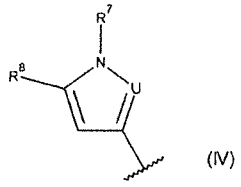
wherein

V represents CR^e or a nitrogen atom; and

R^4, R^5, R^6, and R^e each independently represents a hydrogen atom, a halogen atom, a cyano group, or a 5- or 6-membered heteroaryl group having, in the ring, 1 to 3 heteroatoms independently selected from the group consisting of a nitrogen atom, an oxygen atom, and a sulfur atom,

provided that when V represents CR^e, at least one of R^4, R^5, R^6, and R^e represents a hydrogen atom.

6. A compound according to any one of claims 1 to 4 or a pharmacologically acceptable salt thereof, wherein in the formula (I),
G is represented by the following formula (IV):



(IV)

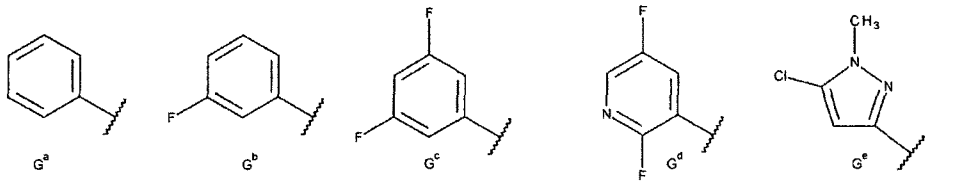
wherein

U represents a nitrogen atom or CH;

R^7 represents a hydrogen atom or a C_1-C_6 alkyl group; and

R^8 represents a hydrogen atom, a C_1-C_6 alkyl group, or a halogen atom.

7. A compound according to any one of claims 1 to 4 or a pharmacologically acceptable salt thereof, wherein in the formula (I),
G is any of the following G^a to G^e:



G^a G^b G^c G^d G^e

8. A compound according to any one of claims 1 to 7 or a pharmacologically acceptable salt thereof, wherein in the formula (I),
Y^4 represents a group selected from group A^1:
group A^1: -O-M^1, -S-M^1, and -NH-M^1,

where M^1 represents a C_1-C_6 alkyl group having 1 or 2 substituents independently selected from group B^1 as defined below, an amino-C_3-C_6 cycloalkyl group, a 4- to 6-membered aliphatic heterocyclic group having one nitrogen atom in the ring, or a 5- or 6-membered aliphatic heterocyclic group substituted by 1 or 2 halogen atoms and having one nitrogen atom in the ring,
group B^1: an amino group, a hydroxy group, a C_1-C_6 alkylamino group, a di-C_1-C_6 alkylamino group, a C_3-C_6

cycloalkylamino group, an amino-C_3-C_6 cycloalkyl group, a hydroxy-C_1-C_6 alkylamino group, and a 4- to 6-membered aliphatic heterocyclic group having one nitrogen atom in the ring,

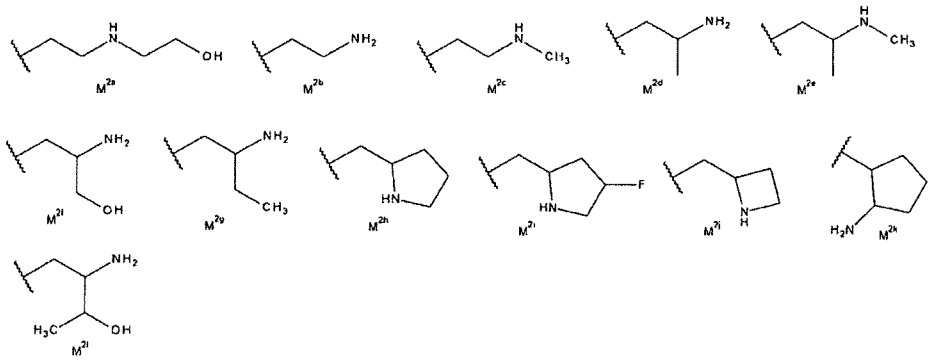
the 4- to 6-membered aliphatic heterocyclic group having one nitrogen atom in the ring optionally having 1 or 2 substituents independently selected from group C^1 as defined below, and

group C^1: a halogen atom, a C_1-C_6 alkyl group, and a hydroxy-C_1-C_6 alkyl group.

