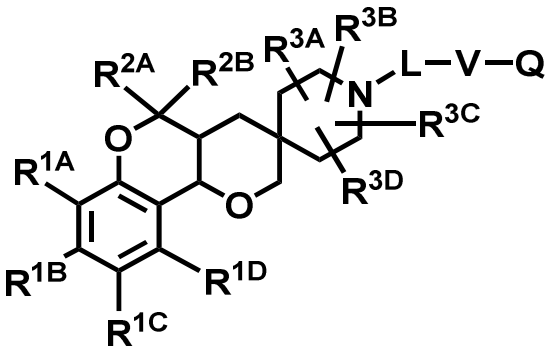
CLAIMS

1. A compound of formula (I):



(I)

or a pharmaceutically acceptable salt thereof, wherein

R^{1A}, R^{1B}, R^{1C}, and R^{1D} are each independently hydrogen atom, halogen atom, azide, or cyano, provided that all of R^{1A}, R^{1B}, R^{1C}, and R^{1D} are not hydrogen atom,

R^{2A} and R^{2B} are each independently hydrogen atom or C_{1-6} alkyl,

R^{3A}, R^{3B}, R^{3C}, and R^{3D} are each independently hydrogen atom, halogen atom, hydroxy, C_{1-6} alkyl, C_{1-6} alkoxy, $-CO_2R^4$, $-NR^5R^6$, or $-NR^7COR^8$, or any two of R^{3A}, R^{3B}, R^{3C}, and R^{3D} may be taken together at the common carbon atom to which they are attached to form =O,

L is bond or –C(O)–,

V is C_{1-6} alkylene which may be substituted with 1 to 3 substituents selected independently from the group consisting of fluorine atom, hydroxy, C_{1-6} alkoxy, C_{3-7}

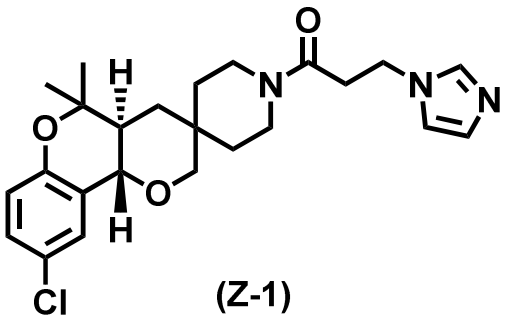
cycloalkyl, 3- to 7-membered saturated heterocyclyl, cyano, and azide,

Q is optionally-substituted imidazole group,

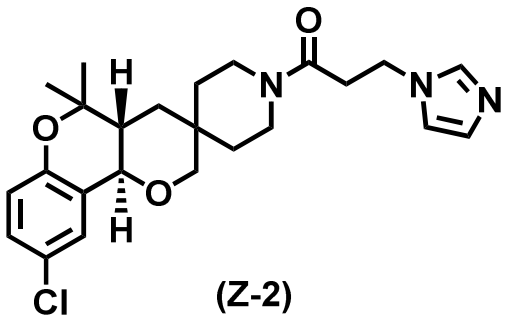
R^4 and R^8 are each independently C_{1-3} alkyl, and

R^5, R^6, and R^7 are each independently hydrogen atom or C_{1-3} alkyl, or when R^5 and R^6 are both C_{1-3} alkyl, they may be combined with the nitrogen atom to which they are attached to form 3- to 6-membered nitrogen-containing saturated heterocyclyl,

provided that the following compounds of formulae (Z-1) and (Z-2):



(Z-1)



(Z-2)

are excluded.

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

Q is imidazole group which may be substituted with 1 to 3 substituents selected independently from the group consisting of halogen atom, cyano, C_{1-6} alkyl (which may be substituted with 1 to 3 substituents selected independently

from the group consisting of halogen atom, cyano, hydroxy, C_{1-6} alkoxy, $-NR^{5a}R^{6a}$, and $-NR^{7a}COR^{8a}$), C_{2-6} alkenyl (which may be substituted with 1 to 3 hydroxy groups), $-CO_2R^{4a}$, and $-CONR^{9}R^{10}$,

R^{5a}, R^{6a}, R^{7a}, R^{9}, and R^{10} are each independently hydrogen atom or C_{1-3} alkyl, or

when R^{5a} and R^{6a} are both C_{1-3} alkyl, they may be combined with the nitrogen atom to which they are attached to form 3- to 6-membered nitrogen-containing saturated heterocyclyl, and

when R^{9} and R^{10} are both C_{1-3} alkyl, they may be combined with the nitrogen atom to which they are attached to form 3- to 6-membered nitrogen-containing saturated heterocyclyl, and

R^{4a} and R^{8a} are independently C_{1-3} alkyl.

