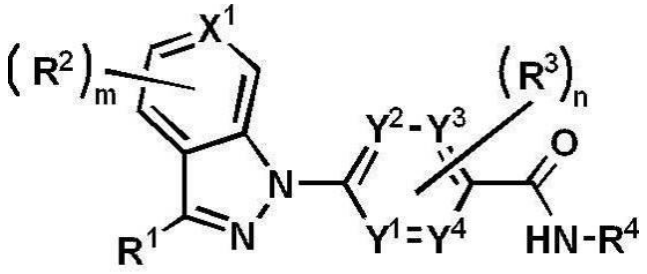
[CLAIMS]

[Claim 1]

A compound of the formula [I]:



[I]

wherein

X^1, Y^1, Y^2, Y^3 and Y^4 are each independently a carbon or a nitrogen atom (wherein the total number of the nitrogen atoms for Y^1, Y^2, Y^3 and Y^4 is 0, 1 or 2),

m is 0, 1 or 2,

n is 0, 1 or 2,

R^1 is

(1) hydroxy,

(2) cyano,

(3) C_{1-4} alkyl (wherein the alkyl is optionally substituted by hydroxy or C_{1-4} alkoxy),

(4) C_{1-4} alkoxy,

(5) halogen,

(6) C_{1-4} haloalkyl, or

(7) C_{3-6} cycloalkyl,

R^2 in the number of m are each independently

(1) cyano,

(2) C_{1-4} alkyl,

(3) C_{1-4} alkoxy,

(4) halogen, or

(5) C_{1-4} haloalkyl,

R^3 in the number of n are each independently

(1) C_{1-4} alkyl,

(2) C_{1-4} alkoxy, or

(3) halogen, and

R^4 is

(1) ring Cy [wherein the ring Cy is

(a) C_{4-6} cycloalkyl (wherein the cycloalkyl is optionally substituted by 1 or 2 substituents independently selected from the group consisting of

(I) hydroxy,

(II) cyano,

(III) oxo,

(IV) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(i) hydroxy,

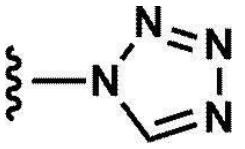
(ii) carboxy,

(iii) $-CONH_2$,

(iv) $-CO-C_{1-4}$ alkoxy,

(v) $-SO_2-C_{1-4}$ alkyl, or

(vi) a group represented by the formula:



),

(V) C_{1-6} alkoxy (wherein the alkoxy is optionally substituted by hydroxy or $-SO_2-C_{1-4}$ alkyl),

(VI) carboxy,

(VII) $-CO-NR^5R^6$ [wherein R^5 and R^6 are each independently C_{1-4} alkyl (wherein the alkyl is optionally substituted by C_{1-4} alkoxy), or R^5 and R^6 optionally form, together with the nitrogen atom bonded thereto, 4- to 6-membered heterocycloalkyl containing 1 or 2 hetero atoms independently selected from the group consisting of nitrogen and oxygen atoms {wherein the heterocycloalkyl is optionally substituted by 1 or 2 substituents independently selected from the group consisting of

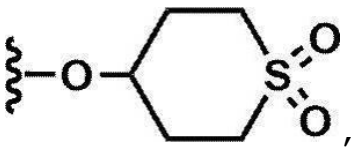
(i) hydroxy, and

(ii) C_{1-6} alkyl (wherein the alkyl is optionally substituted by hydroxy)}],

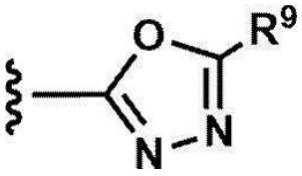
(VIII) $-NR^7R^8$ {wherein R^7 and R^8 are each independently C_{1-4} alkyl or $-CO-C_{1-6}$ alkyl (wherein the alkyl is optionally substituted by cyano)},

(IX) $-O-C_{1-6}$ haloalkyl,

(X) a group represented by the formula:

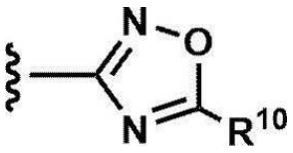


(XI) a group represented by the formula:



{wherein R^9 is C_{1-4} alkyl (wherein the alkyl is optionally substituted by C_{1-4} alkoxy)}, and

(XII) a group represented by the formula:



wherein R^{10} is C_{1-4} alkyl)),

(b) C_{5-8} bridged cycloalkyl {wherein the bridged cycloalkyl is optionally substituted by

(I) hydroxy,

(II) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(i) hydroxy,

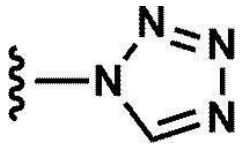
(ii) carboxy,

(iii) $-CONH_2$,

(iv) $-CO-C_{1-4}$ alkoxy,

(v) $-SO_2-C_{1-4}$ alkyl, or

(vi) a group represented by the formula:



),

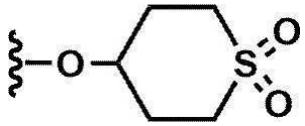
(III) C_{1-6} alkoxy (wherein the alkoxy is optionally substituted by hydroxy or $-SO_2-C_{1-4}$ alkyl),

(IV) carboxy,

(V) $-CO-C_{1-4}$ alkoxy,

(VI) $-O-C_{1-6}$ haloalkyl, or

(VII) a group represented by the formula:



},

(c) 5- or 6-membered heterocycloalkyl containing one nitrogen atom [wherein the heterocycloalkyl is optionally substituted by 1 to 3 substituents independently selected from the group consisting of

(I) oxo,

(II) C_{1-6} alkyl,

(III) $-CO-R^{11}$ {wherein R^{11} is

(i) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(A) hydroxy,

(B) cyano, or

(C) C_{1-4} alkoxy),

(ii) C_{1-6} alkoxy,

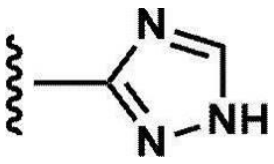
(iii) C_{1-6} haloalkyl,

(iv) C_{3-6} cycloalkyl (wherein the cycloalkyl is

optionally substituted by halogen), or

(v) 4- to 6-membered heterocycloalkyl containing one oxygen atom (wherein the heterocycloalkyl is optionally substituted by halogen)}, and

(IV) a group represented by the formula:



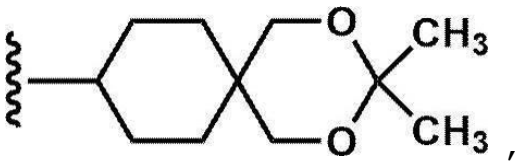
],

(d) 8-membered bridged heterocycloalkyl containing one nitrogen atom {wherein the bridged heterocycloalkyl is optionally substituted by -CO-R^{11}},