9. A compound according to any one of claims 1 to 7 or a pharmacologically acceptable salt thereof, wherein in the formula (I),

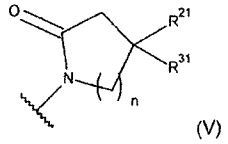
Y^4 represents -O-M^2, wherein

M^2 is any of the following M^{2a} to M^{2l}:



10. A compound according to any one of claims 1 to 7 or a pharmacologically acceptable salt thereof, wherein in the formula (I),

Y^4 is represented by the following formula (V):



(V)

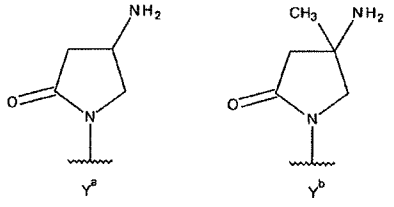
wherein

n represents 1 or 2; and

R^{21} and R^{31} each independently represents a hydrogen atom, an amino group, a C_1-C_6 alkyl group, an amino-C_1-C_6 alkyl group, or a C_1-C_6 alkylamino group.

11. A compound according to any one of claims 1 to 7 or a pharmacologically acceptable salt thereof, wherein in the formula (I),

Y^4 is the following Y^a or Y^b:



12. A compound which is:

N-[(1R)-1-(3-fluorophenyl)ethyl]-3-[4-[[(2S)-pyrrolidin-2-yl]methoxy]phenyl]imidazo[1,2-b]pyridazin-6-amine,

N-[(1R)-1-(3-fluorophenyl)ethyl]-3-[4-[2-(methylamino)ethoxy]phenyl]imidazo[1,2-b]pyridazin-6-amine,

3-[4-[[(2S)-azetidin-2-yl]methoxy]phenyl]-N-[(1R)-1-(3-fluorophenyl)ethyl]imidazo[1,2-b]pyridazin-6-amine,
3-[4-[(2R)-2-aminopropoxy]phenyl]-N-[(1R)-1-(3-fluorophenyl)ethyl]imidazo[1,2-b]pyridazin-6-amine,
3-[4-[(2S)-2-aminopropoxy]phenyl]-N-[(1R)-1-(3-fluorophenyl)ethyl]imidazo[1,2-b]pyridazin-6-amine,
(4S)-4-amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one,
(4S)-4-amino-1-[4-[6-[[(1R)-1-(3-fluorophenyl)ethyl]amino]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one,
(4S)-4-amino-1-[5-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]-2-pyridyl]pyrrolidin-2-one,
(4S)-4-amino-1-[4-[6-[(3-fluorophenyl)methyl-methylamino]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one,
(4S)-4-amino-1-[4-[6-[(3-fluorophenyl)methyl-methylamino]imidazo[1,2-b]pyridazin-3-yl]-3-methoxyphenyl]pyrrolidin-2-one;
or a pharmaceutically acceptable salt thereof.

13. A compound having the formula: N-[(1R)-1-(3-Fluorophenyl)ethyl]-3-[4-[[(2S)-pyrrolidin-2-yl]methoxy]phenyl]imidazo[1,2-b]pyridazin-6-amine.

14. A compound having the formula: 3-[4-[(2R)-2-Aminopropoxy]phenyl]-N-[(1R)-1-(3-fluorophenyl)ethyl]imidazo[1,2-b]pyridazin-6-amine.

15. A compound having the formula:(4S)-4-Amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one.

16. A compound having the formula: (4S)-4-Amino-1-[4-[6-[(3-fluorophenyl)methyl-methylamino]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one.

17. A compound having the formula: N-[(1R)-1-(3-Fluorophenyl)ethyl]-3-[4-[[(2S)-pyrrolidin-2-yl]methoxy]phenyl]imidazo[1,2-b]pyridazin-6-amine maleate.

18. A compound having the formula: N-[(1R)-1-(3-Fluorophenyl)ethyl]-3-[4-[[(2S)-pyrrolidin-2-yl]methoxy]phenyl]imidazo[1,2-b]pyridazin-6-amine adipate.

19. A compound having the formula: 3-[4-[(2R)-2-Aminopropoxy]phenyl]-N-[(1R)-1-(3-fluorophenyl)ethyl]imidazo[1,2-b]pyridazin-6-amine methanesulfonate.

20. A compound having the formula: 3-[4-[(2R)-2-Aminopropoxy]phenyl]-N-[(1R)-1-(3-

fluorophenyl)ethyl]imidazo[1,2-b]pyridazin-6-amine adipate.

21. (4S)-4-Amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one benzenesulfonate.

