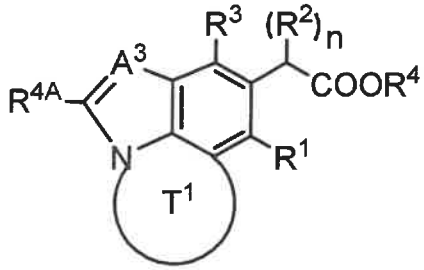
CLAIMS

[Claim 1]

A compound represented by the following formula (I'):

[Chemical formula 1]



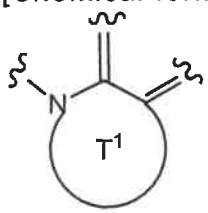
(I')

or its pharmaceutically acceptable salt,
wherein
A^3 is CR^{3A} or N;
R^{3A} is hydrogen or halogen;
R^{4A} is halogen, cyano, C1 to C3 alkyl, C1 to C3 haloalkyl, C2 to C3 alkynyl, or C3 to C4 cycloalkyl;
ring T^1 is substituted or unsubstituted nitrogen-containing non-aromatic heterocycle;
R^1 is hydrogen, halogen, cyano, or substituted or unsubstituted alkyl;
R^2 is each independently substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted alkyloxy, substituted or unsubstituted alkenyloxy, substituted or unsubstituted alkynyloxy, or substituted or unsubstituted non-aromatic carbocyclyloxy;
n is 1 or 2;
R^3 is substituted or unsubstituted aromatic carbocyclyl, substituted or unsubstituted non-aromatic carbocyclyl, substituted or unsubstituted aromatic heterocyclyl, or substituted or unsubstituted non-aromatic heterocyclyl; and
R^4 is hydrogen, alkyl or aralkyl.

[Claim 2]

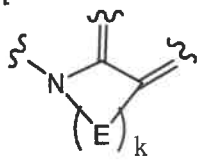
The compound or its pharmaceutically acceptable salt according to Claim 1, wherein the substructure represented by the formula:

[Chemical formula 2]



is the substructure represented by the following formula:

[Chemical formula 3]

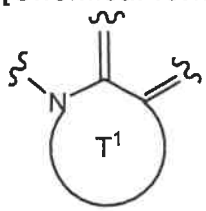


(T^1-I-1)

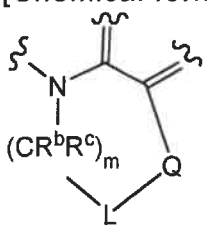
wherein E is each independently -NR^a-, -O-, -S-, -SO_2-, -SO-, or -CR^bR^c-;
R^a is each independently hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aromatic carbocyclyl, substituted or unsubstituted non-aromatic carbocyclyl, substituted or unsubstituted aromatic heterocyclyl, substituted or unsubstituted non-aromatic heterocyclyl, substituted or unsubstituted aromatic carbocyclylalkyl, substituted or unsubstituted non-aromatic carbocyclylalkyl, substituted or unsubstituted aromatic heterocyclylalkyl, substituted or unsubstituted non-aromatic heterocyclylalkyl, -COR^{a1}, -$COOR^{a1}$, -SOR^{a2}, -SO_2R^{a3}, -$COONR^{a4}R^{a5}$, -$CSNR^{a4}R^{a5}$, -$COCONR^{a4}R^{a5}$, or -$C(NR^{a6})NR^{a4}R^{a5}$;
R^{a1}, R^{a2}, and R^{a3} are each independently substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkyloxy, substituted or unsubstituted amino, substituted or unsubstituted aromatic carbocyclyl, substituted or unsubstituted non-aromatic carbocyclyl, substituted or unsubstituted aromatic heterocyclyl, or substituted or unsubstituted non-aromatic heterocyclyl;
R^{a4} and R^{a5} are each independently hydrogen, hydroxy, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted alkyloxy, substituted or unsubstituted aromatic carbocyclyl, substituted or unsubstituted non-aromatic carbocyclyl, substituted or unsubstituted aromatic heterocyclyl, or substituted or unsubstituted non-aromatic heterocyclyl;
R^{a6} is hydrogen, hydroxy, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted alkyloxy, substituted or unsubstituted aromatic carbocyclyl, substituted or unsubstituted non-aromatic carbocyclyl, substituted or unsubstituted aromatic heterocyclyl, or substituted or unsubstituted non-aromatic heterocyclyl;
R^b is each independently hydrogen, halogen, substituted or unsubstituted alkyl, or substituted or unsubstituted aromatic carbocyclyl;
R^c is each independently hydrogen, halogen, substituted or unsubstituted alkyl, or substituted or unsubstituted aromatic carbocyclyl; or
R^b and R^c on the same carbon atom may be taken together with the bonded carbon atom to form carbonyl, substituted or unsubstituted non-aromatic carbocycle, or substituted or unsubstituted non-aromatic heterocycle; and/or
two R^bs on adjacent carbon atoms may be taken together with each bonded carbon atom to form substituted or unsubstituted monocyclic non-aromatic carbocycle or substituted or unsubstituted monocyclic non-aromatic heterocycle; or
two R^bs on adjacent carbon atoms may be taken together to form a bond; and/or
R^a on a nitrogen atom and R^b on a carbon atom which is adjacent to the nitrogen atom