(e) 7- to 11-membered spiro heterocycloalkyl containing one nitrogen atom {wherein the spiro heterocycloalkyl is optionally substituted by -CO-R^{11}},

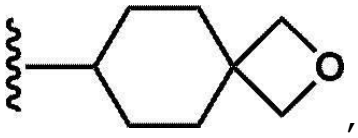
(f) 6- to 9-membered saturated or partially unsaturated fused ring group containing 1 or 2 nitrogen atoms (wherein the fused ring group is optionally substituted by -CO-R^{11}),

(g) a group represented by the formula:



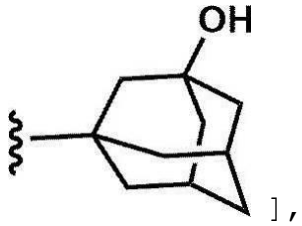
,

(h) a group represented by the formula:



, or

(i) a group represented by the formula:



],

(2) C_{1-4} alkyl {wherein the alkyl is optionally substituted by

(a) C_{3-6} cycloalkyl (wherein the cycloalkyl is optionally substituted by 1 or 2 substituents independently selected from the group consisting of hydroxy and C_{1-4} alkyl optionally substituted by hydroxy), or

(b) phenyl}, or

(3) C_{1-4} haloalkyl (wherein the haloalkyl is optionally substituted by C_{3-6} cycloalkyl optionally substituted by hydroxy)],

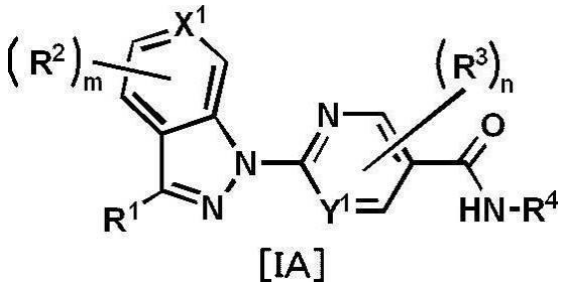
or a pharmaceutically acceptable salt thereof.

[Claim 2]

The compound of Claim 1, wherein the total number of the nitrogen atoms for Y^1, Y^2, Y^3 and Y^4 is 1 or 2, or a pharmaceutically acceptable salt thereof.

[Claim 3]

The compound of Claim 1, which is represented by the formula [IA]:



[IA]

(wherein each symbol is as defined for Claim 1),

or a pharmaceutically acceptable salt thereof.

[Claim 4]

The compound of any one of Claims 1 to 3, wherein R^3 is

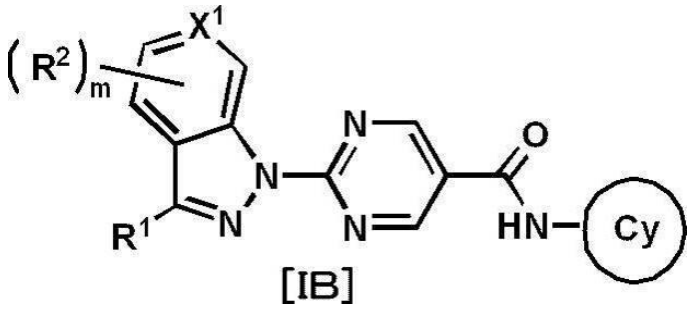
halogen, or a pharmaceutically acceptable salt thereof.

[Claim 5]

The compound of any one of Claims 1 to 4, wherein R^4 is ring Cy, or a pharmaceutically acceptable salt thereof.

[Claim 6]

The compound of Claim 1, which is represented by the formula [IB]:



[IB]

(wherein each symbol is as defined for Claim 1),
or a pharmaceutically acceptable salt thereof.

[Claim 7]

The compound of any one of Claims 1 to 6, wherein R^1 is
(1) C_{1-4} alkyl (wherein the alkyl is optionally substituted by hydroxy or C_{1-4} alkoxy),
(2) C_{1-4} alkoxy,
(3) halogen, or
(4) C_{1-4} haloalkyl,
or a pharmaceutically acceptable salt thereof.

[Claim 8]

The compound of any one of Claims 1 to 7, wherein R^2 is halogen, or a pharmaceutically acceptable salt thereof.

[Claim 9]

The compound of any one of Claims 1 to 8, wherein ring Cy is
(1) C_{4-6} cycloalkyl (wherein the cycloalkyl is optionally substituted by 1 or 2 substituents independently selected from the group consisting of
(a) hydroxy,

(b) cyano,

(c) oxo,

(d) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(I) hydroxy,

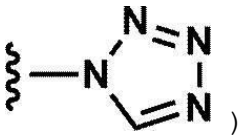
(II) carboxy,

(III) $-CONH_2$,

(IV) $-CO-C_{1-4}$ alkoxy,

(V) $-SO_2-C_{1-4}$ alkyl, or

(VI) a group represented by the formula:



),

(e) C_{1-6} alkoxy (wherein the alkoxy is optionally substituted by hydroxy or $-SO_2-C_{1-4}$ alkyl),

(f) carboxy,

(g) $-CO-NR^5R^6$ [wherein R^5 and R^6 are each independently C_{1-4} alkyl (wherein the alkyl is optionally substituted by C_{1-4} alkoxy), or R^5 and R^6 optionally form, together with the nitrogen atom bonded thereto, 4- to 6-membered heterocycloalkyl containing 1 or 2 hetero atoms independently selected from the group consisting of nitrogen and oxygen atoms {wherein the heterocycloalkyl is optionally substituted by 1 or 2 substituents independently selected from the group consisting of

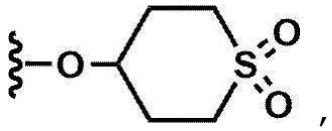
(I) hydroxy, and

(II) C_{1-6} alkyl (wherein the alkyl is optionally substituted by hydroxy)}],

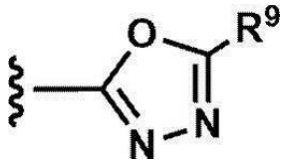
(h) $-NR^7R^8$ {wherein R^7 and R^8 are each independently C_{1-4} alkyl, or $-CO-C_{1-6}$ alkyl (wherein the alkyl is optionally substituted by cyano)},

(i) $-O-C_{1-6}$ haloalkyl,

(j) a group represented by the formula:

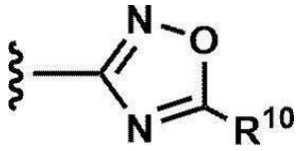


(k) a group represented by the formula:



{wherein R^9 is C_{1-4} alkyl (wherein the alkyl is optionally substituted by C_{1-4} alkoxy)}, and

(m) a group represented by the formula:



wherein R^{10} is C_{1-4} alkyl)),

(2) C_{5-8} bridged cycloalkyl {wherein the bridged cycloalkyl is optionally substituted by

(a) hydroxy,

(b) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(I) hydroxy,

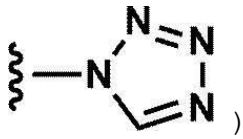
(II) carboxy,

(III) $-CONH_2$,

(IV) $-CO-C_{1-4}$ alkoxy,

(V) $-SO_2-C_{1-4}$ alkyl, or

(VI) a group represented by the formula:



),

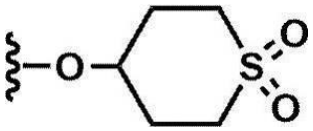
(c) C_{1-6} alkoxy (wherein the alkoxy is optionally substituted by hydroxy or $-SO_2-C_{1-4}$ alkyl),

(d) carboxy,

(e) $-CO-C_{1-4}$ alkoxy,

(f) $-O-C_{1-6}$ haloalkyl, or

(g) a group represented by the formula:



},

(3) 5- or 6-membered heterocycloalkyl containing one nitrogen atom [wherein the heterocycloalkyl is optionally substituted by 1 to 3 substituents independently selected from the group consisting of

(a) oxo,

(b) C_{1-6} alkyl,

(c) $-CO-R^{11}$ {wherein R^{11} is

(I) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(i) hydroxy,

(ii) cyano, or

(iii) C_{1-4} alkoxy),

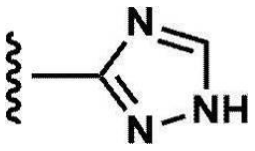
(II) C_{1-6} alkoxy,

(III) C_{1-6} haloalkyl,

(IV) C_{3-6} cycloalkyl (wherein the cycloalkyl is optionally substituted by halogen), or

(V) 4- to 6-membered heterocycloalkyl containing one oxygen atom (wherein the heterocycloalkyl is optionally substituted by halogen)}, and

(d) a group represented by the formula:



],

(4) 8-membered bridged heterocycloalkyl containing one nitrogen atom {wherein the bridged heterocycloalkyl is optionally substituted by -CO-R^{11}},

(5) 7- to 11-membered spiro heterocycloalkyl containing one nitrogen atom {wherein the spiro heterocycloalkyl is optionally substituted by -CO-R^{11}}, or

(6) a 6- to 9-membered saturated or partially unsaturated fused ring group containing 1 or 2 nitrogen atoms (wherein the fused ring group is optionally substituted by -CO-R^{11}),

or a pharmaceutically acceptable salt thereof.

[Claim 10]

The compound of any one of Claims 1 to 9, wherein ring Cy is

(1) C_{4-6} cycloalkyl (wherein the cycloalkyl is optionally substituted by 1 or 2 substituents independently selected from the group consisting of

(a) hydroxy,

(b) cyano,

(c) oxo,

(d) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(I) hydroxy,

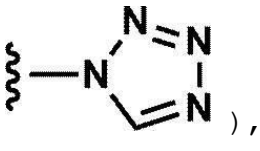
(II) carboxy,

(III) $-CONH_2$,

(IV) -CO-C_{1-4} alkoxy,

(V) $-SO_2$-C_{1-4} alkyl, or

(VI) a group represented by the formula:



),

(e) C_{1-6} alkoxy (wherein the alkoxy is optionally substituted by hydroxy or $-SO_2-C_{1-4}$ alkyl),

(f) carboxy,

(g) $-CO-NR^5R^6$ [wherein R^5 and R^6 are each independently C_{1-4} alkyl (wherein the alkyl is optionally substituted by C_{1-4} alkoxy), or R^5 and R^6 optionally form, together with the nitrogen atom bonded thereto, 4- to 6-membered heterocycloalkyl containing 1 or 2 hetero atoms independently selected from the group consisting of nitrogen and oxygen atoms {wherein the heterocycloalkyl is optionally substituted by 1 or 2 substituents independently selected from the group consisting of

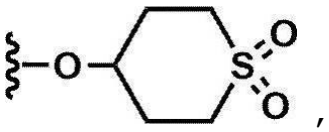
(I) hydroxy, and

(II) C_{1-6} alkyl (wherein the alkyl is optionally substituted by hydroxy)}],

(h) $-NR^7R^8$ {wherein R^7 and R^8 are each independently C_{1-4} alkyl, or $-CO-C_{1-6}$ alkyl (wherein the alkyl is optionally substituted by cyano)},

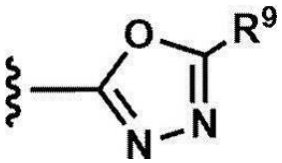
(i) $-O-C_{1-6}$ haloalkyl,

(j) a group represented by the formula:



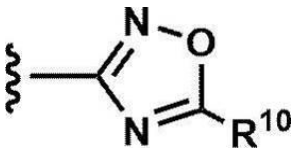
,

(k) a group represented by the formula:



{wherein R^9 is C_{1-4} alkyl (wherein the alkyl is optionally substituted by C_{1-4} alkoxy)}, and

(m) a group represented by the formula:



wherein R^{10} is C_{1-4} alkyl)),

(2) C_{5-8} bridged cycloalkyl {wherein the bridged cycloalkyl is optionally substituted by

(a) hydroxy,

(b) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(I) hydroxy,

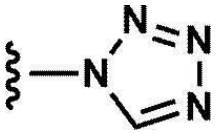
(II) carboxy,

(III) $-CONH_2$,

(IV) $-CO-C_{1-4}$ alkoxy,

(V) $-SO_2-C_{1-4}$ alkyl, or

(VI) a group represented by the formula:



),

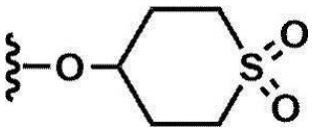
(c) C_{1-6} alkoxy (wherein the alkoxy is optionally substituted by hydroxy or $-SO_2-C_{1-4}$ alkyl),

(d) carboxy,

(e) $-CO-C_{1-4}$ alkoxy,

(f) $-O-C_{1-6}$ haloalkyl, or

(g) a group represented by the formula:



},

(3) 5- or 6-membered heterocycloalkyl containing one nitrogen atom [wherein the heterocycloalkyl is optionally substituted by

1 to 3 substituents independently selected from the group consisting of

(a) oxo,

(b) C_{1-6} alkyl,

(c) $-CO-R^{11}$ {wherein R^{11} is

(I) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(i) hydroxy,

(ii) cyano, or

(iii) C_{1-4} alkoxy),

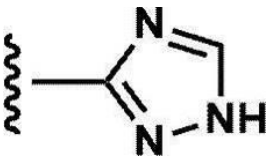
(II) C_{1-6} alkoxy,

(III) C_{1-6} haloalkyl,

(IV) C_{3-6} cycloalkyl (wherein the cycloalkyl is optionally substituted by halogen), or

(V) 4- to 6-membered heterocycloalkyl containing one oxygen atom (wherein the heterocycloalkyl is optionally substituted by halogen)}, and

(d) a group represented by the formula:



], or

(4) 8-membered bridged heterocycloalkyl containing one nitrogen atom {wherein the bridged heterocycloalkyl is optionally substituted by $-CO-R^{11}$},

or a pharmaceutically acceptable salt thereof.