22. (4S)-4-Amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one hydrochloride.

23. (4S)-4-Amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one adipate.

24. (4S)-4-Amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one lactate.

25. (4S)-4-Amino-1-[4-[6-[(1R)-1-(3-fluorophenyl)ethoxy]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one benzoate.

26. (4S)-4-Amino-1-[4-[6-[(3-fluorophenyl)methyl-methylamino]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one benzenesulfonate.

27. (4S)-4-Amino-1-[4-[6-[(3-fluorophenyl)methyl-methylamino]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one adipate.

28. (4S)-4-Amino-1-[4-[6-[(3-fluorophenyl)methyl-methylamino]imidazo[1,2-b]pyridazin-3-yl]phenyl]pyrrolidin-2-one camphorate.

29. A ROS1 kinase enzyme activity inhibitor comprising a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof and a pharmaceutically acceptable carrier.

30. An NTRK kinase enzyme activity inhibitor comprising a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof and a pharmaceutically acceptable carrier.

31. A pharmaceutical composition comprising a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof and a pharmaceutically acceptable carrier.

32. An antitumor agent comprising a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof and a pharmaceutically acceptable carrier.

33. An antitumor agent according to claim 32, wherein the tumor is hematological malignant tumor, brain tumor, head and neck cancer, esophageal cancer, gastric cancer, appendix cancer, colon cancer, anus cancer, gallbladder cancer, bile duct cancer, pancreatic cancer, gastrointestinal stromal tumor, lung cancer, liver cancer, mesothelioma, thyroid cancer, kidney cancer, prostate cancer, neuroendocrine tumor, melanoma, breast cancer, uterine body cancer, uterine cervical cancer, ovary cancer, osteosarcoma, soft tissue sarcoma, Kaposi's sarcoma, myosarcoma, urinary bladder cancer, or testicular cancer.

34. A therapeutic agent for a tumor having a detectable increase in the expression level of ROS1 gene, comprising a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof and a pharmaceutically acceptable carrier.

35. A therapeutic agent for a tumor having a detectable increase in the expression level of NTRK gene, comprising a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof and a pharmaceutically acceptable carrier.

36. A therapeutic agent for a tumor having a detectable expression of ROS1 fusion gene, comprising a compound as defined in any one of claims 1 to 28 or a

pharmacologically acceptable salt thereof and a pharmaceutically acceptable carrier.

37. A therapeutic agent for a tumor having a detectable expression of NTRK fusion gene, comprising a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof and a pharmaceutically acceptable carrier.

38. A therapeutic agent for a tumor that is treatable by the inhibition of ROS1 kinase enzyme activity, comprising a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof and a pharmaceutically acceptable carrier.

39. A therapeutic agent for a tumor that is treatable by the inhibition of NTRK kinase enzyme activity, comprising a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof and a pharmaceutically acceptable carrier.

40. Use of a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof for the manufacture of a medicament for treating a tumor.

41. Use according to claim 40, wherein the tumor is hematological malignant tumor (leukemia, lymphoma, or

multiple myeloma), brain tumor, head and neck cancer, esophageal cancer, gastric cancer, appendix cancer, colon cancer, anus cancer, gallbladder cancer, bile duct cancer, pancreatic cancer, gastrointestinal stromal tumor, lung cancer, liver cancer, mesothelioma, thyroid cancer, prostate cancer, neuroendocrine tumor, melanoma, breast cancer, uterine body cancer, uterine cervical cancer, ovary cancer, osteosarcoma, soft tissue sarcoma, Kaposi's sarcoma, myosarcoma, kidney cancer, urinary bladder cancer, or testicular cancer.

42. Use of a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof for the manufacture of a medicament for treating a tumor having a detectable increase in the expression level of ROS1 gene.

43. Use of a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof for the manufacture of a medicament for treating a tumor having a detectable increase in the expression level of NTRK gene.

44. Use of a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof for the manufacture of a medicament for treating a tumor having a detectable expression of ROS1 fusion gene.

45. Use of a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof for the manufacture of a medicament for treating a tumor having a detectable expression of NTRK fusion gene.

46. Use of a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof for the manufacture of a medicament for treating a tumor that is treatable by the inhibition of ROS1 kinase enzyme activity.

47. Use of a compound as defined in any one of claims 1 to 28 or a pharmacologically acceptable salt thereof for the manufacture of a medicament for treating a tumor that is treatable by the inhibition of NTRK kinase enzyme activity.