may be taken together with the nitrogen atom and the carbon atom to form substituted or unsubstituted monocyclic aromatic heterocycle or substituted or unsubstituted monocyclic non-aromatic heterocycle; or
R^a on a nitrogen atom and R^b on a carbon atom which is adjacent to the nitrogen atom may be taken together to form a bond;
two R^bs on two carbon atoms which are not adjacent to each other may be taken together to form substituted or unsubstituted alkylene, substituted or unsubstituted alkylene containing one or more group(s) selected from -O-, -NR^a-, -S-, -CO-, -SO-, and -SO_2- at arbitrary position, substituted or unsubstituted alkenylene, or substituted or unsubstituted alkenylene containing one or more group(s) selected from -O-, -NR^a-, -S-, -CO-, -SO-, and –SO_2- at arbitrary position; or
R^a on a nitrogen atom and R^b on a carbon atom which is not adjacent to the nitrogen atom may be taken together to form substituted or unsubstituted alkylene, substituted or unsubstituted alkylene containing one or more group(s) selected form -O-, -NR^a-, -S-, -CO-, -SO-, and –SO_2- at arbitrary position, substituted or unsubstituted alkenylene, or substituted or unsubstituted alkenylene containing one or more group(s) selected from -O-, -NR^a-, -S-, -CO-, -SO-, -SO_2- at arbitrary position; and
k is an integer of 2 to 7.

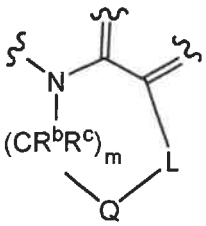
[Claim 3]
The compound or its pharmaceutically acceptable salt according to Claim 2, wherein the substructure represented by the formula:
[Chemical formula 4]



is the substructure represented by any one of the following formula:
[Chemical formula 5]



(T^1-3)



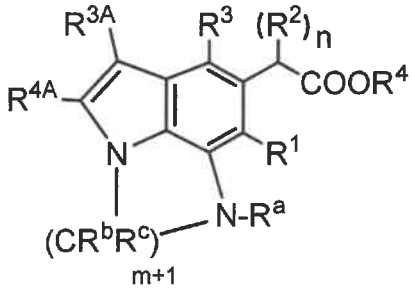
(T^1-4)

wherein
Q is -NR^a-, -O-, -S- or -CR^bR^c-,
L is –SO_2-, -SO-, or -CR^bR^c-;
m is an integer of 0 to 5; and
the other symbols are the same as defined in Claim 2.

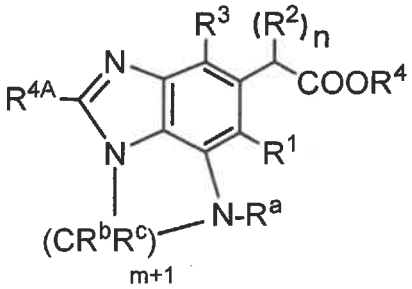
[Claim 4]

The compound or its pharmaceutically acceptable salt according to Claim 3, which is represented by the following formula (I-1-1) or (I-2-1):

[Chemical formula 8]



(I-1-1)



(I-2-1)

wherein R^{3A} is hydrogen; R^{4A}, R^1, R^2, R^3, R^4 and n are the same as defined in Claim 1; R^a, R^b and R^c are the same as defined in Claim 2; and m is the same as defined in Claim 3.

[Claim 5]

The compound or its pharmaceutically acceptable salt according to any one of Claims 1 to 4, whrerein R^{4A} is halogen, cyano, substituted or unsubstituted alkyl, substituted or unsubstituted alkynyl, or substituted or unsubstituted non-aromatic carbocyclyl.

[Claim 6]

The compound or its pharmaceutically acceptable salt according to any one of Claims 1 to 5, wherein R^1 is alkyl, cyano, or halogen.

[Claim 7]

The compound or its pharmaceutically acceptable salt according to any one of Claims 1 to 6, wherein n is 1; R^2 is alkyloxy.

[Claim 8]

The compound or its pharmaceutically acceptable salt according to any one of Claims 1 to 7, wherein R^4 is hydrogen.