[Claim 11]

The compound of any one of Claims 1 to 8, wherein ring Cy is

(1) C_{4-6} cycloalkyl (wherein the cycloalkyl is optionally substituted by 1 or 2 substituents independently selected from the group consisting of

(a) hydroxy,

(b) cyano,

(c) oxo,

(d) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(I) hydroxy,

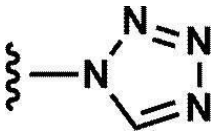
(II) carboxy,

(III) $-CONH_2$,

(IV) $-CO-C_{1-4}$ alkoxy,

(V) $-SO_2-C_{1-4}$ alkyl, or

(VI) a group represented by the formula:



),

(e) C_{1-6} alkoxy (wherein the alkoxy is optionally substituted by hydroxy or $-SO_2-C_{1-4}$ alkyl),

(f) carboxy,

(g) $-CO-NR^5R^6$ [wherein R^5 and R^6 are each independently C_{1-4} alkyl (wherein the alkyl is optionally substituted by C_{1-4} alkoxy), or R^5 and R^6 optionally form, together with the nitrogen atom bonded thereto, 4- to 6-membered heterocycloalkyl containing 1 or 2 hetero atoms independently selected from the group consisting of nitrogen and oxygen atoms {wherein the heterocycloalkyl is optionally substituted by 1 or 2 substituents independently selected from the group consisting of

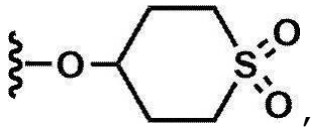
(I) hydroxy, and

(II) C_{1-6} alkyl (wherein the alkyl is optionally substituted by hydroxy)}],

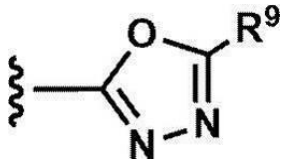
(h) $-NR^7R^8$ {wherein R^7 and R^8 are each independently C_{1-4} alkyl, or $-CO-C_{1-6}$ alkyl (wherein the alkyl is optionally substituted by cyano)},

(i) $-O-C_{1-6}$ haloalkyl,

(j) a group represented by the formula:

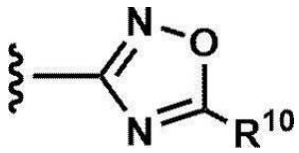


(k) a group represented by the formula:



{wherein R^9 is C_{1-4} alkyl (wherein the alkyl is optionally substituted by C_{1-4} alkoxy)}, and

(m) a group represented by the formula:



wherein R^{10} is C_{1-4} alkyl)), or

(2) C_{5-8} bridged cycloalkyl {wherein the bridged cycloalkyl is optionally substituted by

(a) hydroxy,

(b) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(I) hydroxy,

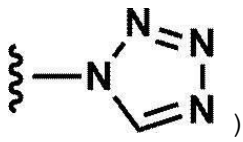
(II) carboxy,

(III) $-CONH_2$,

(IV) $-CO-C_{1-4}$ alkoxy,

(V) $-SO_2-C_{1-4}$ alkyl, or

(VI) a group represented by the formula:



),

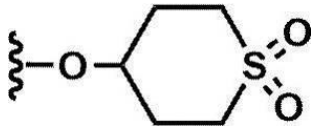
(c) C_{1-6} alkoxy (wherein the alkoxy is optionally substituted by hydroxy or $-SO_2-C_{1-4}$ alkyl),

(d) carboxy,

(e) $-CO-C_{1-4}$ alkoxy,

(f) $-O-C_{1-6}$ haloalkyl, or

(g) a group represented by the formula:


},

or a pharmaceutically acceptable salt thereof.

[Claim 12]

The compound of any one of Claims 1 to 8, wherein ring Cy is

(1) cyclohexyl (wherein the cyclohexyl is optionally substituted by 1 or 2 substituents independently selected from the group consisting of

(a) hydroxy,

(b) cyano,

(c) oxo,

(d) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(I) hydroxy,

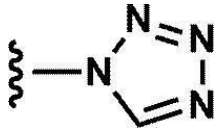
(II) carboxy,

(III) $-CONH_2$,

(IV) $-CO-C_{1-4}$ alkoxy,

(V) $-SO_2-C_{1-4}$ alkyl, or

(VI) a group represented by the formula:


),

(e) C_{1-6} alkoxy (wherein the alkoxy is optionally

substituted by hydroxy or -SO_2-C_{1-4} alkyl),

(f) carboxy,

(g) -CO-NR^5R^6 [wherein R^5 and R^6 are each independently C_{1-4} alkyl (wherein the alkyl is optionally substituted by C_{1-4} alkoxy), or R^5 and R^6 optionally form, together with the nitrogen atom bonded thereto, 4- to 6-membered heterocycloalkyl containing 1 or 2 hetero atoms independently selected from the group consisting of nitrogen and oxygen atoms {wherein the heterocycloalkyl is optionally substituted by 1 or 2 substituents independently selected from the group consisting of

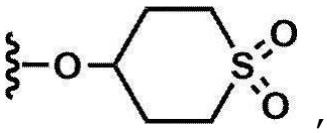
(I) hydroxy, and

(II) C_{1-6} alkyl (wherein the alkyl is optionally substituted by hydroxy)}],

(h) -NR^7R^8 {wherein R^7 and R^8 are each independently C_{1-4} alkyl, or -CO-C_{1-6} alkyl (wherein the alkyl is optionally substituted by cyano)},

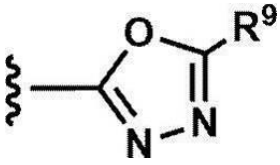
(i) -O-C_{1-6} haloalkyl,

(j) a group represented by the formula:



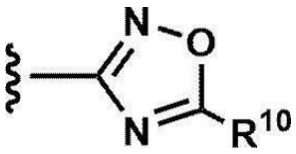
,

(k) a group represented by the formula:



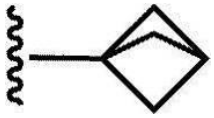
{wherein R^9 is C_{1-4} alkyl (wherein the alkyl is optionally substituted by C_{1-4} alkoxy)}, and

(m) a group represented by the formula:



wherein R^{10} is C_{1-4} alkyl)), or

(2) a group represented by the formula:



{wherein the group represented by the formula is optionally substituted by

(a) hydroxy,

(b) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(I) hydroxy,

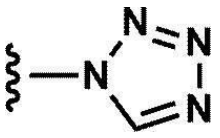
(II) carboxy,

(III) $-CONH_2$,

(IV) $-CO-C_{1-4}$ alkoxy,

(V) $-SO_2-C_{1-4}$ alkyl, or

(VI) a group represented by the formula:



),

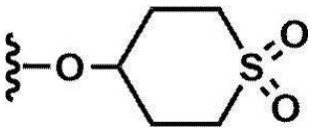
(c) C_{1-6} alkoxy (wherein the alkoxy is optionally substituted by hydroxy or $-SO_2-C_{1-4}$ alkyl),

(d) carboxy,

(e) $-CO-C_{1-4}$ alkoxy,

(f) $-O-C_{1-6}$ haloalkyl, or

(g) a group represented by the formula:

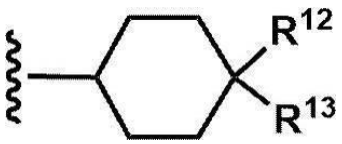

},

or a pharmaceutically acceptable salt thereof.

[Claim 13]

The compound of any one of Claims 1 to 8, wherein ring Cy is

(1) a group represented by the formula:



wherein R^{12} and R^{13} are each independently

(a) hydrogen,

(b) hydroxy,

(c) cyano,

(d) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(I) hydroxy,

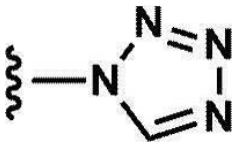
(II) carboxy,

(III) $-CONH_2$,

(IV) $-CO-C_{1-4}$ alkoxy,

(V) $-SO_2-C_{1-4}$ alkyl, or

(VI) a group represented by the formula:


),

(e) C_{1-6} alkoxy (wherein the alkoxy is optionally substituted by hydroxy or $-SO_2-C_{1-4}$ alkyl),

(f) carboxy,

(g) $-CO-NR^5R^6$ [wherein R^5 and R^6 are each independently C_{1-}

4 alkyl (wherein the alkyl is optionally substituted by C_{1-4} alkoxy), or R^5 and R^6 optionally form, together with the nitrogen atom bonded thereto, 4- to 6-membered heterocycloalkyl containing 1 or 2 hetero atoms independently selected from the
5 group consisting of nitrogen and oxygen atoms {wherein the heterocycloalkyl is optionally substituted by 1 or 2 substituents independently selected from the group consisting of

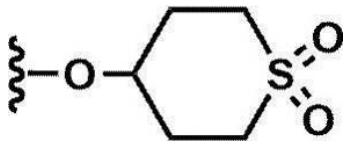
(I) hydroxy, and

10 (II) C_{1-6} alkyl (wherein the alkyl is optionally substituted by hydroxy)}],

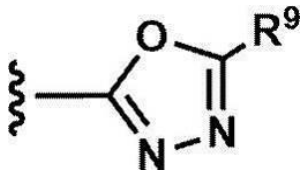
(h) $-NR^7R^8$ {wherein R^7 and R^8 are each independently C_{1-4} alkyl or $-CO-C_{1-6}$ alkyl (wherein the alkyl is optionally substituted by cyano)},

15 (i) $-O-C_{1-6}$ haloalkyl,

(j) a group represented by the formula:

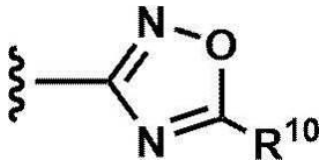


20 (k) a group represented by the formula:



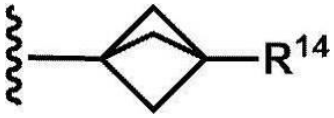
{wherein R^9 is C_{1-4} alkyl (wherein the alkyl is optionally
25 substituted by C_{1-4} alkoxy)}, or

(m) a group represented by the formula:



wherein R^{10} is C_{1-4} alkyl), or R^{12} and R^{13} are optionally joined to form oxo), or

(2) a group represented by the formula:



wherein R^{14} is

(a) hydrogen,

(b) hydroxy,

(c) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(I) hydroxy,

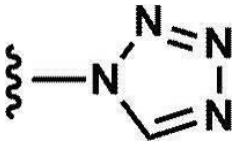
(II) carboxy,

(III) $-CONH_2$,

(IV) $-CO-C_{1-4}$ alkoxy,

(V) $-SO_2-C_{1-4}$ alkyl, or

(VI) a group represented by the formula:



),

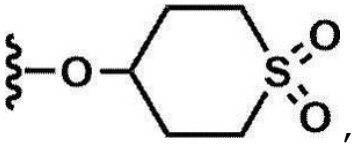
(d) C_{1-6} alkoxy (wherein the alkoxy is optionally substituted by hydroxy or $-SO_2-C_{1-4}$ alkyl),

(e) carboxy,

(f) $-CO-C_{1-4}$ alkoxy,

(g) $-O-C_{1-6}$ haloalkyl, or

(h) a group represented by the formula:

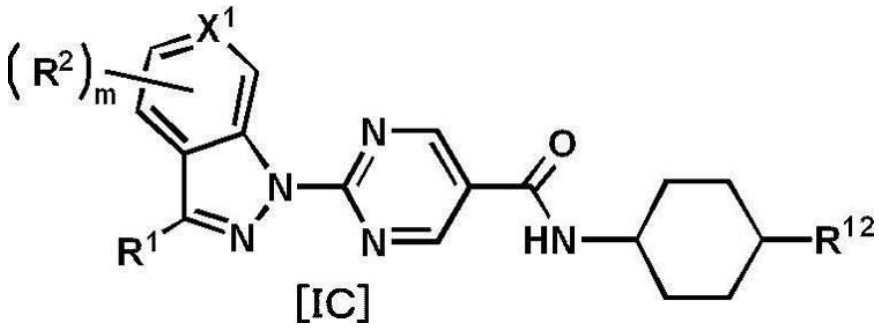


,

or a pharmaceutically acceptable salt thereof.