3. The compound of claim 1 or 2, or a pharmaceutically acceptable salt thereof, wherein R^{3A}, R^{3B}, R^{3C}, and R^{3D} are hydrogen atom.

4. The compound of any one of claims 1 to 3, or a pharmaceutically acceptable salt thereof, wherein R^{2A} and R^{2B} are each independently hydrogen atom or C_{1-3} alkyl, or,

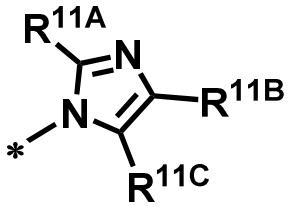
wherein R^{2A} and R^{2B} are each independently C_{1-3} alkyl, or, wherein R^{2A} and R^{2B} are methyl.

5. The compound of any one of claims 1 to 4, or a pharmaceutically acceptable salt thereof, wherein L is bond, or, wherein L is –CO–.

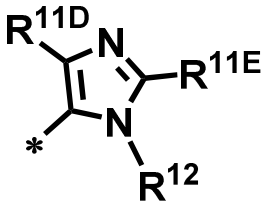
6. The compound of any one of claims 1 to 5, or a pharmaceutically acceptable salt thereof, wherein V is C_{1-6} alkylene, or, wherein V is C_{1-3} alkylene, or, wherein V is ethylene, or, wherein V is methylene.

7. The compound of any one of claims 1 to 6, or a pharmaceutically acceptable salt thereof, wherein R^{1A}, R^{1B}, R^{1C}, and R^{1D} are each independently hydrogen atom, fluorine atom, or chlorine atom, provided that all of R^{1A}, R^{1B}, R^{1C}, and R^{1D} are not hydrogen atom.

8. The compound of any one of claims 1 to 7, or a pharmaceutically acceptable salt thereof, wherein Q is formula (Q–1) or (Q–2):



(Q-1)



(Q-2)

wherein

R^{11A}, R^{11B}, R^{11C}, R^{11D}, and R^{11E} are each independently hydrogen atom, halogen atom, cyano, C_{1-6} alkyl (which may be substituted with 1 to 3 substituents selected independently from the group consisting of halogen atom, cyano, hydroxy, C_{1-6} alkoxy, $-NR^{5a}R^{6a}$, and $-NR^{7a}COR^{8a}$), C_{2-6} alkenyl (which may be substituted with 1 to 3 hydroxy groups), $-CO_2R^{4a}$, or $-CONR^{9}R^{10}$,

R^{5a}, R^{6a}, R^{7a}, R^{9}, and R^{10} are each independently hydrogen atom or C_{1-3} alkyl, or

when R^{5a} and R^{6a} are both C_{1-3} alkyl, they may be combined with the nitrogen atom to which they are attached to form 3- to 6-membered nitrogen-containing saturated heterocyclyl, and

when R^{9} and R^{10} are both C_{1-3} alkyl, they may be combined with the nitrogen atom to which they are attached to form 3- to 6-membered nitrogen-containing saturated heterocyclyl,

R^{4a} and R^{8a} are independently C_{1-3} alkyl,

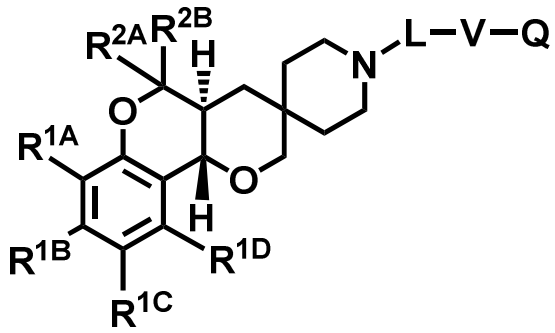
R^{12} is hydrogen atom or C_{1-6} alkyl, and

asterisk (*) is the binding point to V.

9. The compound of claim 8, or a pharmaceutically acceptable salt thereof, wherein R^{11A}, R^{11B}, R^{11C}, R^{11D}, and R^{11E} are each independently hydrogen atom, cyano, C_{1-6} alkyl (which may be substituted with 1 to 3 substituents selected independently from the group consisting of fluorine atom, hydroxy, and $-NR^{7a}COR^{8a}$), C_{2-6} alkenyl (which may be substituted with one hydroxy group), or $-CO_2R^{4a}$, or, wherein R^{11A}, R^{11B}, R^{11C}, R^{11D}, and R^{11E} are each independently hydrogen atom, cyano, C_{1-3} alkyl, or C_{2-6} alkenyl, wherein the alkyl and the alkenyl may be each independently substituted with one hydroxy group, or, wherein R^{11A}, R^{11B}, R^{11C}, R^{11D}, and R^{11E} are each independently hydrogen atom or C_{1-3} alkyl.

10. The compound of any one of claims 8 to 9, or a pharmaceutically acceptable salt thereof, wherein R^{12} is hydrogen atom.