[Claim 9]

The compound or its pharmaceutically acceptable salt according to any one of Claims 1 to 5, wherein R^1 is alkyl or halogen; n is 1; R^2 is alkyloxy; and R^4 is hydrogen.

[Claim 10]

The compound or its pharmaceutically acceptable salt according to Claim 2, wherein R^1 is alkyl or halogen; n is 1; R^2 is alkyloxy; R^4 is hydrogen; R^3 is substituted or unsubstituted aromatic carbocyclyl, or substituted or unsubstituted non-aromatic heterocyclyl; R^a is hydrogen, substituted or unsubstituted alkyl, $-COR^{a1}$, $-CONR^{a4}R^{a5}$, $-SO_2R^{a3}$, substituted or unsubstituted aromatic carbocyclyl, substituted or unsubstituted non-aromatic carbocyclyl, substituted or unsubstituted aromatic heterocyclyl, substituted or unsubstituted non-aromatic heterocyclyl, substituted or unsubstituted aromatic carbocyclylalkyl, substituted or unsubstituted non-aromatic carbocyclylalkyl, substituted or unsubstituted aromatic heterocyclylalkyl, or substituted or unsubstituted non-aromatic heterocyclylalkyl; R^b is each independently hydrogen, halogen, substituted or unsubstituted alkyl, or substituted or unsubstituted aromatic carbocyclyl; R^c is each independently hydrogen, halogen, substituted or unsubstituted alkyl, or substituted or unsubstituted aromatic carbocyclyl; or R^a on a nitrogen atom and R^b on a carbon atom which is adjacent to the nitrogen atom may be taken together with the nitrogen atom and the carbon atom to form substituted or unsubstituted monocyclic aromatic heterocycle or substituted or unsubstituted monocyclic non-aromatic heterocycle, or two R^bs on adjacent carbon atoms may be taken together with each bonded carbon atom to form substituted or unsubstituted monocyclic non-aromatic carbocycle or substituted or unsubstituted monocyclic non-aromatic heterocycle; and k is an integer of 3 to 5.

[Claim 11]

The compound or its pharmaceutically acceptable salt according to any one of Claims 3 to 5, wherein R^a is hydrogen, substituted or unsubstituted alkyl, $-COR^{a1}$, $-CONR^{a4}R^{a5}$, or $-SO_2R^{a3}$; R^b is each independently hydrogen, halogen, or substituted or unsubstituted alkyl; R^c is each independently hydrogen, halogen, or substituted or unsubstituted alkyl; m is an integer of 1 to 3; R^1 is alkyl or halogen; n is 1; R^2 is alkyloxy; R^3 is substituted or unsubstituted aromatic carbocyclyl, or substituted or unsubstituted non-aromatic heterocyclyl; and R^4 is hydrogen.

[Claim 12]

The compound or its pharmaceutically acceptable salt according to any one of Claims 3 to 5, wherein m is an integer of 1 to 3; R^1 is alkyl or halogen; n is 1; R^2 is alkyloxy; R^4 is hydrogen; R^3 is substituted or unsubstituted aromatic carbocyclyl or substituted or unsubstituted non-aromatic heterocyclyl;
R^a on a nitrogen atom and R^b on a carbon atom which is adjacent to the nitrogen atom are taken together with each bonded atom to form substituted or unsubstituted monocyclic aromatic heterocycle or substituted or unsubstituted monocyclic non-aromatic heterocycle, two R^b on adjacent carbon atoms are taken together with each bonded carbon atom to form substituted or unsubstituted monocyclic non-aromatic carbocycle or substituted or unsubstituted monocyclic non-aromatic heterocycle, or R^b and R^c on the same carbon atom are taken together with the bonded carbon atom to form carbonyl, substituted or unsubstituted non-aromatic carbocycle or substituted or unsubstituted non-aromatic heterocycle.

[Claim 13]

The compound or its pharmaceutically acceptable salt according to any one of Claims 3 to 5, wherein R^a is substituted or unsubstituted aromatic carbocyclyl, substituted or unsubstituted non-aromatic carbocyclyl, substituted or unsubstituted aromatic heterocyclyl, substituted or unsubstituted non-aromatic heterocyclyl, substituted or unsubstituted aromatic carbocyclylalkyl, substituted or unsubstituted non-aromatic carbocyclylalkyl, substituted or unsubstituted aromatic heterocyclylalkyl, or substituted or unsubstituted non-aromatic heterocyclylalkyl; m is an integer of 1 to 3; R^1 is alkyl or halogen; n is 1; R^2 is alkyloxy; R^3 is substituted or unsubstituted aromatic carbocyclyl or substituted or unsubstituted non-aromatic heterocyclyl; and R^4 is hydrogen.