[Claim 14]

The compound of Claim 1 or 13, which is represented by the formula [IC]:



[IC]

wherein

X^1, R^1, R^2 and m are as defined for Claim 1, and

R^{12} is as defined for Claim 13,

or a pharmaceutically acceptable salt thereof.

[Claim 15]

The compound of Claim 14, wherein

R^{12} is

(1) hydroxy,

(2) cyano,

(3) C_{1-6} alkyl (wherein the alkyl is optionally substituted by

(a) hydroxy,

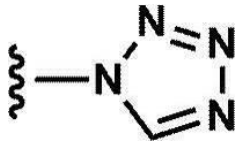
(b) carboxy,

(c) $-CONH_2$,

(d) $-CO-C_{1-4}$ alkoxy,

(e) $-SO_2-C_{1-4}$ alkyl, or

(f) a group represented by the formula:



),

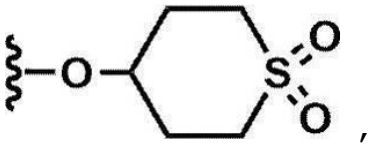
(4) C_{1-6} alkoxy (wherein the alkoxy is optionally substituted by

hydroxy or -SO_2-C_{1-4} alkyl),

(5) -CO-NR^5R^6 [wherein R^5 and R^6 form, together with the nitrogen atom bonded thereto, 4- to 6-membered heterocycloalkyl containing 1 or 2 hetero atoms independently selected from the group consisting of nitrogen and oxygen atoms {wherein the heterocycloalkyl is optionally substituted by C_{1-6} alkyl (wherein the alkyl is optionally substituted by hydroxy)}],

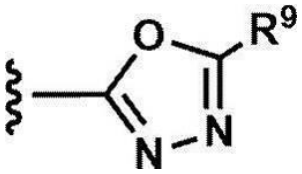
(6) -NR^7R^8 {wherein R^7 and R^8 are each independently C_{1-4} alkyl or -CO-C_{1-6} alkyl (wherein the alkyl is optionally substituted by cyano)},

(7) a group represented by the formula:



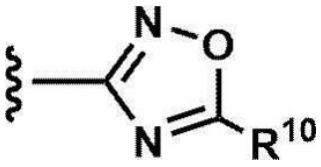
,

(8) a group represented by the formula:



{wherein R^9 is C_{1-4} alkyl (wherein the alkyl is optionally substituted by C_{1-4} alkoxy)}, or

(9) a group represented by the formula:



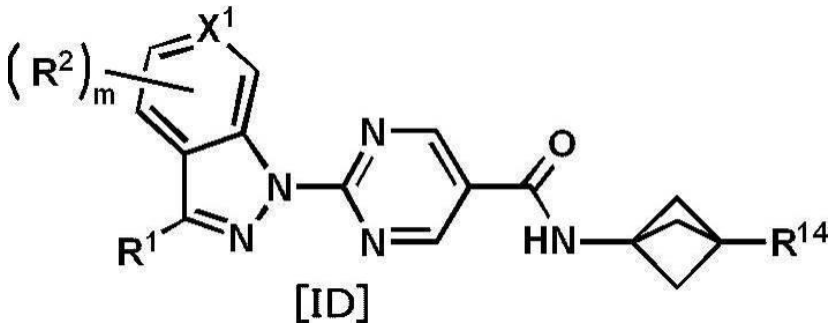
wherein R^{10} is C_{1-4} alkyl,

or a pharmaceutically acceptable salt thereof.

[Claim 16]

The compound of Claim 1 or 13, which is represented by

the formula [ID]:



[ID]

wherein

X^1, R^1, R^2 and m are as defined for Claim 1, and

R^{14} is as defined for Claim 13,

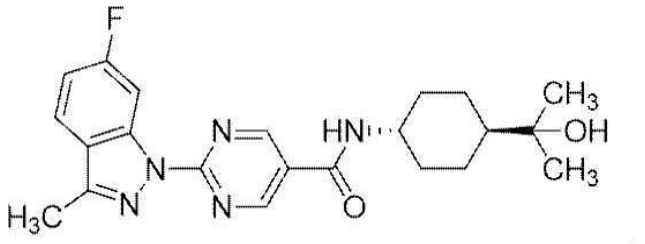
or a pharmaceutically acceptable salt thereof.

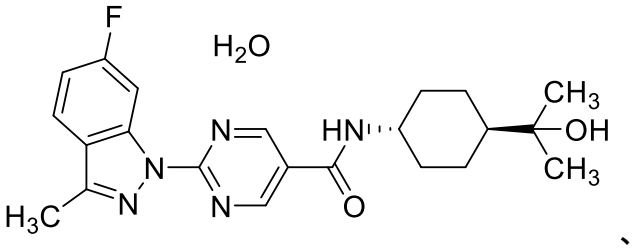
[Claim 17]

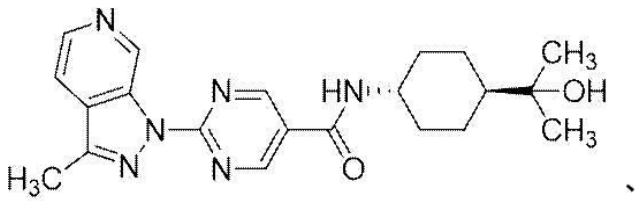
The compound of Claim 16, wherein R^{14} is C_{1-6} alkyl (wherein the alkyl is optionally substituted by hydroxy), or a pharmaceutically acceptable salt thereof.

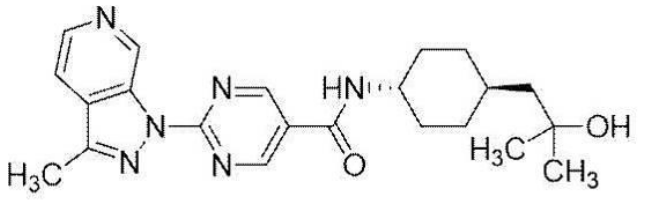
[Claim 18]

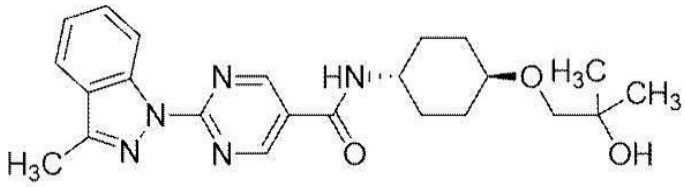
A compound selected from the group consisting of the following structural formulas:

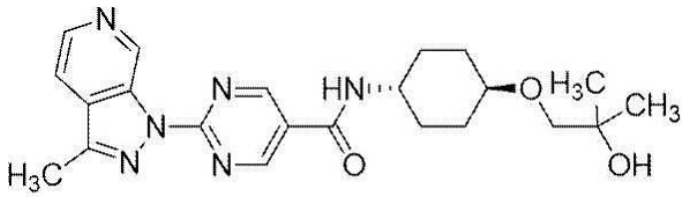


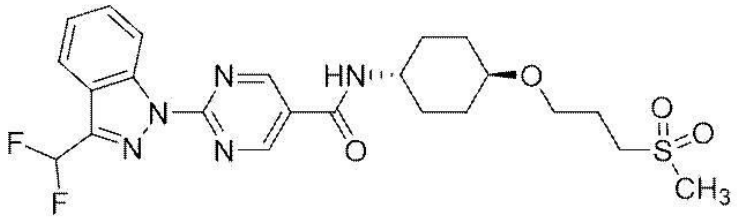


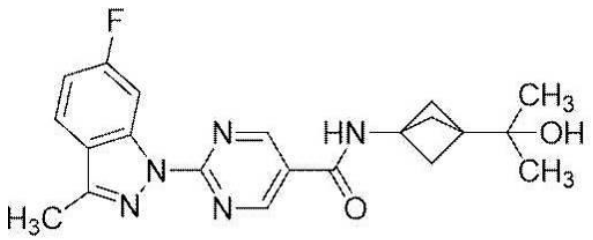


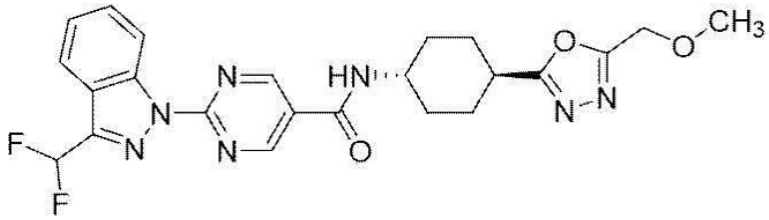


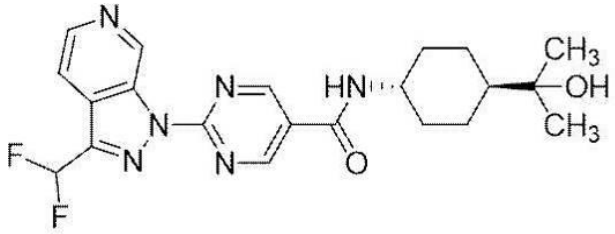


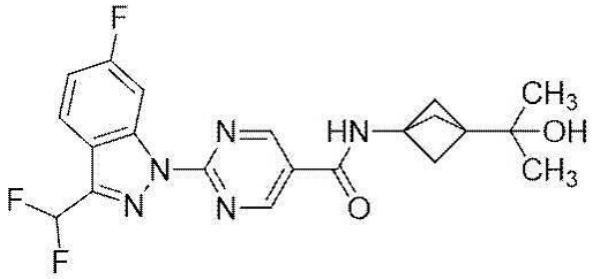


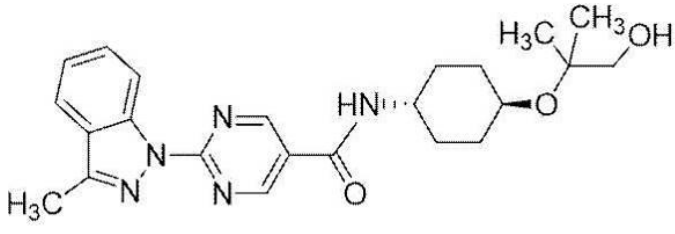


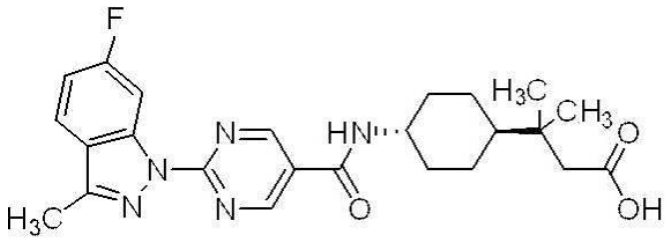




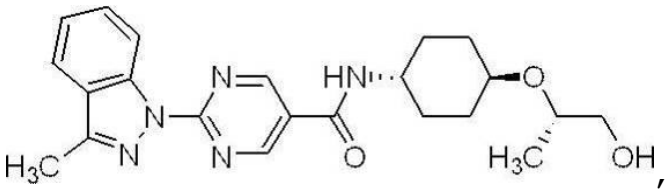








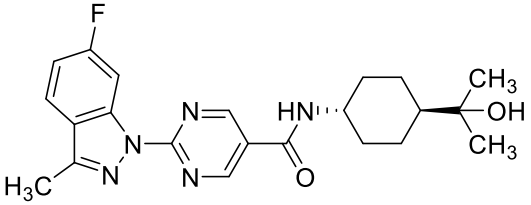
and



or a pharmaceutically acceptable salt thereof.

[Claim 19]

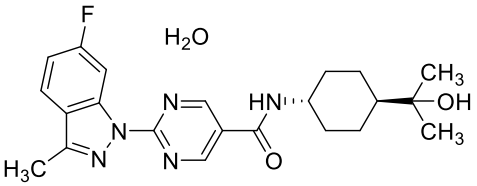
A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 20]

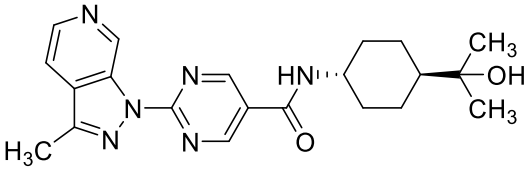
A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 21]

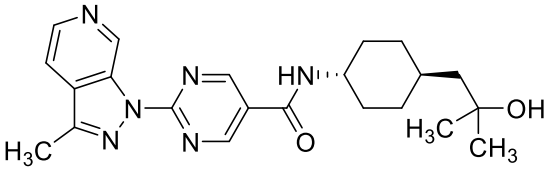
A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 22]

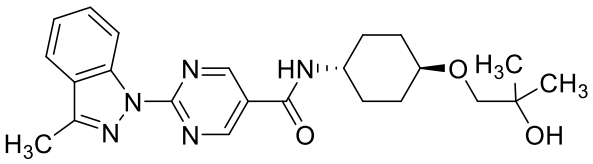
A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 23]

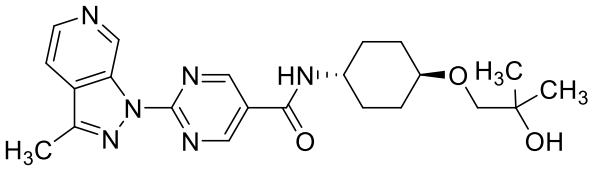
A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 24]