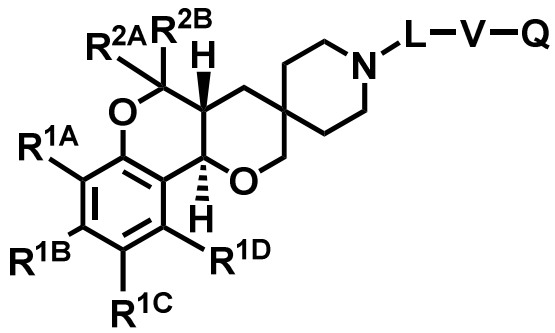
11. The compound of any one of claims 1 to 10, or a pharmaceutically acceptable salt thereof, wherein formula (I) is formula (1-A):



(1-A)

, or,

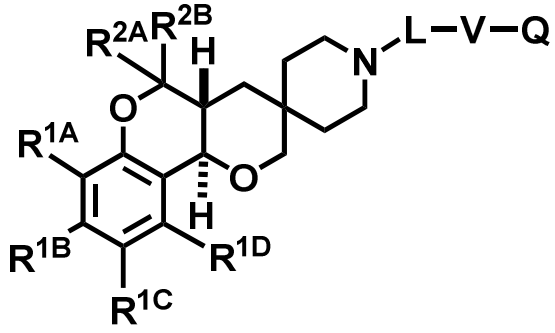
wherein formula (I) is formula (1–B):



(1-B)

, or,

wherein formula (I) is formula (1–C):



(1-C)

.

12. The compound of claim 1 or a pharmaceutically acceptable salt thereof, which is selected from:

(4'aS,10'bS)-8'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-9'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-chloro-5',5'-dimethyl-1-[(1-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-9'-chloro-5',5'-dimethyl-1-[(1-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-5',5'-dimethyl-1-[(1-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-8'-chloro-5',5'-dimethyl-1-[(1-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-7'-chloro-5',5'-dimethyl-1-[(1-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-7'-chloro-5',5'-dimethyl-1-[(1-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-8'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-fluoro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-9'-fluoro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-9'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-fluoro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-9'-fluoro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-9'-chloro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-chloro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-8'-chloro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(1-{2-[(4'aR,10'bR)-9'-fluoro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-1H-imidazol-2-yl)methanol,

(1-{2-[(4'aS,10'bS)-9'-fluoro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-1H-imidazol-2-yl)methanol,

(1-{2-[(4'aS,10'bS)-9'-chloro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-1H-imidazol-2-yl)methanol,

(1-{2-[(4'aR,10'bR)-9'-chloro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-1H-imidazol-2-yl)methanol,

(1-{2-[(4'aR,10'bR)-8'-chloro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-1H-imidazol-2-yl)methanol,

(1-{2-[(4'aS,10'bS)-8'-chloro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-1H-imidazol-2-yl)methanol,

(1-{2-[(4'aS,10'bS)-9'-chloro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-5-methyl-1H-imidazol-4-yl)methanol,

(1-{2-[(4'aR,10'bR)-9'-chloro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-5-methyl-1H-imidazol-4-yl)methanol,

(4'aS,10'bR)-8'-chloro-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran], and

(4'aR,10'bS)-8'-chloro-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran].

13. The compound of claim 1 or a pharmaceutically acceptable salt thereof, which is selected from:

(4'aS,10'bS)-8'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-9'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-chloro-5',5'-dimethyl-1-[(1-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-9'-chloro-5',5'-dimethyl-1-[(1-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-5',5'-dimethyl-1-[(1-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-8'-chloro-5',5'-dimethyl-1-[(1-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-7'-chloro-5',5'-dimethyl-1-[(1-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran], and

(4'aR,10'bR)-7'-chloro-5',5'-dimethyl-1-[(1-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran].

14. The compound of claim 1 or a pharmaceutically acceptable salt thereof, which is selected from:

(4'aR,10'bR)-8'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-8'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-fluoro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-9'-fluoro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-9'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-fluoro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-9'-fluoro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-9'-chloro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-chloro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-8'-chloro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(1-{2-[(4'aR,10'bR)-9'-fluoro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-1H-imidazol-2-yl)methanol,

(1-{2-[(4'aS,10'bS)-9'-fluoro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-1H-imidazol-2-yl)methanol,

(1-{2-[(4'aS,10'bS)-9'-chloro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-1H-imidazol-2-yl)methanol,

(1-{2-[(4'aR,10'bR)-9'-chloro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-1H-imidazol-2-yl)methanol,

(1-{2-[(4'aR,10'bR)-8'-chloro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-1H-imidazol-2-yl)methanol,

(1-{2-[(4'aS,10'bS)-8'-chloro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-1H-imidazol-2-yl)methanol,

(1-{2-[(4'aS,10'bS)-9'-chloro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran]-1-yl]ethyl}-5-methyl-1H-imidazol-4-yl)methanol, and

(1-{2-[(4'aR,10'bR)-9'-chloro-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-

c][1]benzopyran]-1-yl]ethyl}-5-methyl-1H-imidazol-4-yl)methanol.