[Claim 14]

The compound or its pharmaceutically acceptable salt according to Claim 3 or 4, wherein R^{4A} is halogen, cyano, C1 to C3 alkyl, or C1 to C3 haloalkyl; R^a is hydrogen, substituted or unsubstituted alkyl, $-COR^{a1}$, $-CONR^{a4}R^{a5}$, $-SO_2R^{a3}$; R^bs are each independently hydrogen, halogen, or substituted or unsubstituted alkyl; R^cs are each independently hydrogen, halogen, or substituted or unsubstituted alkyl; m is an integer of 1 to 3; R^1 is alkyl or halogen; n is 1; R^2 is alkyloxy; R^3 is substituted or unsubstituted aromatic carbocyclyl or substituted or unsubstituted non-aromatic heterocyclyl; and R^4 is hydrogen.

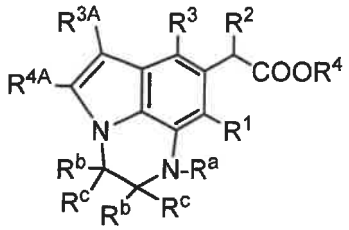
[Claim 15]

The compound or its pharmaceutically acceptable salt according to Claim 3 or 4, wherein R^{4A} is halogen, cyano, C1 to C3 alkyl, or C1 to C3 haloalkyl; R^a is substituted or unsubstituted aromatic carbocyclyl, substituted or unsubstituted non-aromatic carbocyclyl, substituted or unsubstituted aromatic heterocyclyl, substituted or unsubstituted non-aromatic heterocyclyl, substituted or unsubstituted aromatic carbocyclylalkyl , substituted or unsubstituted non-aromatic carbocyclylalkyl, substituted or unsubstituted aromatic heterocyclylalkyl, or substituted or unsubstituted non-aromatic heterocyclylalkyl; m is an integer of 1 to 3; R^1 is alkyl or halogen; n is 1; R^2 is alkyloxy; R^3 is substituted or unsubstituted aromatic carbocyclyl, or substituted or unsubstituted non-aromatic heterocyclyl; and R^4 is hydrogen.

[Claim 16]

The compound or its pharmaceutically acceptable salt according to Claim 1, wherein the formula (I') is represented by the following formula:

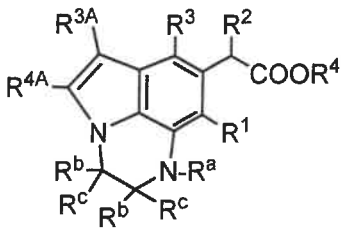
[Chemical formula 7]



(I-1-1B)

wherein R^1 is alkyl or halogen;
R^2 is alkyloxy;
R^3 is aromatic carbocyclyl optionally substituted with halogen, alkyl and/or alkyloxy, non-aromatic carbocyclyl optionally substituted with halogen, alkyl and/or alkyloxy, aromatic heterocyclyl optionally substituted with halogen, alkyl and/or alkyloxy, or non-aromatic heterocyclyl optionally substituted with halogen, alkyl and/or alkyloxy;
R^4 is hydrogen;
R^{3A} is hydrogen or halogen;
R^{4A} is halogen, cyano, C1 to C3 alkyl, C1 to C3 haloalkyl, C2 to C3 alkynyl, or C3 to C4 cycloalkyl;
;
R^a is each independently hydrogen, alkyl, haloalkyl, aminoalkyl, alkylamino alkyl, dialkylamino alkyl, alkyloxyalkyl, alkylsulfonyl, or haloalkylsulfonyl;
R^b is each independently hydrogen, alkyl, haloalkyl, or alkyloxyalkyl; and
R^c is each independently hydrogen, alkyl, haloalkyl, or alkyloxyalkyl.

[Claim 17]
The compound or its pharmaceutically acceptable salt according to Claim 1, wherein the formula (I') is represented by the following formula:
[Chemical formula 8]