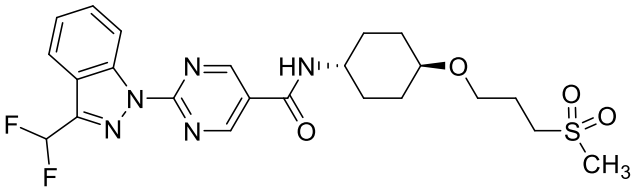
A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 25]

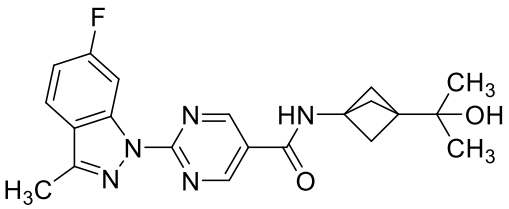
A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 26]

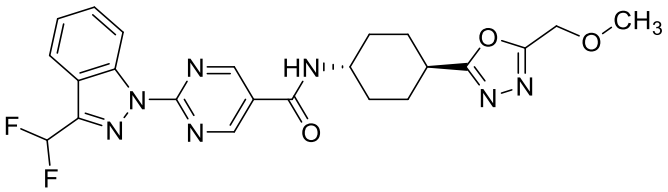
A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 27]

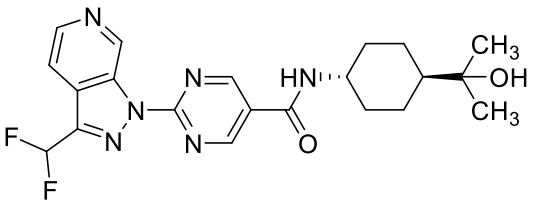
A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 28]

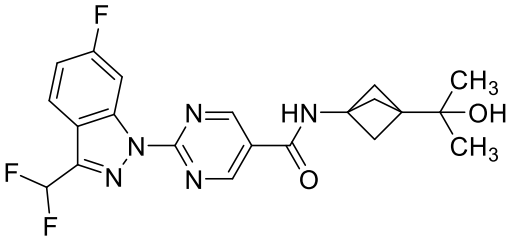
A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 29]

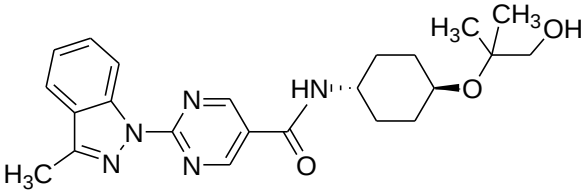
A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 30]

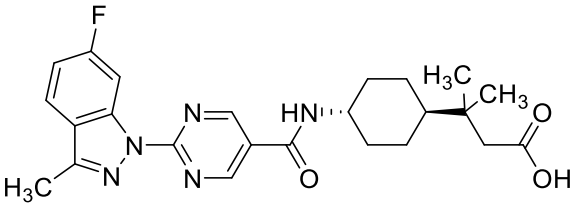
A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 31]

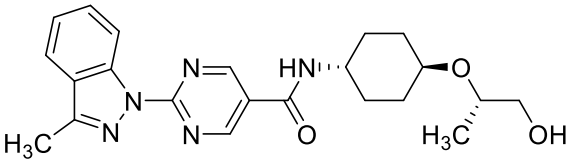
A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 32]

A compound represented by the following structural formula:



or a pharmaceutically acceptable salt thereof.

[Claim 33]

A pharmaceutical composition comprising the compound of any one of Claims 1 to 32 or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier.

[Claim 34]

An H-PGDS inhibitor comprising the compound of any one of Claims 1 to 32 or a pharmaceutically acceptable salt thereof.

[Claim 35]

A therapeutic or prophylactic agent for a disease selected from the group consisting of peripheral arterial diseases, cardiovascular diseases, allergic asthma, chronic obstructive pulmonary diseases, allergic rhinitis, sarcopenia, and Duchenne muscular dystrophy, the agent comprising the compound of any one of Claims 1 to 32 or a pharmaceutically

acceptable salt thereof.

[Claim 36]

The therapeutic or prophylactic agent of Claim 35, wherein the peripheral arterial disease is intermittent claudication or comprehensive severe chronic lower extremity ischemia based on PAD.

[Claim 37]

A method for inhibiting H-PGDS in a mammal, comprising administering a pharmaceutically effective amount of the compound of any one of Claims 1 to 32 or a pharmaceutically acceptable salt thereof to the mammal.

[Claim 38]

A method for treating or preventing a disease selected from the group consisting of peripheral arterial diseases, cardiovascular diseases, allergic asthma, chronic obstructive pulmonary diseases, allergic rhinitis, sarcopenia, and Duchenne muscular dystrophy in a mammal, comprising administering a pharmaceutically effective amount of the compound of any one of Claims 1 to 32 or a pharmaceutically acceptable salt thereof to the mammal.

[Claim 39]

The method of Claim 38, wherein the peripheral arterial disease is intermittent claudication or comprehensive severe chronic lower extremity ischemia based on PAD.

[Claim 40]

Use of the compound of any one of Claims 1 to 32 or a pharmaceutically acceptable salt thereof in producing an H-PGDS inhibitor.

[Claim 41]

Use of the compound of any one of Claims 1 to 32 or a pharmaceutically acceptable salt thereof in producing a therapeutic or prophylactic agent for a disease selected from the group consisting of peripheral arterial diseases, cardiovascular diseases, allergic asthma, chronic obstructive pulmonary diseases, allergic rhinitis, sarcopenia, and Duchenne

muscular dystrophy.

[Claim 42]

The use of Claim 41, wherein the peripheral arterial disease is intermittent claudication or comprehensive severe chronic lower extremity ischemia based on PAD.

[Claim 43]

The compound of any one of Claims 1 to 32 or a pharmaceutically acceptable salt thereof for use in inhibiting H-PGDS.

[Claim 44]

The compound of any one of Claims 1 to 32 or a pharmaceutically acceptable salt thereof for use in the treatment or prophylaxis of a disease selected from the group consisting of peripheral arterial diseases, cardiovascular diseases, allergic asthma, chronic obstructive pulmonary diseases, allergic rhinitis, sarcopenia, and Duchenne muscular dystrophy.

[Claim 45]

The compound of Claim 44 or a pharmaceutically acceptable salt thereof, wherein the peripheral arterial disease is intermittent claudication or comprehensive severe chronic lower extremity ischemia based on PAD.