15. The compound of claim 1 or a pharmaceutically acceptable salt thereof, which is selected from:

(4'aS,10'bS)-8'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-8'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-fluoro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran], and

(4'aR,10'bR)-9'-fluoro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran].

16. The compound of claim 1 or a phosphate thereof, which is selected from:

(4'aS,10'bS)-8'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-8'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-fluoro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran], and

(4'aR,10'bR)-9'-fluoro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran].

17. The compound of claim 1 or a fumarate thereof, which is selected from:

(4'aS,10'bS)-8'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-8'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-fluoro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran], and

(4'aR,10'bR)-9'-fluoro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran].

18. The compound of claim 1 or a p-toluenesulfonate thereof, which is selected from:

(4'aS,10'bS)-8'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-5',5'-dimethyl-1-[(4-methyl-1H-imidazol-5-yl)methyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aR,10'bR)-8'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-8'-chloro-1-[2-(1H-imidazol-1-yl)ethyl]-5',5'-dimethyl-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran],

(4'aS,10'bS)-9'-fluoro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran], and

(4'aR,10'bR)-9'-fluoro-5',5'-dimethyl-1-[2-(2-methyl-1H-imidazol-1-yl)ethyl]-4'a,10'b-dihydro-2'H,4'H,5'H-spiro[piperidine-4,3'-pyrano[3,2-c][1]benzopyran].

19. A medicament comprising the compound of any one of claims 1 to 18 or a pharmaceutically acceptable salt thereof as an active ingredient.

20. An antitumor medicament comprising the compound of any one of claims 1 to 18 or a pharmaceutically acceptable salt thereof as an active ingredient.

21. The antitumor medicament of claim 20, wherein the tumor is acute leukemia, chronic lymphocytic leukemia, chronic myeloid leukemia, polycythemia vera, malignant lymphoma, myeloma, brain tumor, head and neck cancer, esophageal cancer, thyroid cancer, small cell lung cancer, non-small-cell lung cancer, breast cancer, gastric cancer, gallbladder/bile duct cancer, liver cancer, pancreatic cancer, colon cancer, rectal cancer, ovarian cancer, chorionepithelioma, uterine body cancer, cervical cancer, urothelial carcinoma, renal cell cancer, prostate cancer, testicular neoplasm, Wilms' tumor, malignant melanoma, neuroblastoma, osteosarcoma, Ewing's sarcoma, or soft tissue sarcoma.

22. A pharmaceutical composition comprising the compound of any one of claims 1 to 18 or a pharmaceutically acceptable salt thereof in combination with another agent or a pharmaceutically acceptable salt thereof, wherein the another agent is at least one agent selected from the group consisting of an anticancer alkylating agent, an anticancer antimetabolite, an anticancer antibiotic, a plant-derived anticancer medicament, an anticancer platinum complex compound, an anticancer camptothecin derivative, an anticancer tyrosine kinase inhibitor, an anticancer

serine/threonine kinase inhibitor, an anticancer phospholipid kinase inhibitor, an anticancer monoclonal antibody, interferon, an biological response modifier, a hormone preparation, an angiogenic inhibitor, an immune checkpoint inhibitor, an epigenetics-associated molecular inhibitor, a protein post-translational modification inhibitor, a proteasome inhibitor, and other antitumor medicaments.

23. The compound of any one of claims 1 to 18 or a pharmaceutically acceptable salt thereof for use in treating cancer, in combination with another agent or a pharmaceutically acceptable salt thereof, wherein the another agent is at least one agent selected from the group consisting of an anticancer alkylating agent, an anticancer antimetabolite, an anticancer antibiotic, a plant-derived anticancer medicament, an anticancer platinum complex compound, an anticancer camptothecin derivative, an anticancer tyrosine kinase inhibitor, an anticancer serine/threonine kinase inhibitor, an anticancer phospholipid kinase inhibitor, an anticancer monoclonal antibody, interferon, an biological response modifier, a hormone preparation, an angiogenic inhibitor, an immune checkpoint inhibitor, an epigenetics-associated molecular

inhibitor, a protein post-translational modification inhibitor, a proteasome inhibitor, and other antitumor medicaments.

24. Use of the compound of any one of claims 1 to 18 or a pharmaceutically acceptable salt thereof in the manufacture of a medicament for treating cancer.

25. A pharmaceutical composition comprising the compound of any one of claims 1 to 18 or a pharmaceutically acceptable salt thereof for use in the treatment of cancer.