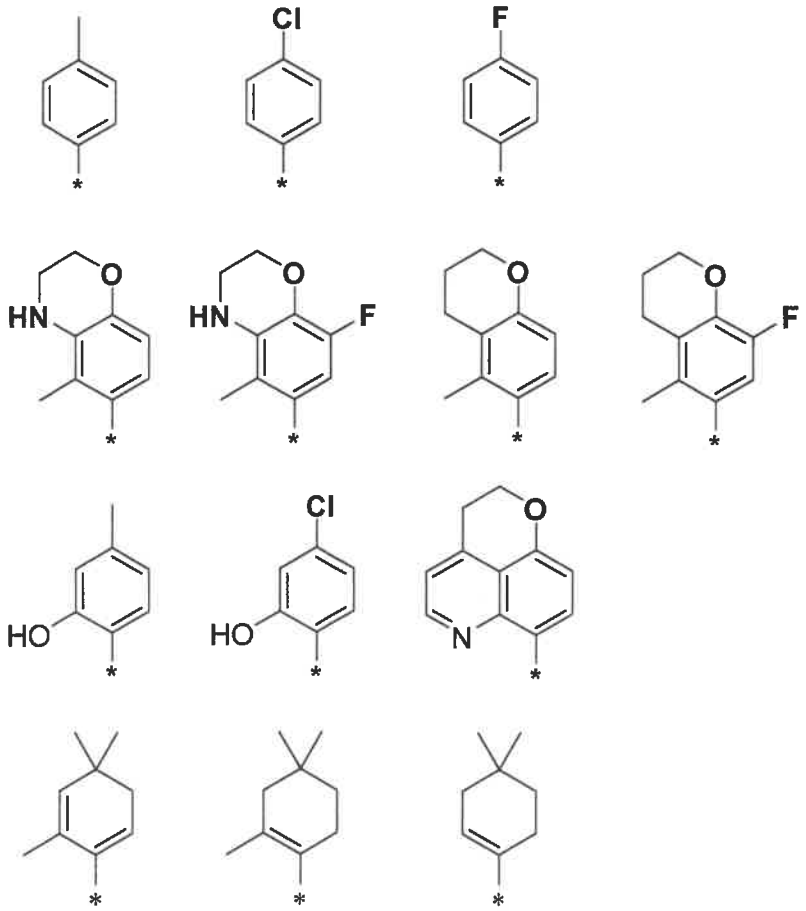


(I-1-1B)

wherein R^1 is alkyl or halogen;
R^2 is alkyloxy;
R^3 is aromatic carbocyclyl optionally substituted with halogen, alkyl and/or alkyloxy, non-aromatic carbocyclyl optionally substituted with halogen, alkyl and/or alkyloxy, aromatic heterocyclyl optionally substituted with halogen, alkyl and/or alkyloxy, or non-aromatic heterocyclyl optionally substituted with halogen, alkyl and/or alkyloxy;
R^4 is hydrogen;

R^{3A} is hydrogen or halogen;
R^{4A} is halogen, cyano, C1 to C3 alkyl, C1 to C3 haloalkyl, C2 to C3 alkynyl, or C3 to C4 cycloalkyl;
R^a is each independently aromatic heterocyclyl optionally substituted with one or more groups selected from Substituent Group E or non-aromatic heterocyclyl optionally substituted with one or more groups selected from Substituent Group E; wherein Substituent Group E is alkyl, halogen, alkyloxy, dialkylamino alkyloxy, alkylamino alkyloxy, amino alkyloxy, non-aromatic heterocyclylalkyl oxy, non-aromatic heterocyclyloxy optionally substituted with alkyl and/or oxo, non-aromatic heterocyclyl optionally substituted with alkyl and/or oxo, dialkylamino alkyl, alkylamino alkyl, amino alkyl, non-aromatic heterocyclylalkyl , and aromatic heterocyclyl optionally substituted with alkyl;
R^b is each independently hydrogen, alkyl, haloalkyl, or alkyloxyalkyl; and
R^c is each independently hydrogen, alkyl, haloalkyl, or alkyloxyalkyl.

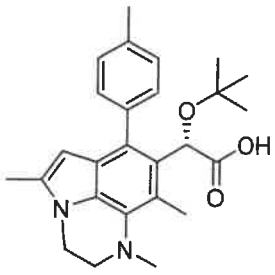
[Claim 18]
The compound or its pharmaceutically acceptable salt according to any one of Claims 1 to 17, wherein R^3 is selected from the group consisting of
[Chemical formula 9]



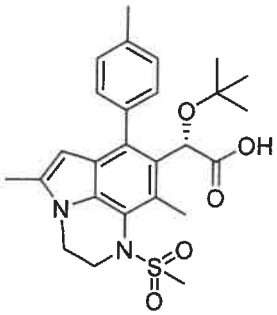
[Claim 19]

The compound or its pharmaceutically acceptable salt according to Claim 1, wherein the compound is any one of

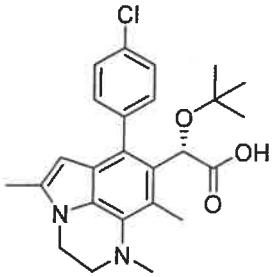
[Chemical formula 10]



I-001



I-003



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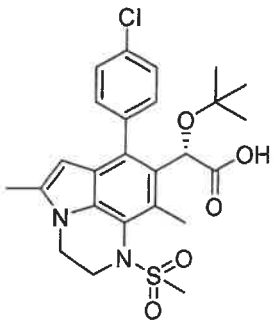

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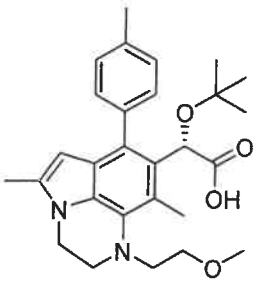

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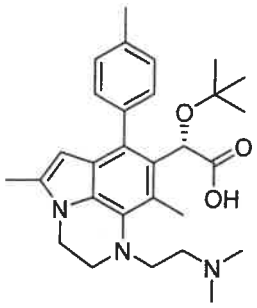

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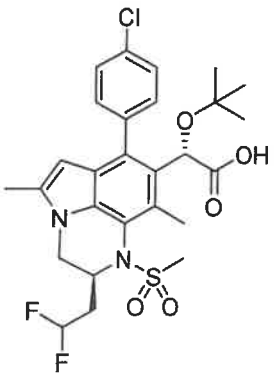

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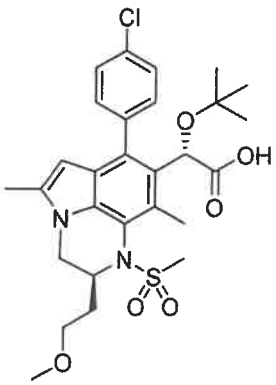

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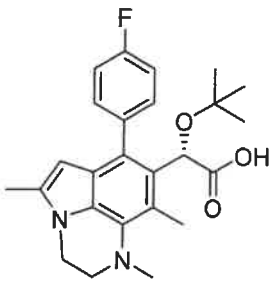
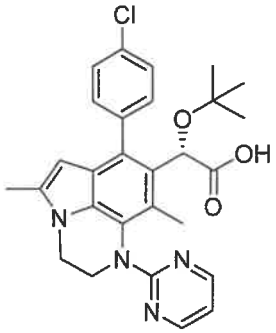
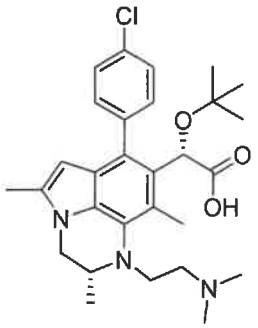


I-048

[Chemical formula 11]



I-085 ,



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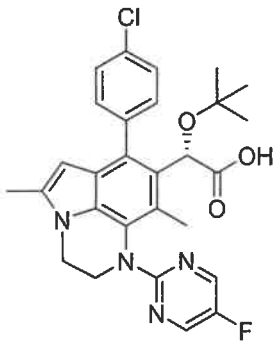

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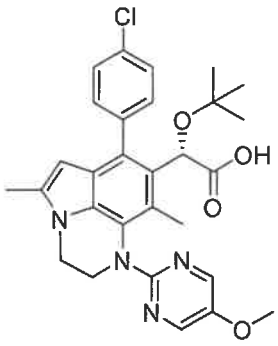

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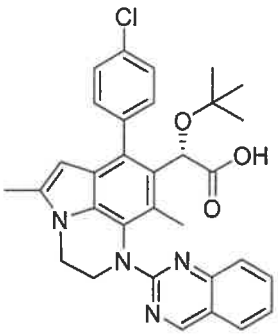

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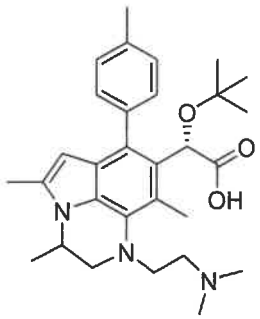

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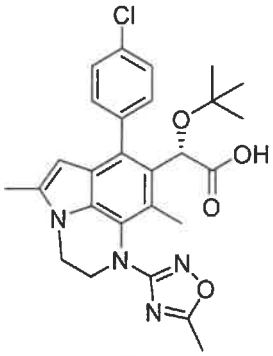
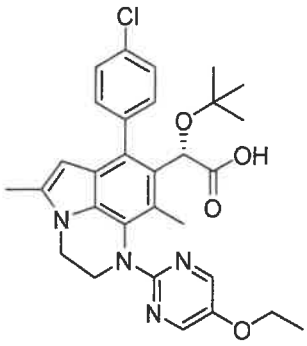
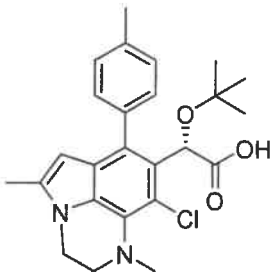


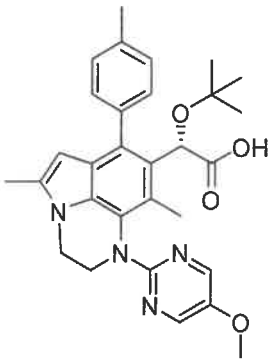
I-176 ,



I-181 ,



I-187 ,



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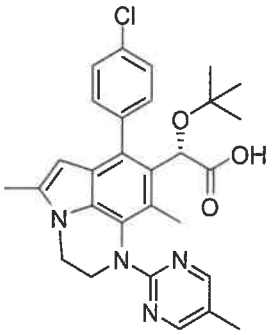

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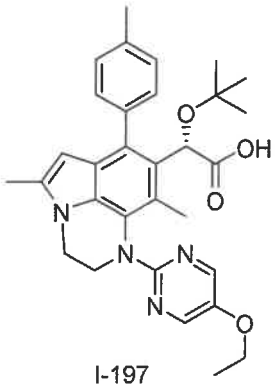
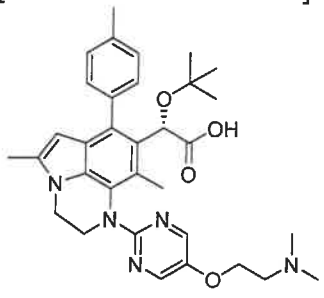


I-197 .

[Claim 20]

The compound or its pharmaceutically acceptable salt according to Claim 1, wherein the compound is any one of

[Chemical formula 12]



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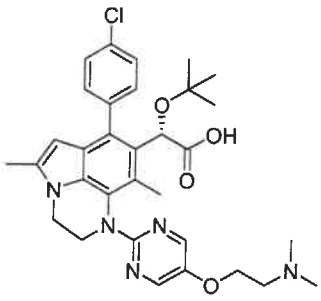

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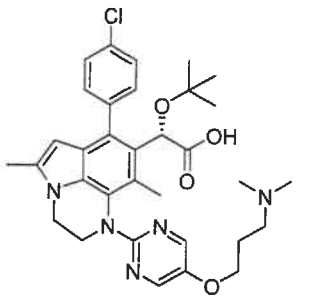

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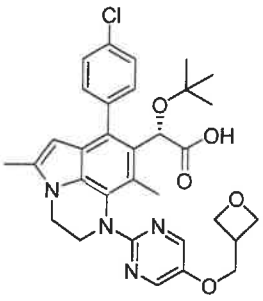

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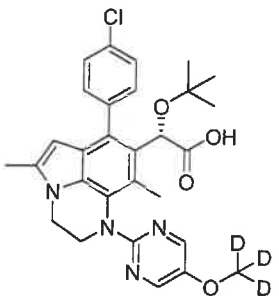

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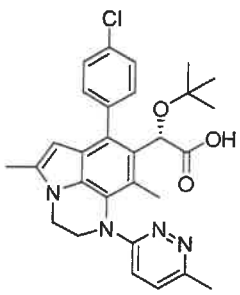

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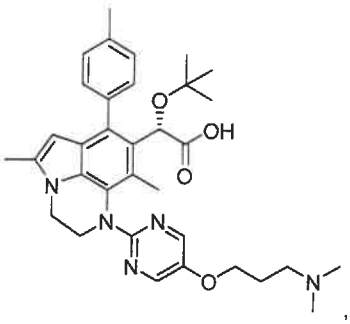

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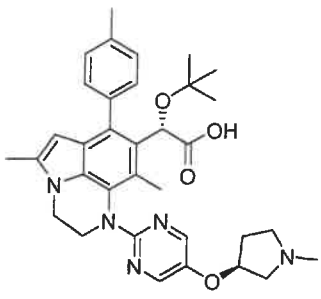

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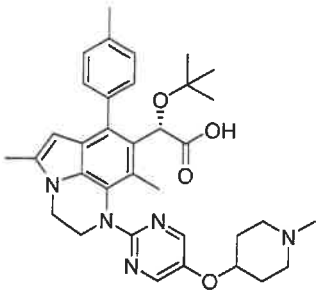
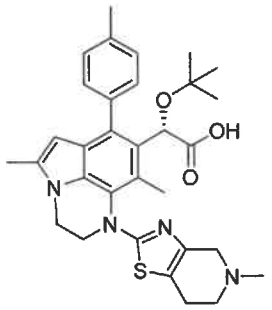


I-278

[Chemical formula 13]



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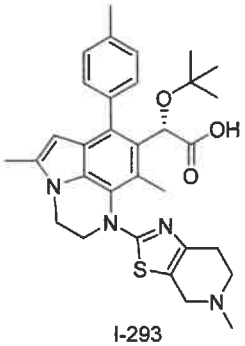

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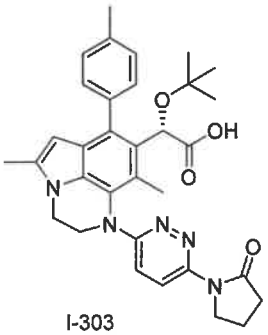

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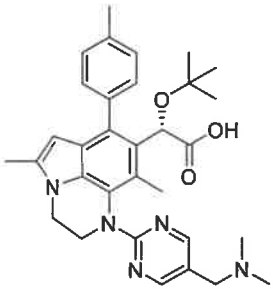

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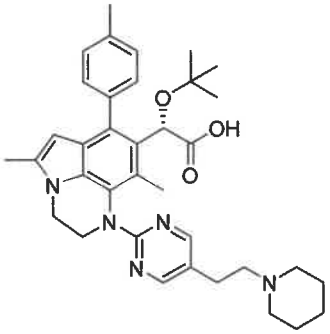

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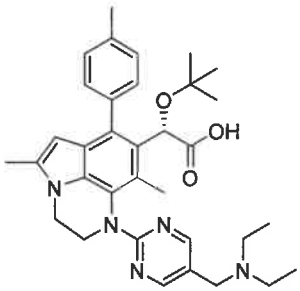

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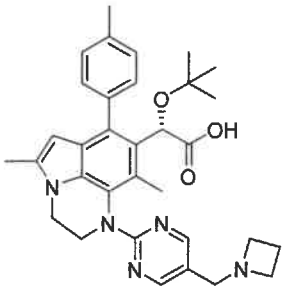

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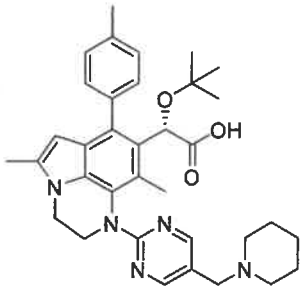
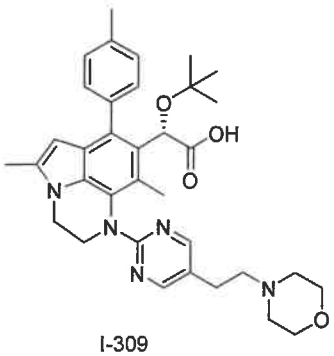


I-308 and

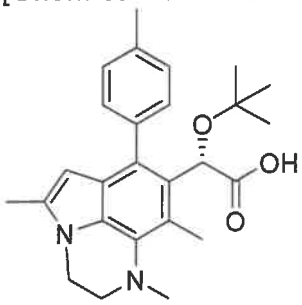


I-309 .

[Claim 21]

The compound or its pharmaceutically acceptable salt according to Claim 1, wherein the compound is

[Chemical formula 14]

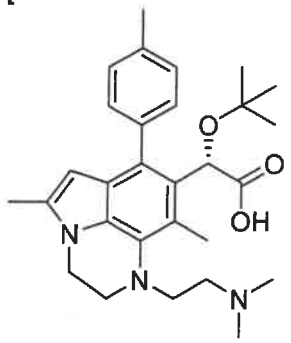


I-001 .

[Claim 22]

The compound or its pharmaceutically acceptable salt according to Claim 1, wherein the compound is

[Chemical formula 15]

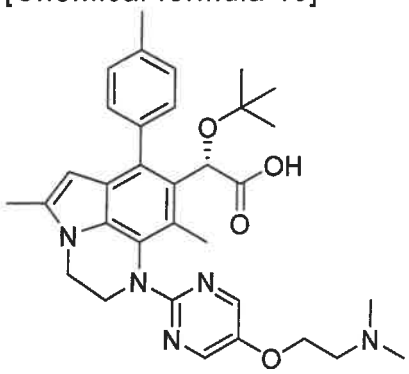


I-027

[Claim 23]

The compound or its pharmaceutically acceptable salt according to Claim 1, wherein the compound is

[Chemical formula 16]

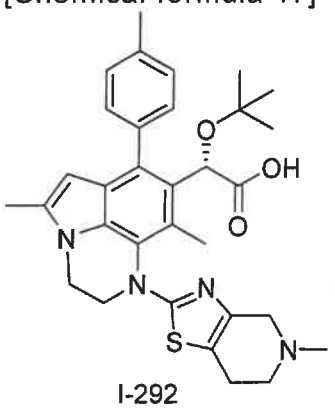


I-220

[Claim 24]

The compound or its pharmaceutically acceptable salt according to Claim 1, wherein the compound is

[Chemical formula 17]

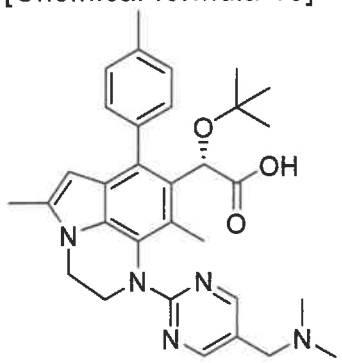


I-292

[Claim 25]

The compound or its pharmaceutically acceptable salt according to Claim 1, wherein the compound is

[Chemical formula 18]



I-304