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(54) Titre : COMPOSE A SUBSTITUTION OXO
(54) Title: OXO-SUBSTITUTED COMPOUND

(57) **Abrégé/Abstract:**

Provided is a novel compound that has an excellent β -lactamase inhibitory effect. More specifically, provided is a compound represented by formula (1a), (1b) or (11) having an excellent β -lactamase inhibitory effect or a pharmaceutically acceptable salt thereof. By using this compound either in combination with a β -lactam drug or alone, a useful preventive or therapeutic agent for bacterial infections is provided. Also provided are useful preventive or therapeutic agents for treating various diseases with the combined use of the aforesaid compound and β -lactam drugs.

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[Abstract]

Provided is a novel compound that has an excellent β -lactamase inhibitory effect. More specifically, provided is a compound represented by formula (1a), (1b) or (11) having an excellent β -lactamase inhibitory effect or a pharmaceutically acceptable salt thereof. By using this compound either in combination with a β -lactam drug or alone, a useful preventive or therapeutic agent for bacterial infections is provided. Also provided are useful preventive or therapeutic agents for treating various diseases with the combined use of the aforesaid compound and β -lactam drugs.

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NOM DU FICHIER / FILE NAME :

NOTE POUR LE TOME / VOLUME NOTE:

[DESCRIPTION]

[Title of Invention] OXO-SUBSTITUTED COMPOUND

[Technical Field]

[0001]

5 The present invention relates to an oxo-substituted compound that is useful as a medicament or a pharmaceutically acceptable salt thereof. More specifically, the present invention relates to a pharmaceutical composition comprising a novel oxo-substituted compound or
10 a pharmaceutically acceptable salt thereof. The present invention relates to a therapeutic agent comprising the oxo-substituted compound or a pharmaceutically acceptable salt thereof.

[Background Art]

15 [0002]

 Since the discovery of penicillin, antimicrobial agents have taken an important role in the treatment of infections.

 In particular, β -lactam agents (e.g., penicillin antimicrobial agents, cephalosporin antimicrobial agents,
20 and carbapenem antimicrobial agents) are agents that are most commonly used in the treatment of bacterial infections in view of their potent sterilizing capacity and high degree of safety. However, with increased use of β -lactam agents, emergence and prevalence of pathogenic bacteria
25 that have acquired resistance to β -lactam agents have become a global problem. Examples of the mechanism of acquiring resistance of such pathogens include production of β -lactamase, structural change in the target molecule of a β -lactam agent, reduced drug permeation into microbial
30 cell, elevated drug discharge, and the like. In particular, production of β -lactamase, which degrades and inactivates β -lactam agents, is one of the most influential in the maintenance of efficacy of β -lactam agents. Various bacteria are involved in the evolution of β -lactamase that
35 antagonizes the efficacy of various β -lactam agents. β -lactamases can be classified into 4 classes based on their

amino acid sequences, i.e., Ambler classes A, B, C, and D. Since class A, C, and D enzymes have a serine residue at the center of enzymatic activity, they are known as serine- β -lactamases. Since class B enzymes do not have a serine
5 residue at the center of enzymatic activity but have metal ion zinc (Zn^{2+}), they are known as metallo- β -lactamases (zinc- β -lactamases).

[0003]

It has been already confirmed that concomitant use of a
10 β -lactamase inhibiting agent and a β -lactam agent is effective for solving the problem of resistance acquisition due to production of β -lactamase. It is known that commercially available β -lactamase inhibiting agents clavulanic acid, sulbactam, and tazobactam primarily
15 inhibit class A β -lactamases excluding KPC (Klebsiella pneumoniae Carbapenemase), and avibactam inhibits class A β -lactamases (including KPC), class C β -lactamases, and some class D β -lactamases including OXA-48 (Non Patent Literature 1). However, these existing β -lactamase
20 inhibiting agents cannot effectively and broadly inhibit all β -lactamases produced by various bacteria. For example, such inhibiting agents do not exert an effect on class B metallo- β lactamases. Recently, β -lactamases called ESBLs (Extended Spectrum β -Lactamases) that can degrade more
25 substrates (β -lactam agent) compared to conventional β -lactamases were isolated, which have led to a problem as a new resistant bacteria, especially as a causative bacteria for hospital-acquired infections in the US and Europe. In addition, emergence and prevalence of metallo- β -lactamas
30 producing bacteria is becoming a problem in Japan. In view of such a circumstance, it is very important to address β -lactamase producing bacteria including ESBLs and metallo- β -lactamase for the prophylaxis of hospital-acquired infections. Furthermore, pathogenic bacteria evolve quickly,
35 such that emergence of new β -lactamase resistant bacteria is very likely. Accordingly, as a solution to such problems

or as a safeguard against such issues to be addressed,
 there is a demand for the development of a novel β -
 lactamase inhibiting agent that has a different structure
 from existing β -lactamase inhibiting agents, whereby a
 5 broader β -lactamase inhibitory action or metallo- β -
 lactamase inhibitory action is expected.

[0004]

Recently, boronic acid derivatives with β -lactamase
 inhibitory action have been reported in Patent Literatures
 10 1 to 9 and the like. These Patent Literatures do not
 disclose a structure related to the oxo-substituted
 compounds encompassed by the present invention, i.e., a
 boronic acid compound group having a non-aryl heterocycle
 (preferably a nitrogen-containing non-aryl heterocycle) on
 15 a side chain at a specific position and an oxo substituent
 ($-\text{C}(=\text{O})-$, $-\text{S}(=\text{O})-$, $-\text{S}(=\text{O})_2-$, or the like) that attaches to
 the ring.

[Citation List]

[Patent Literature]

20 [0005]

[PTL 1] WO 2014/107535

[PTL 2] WO 2014/107536

[PTL 3] WO 2015/179308

[PTL 4] WO 2016/003929

25 [PTL 5] WO 2016/149393

[PTL 6] WO 2014/089365

[PTL 7] WO 2014/110442

[PTL 8] WO 2014/151958

[PTL 9] WO 2015/191907

30 [Non Patent Literature]

[0006]

[NPL 1] Buynak. JD. Expert Opinion on Therapeutic Patents,
 2013, 23(11), 1469-1481.

[Summary of Invention]

35 [Solution to Problem]

[0007]

The present invention provides a novel compound having excellent β -lactamase inhibitory action and provides a prophylactic or therapeutic agent that is useful for a bacteria infection, alone or in concomitant use with a β -lactam agent. Specifically, the present invention provides a prophylactic or therapeutic agent that is useful for therapy, by concomitant use with a β -lactam agent, of a disease such as sepsis, febrile neutropenia, bacterial meningitis, bacterial endocarditis, otitis media, sinusitis, pneumonia, lung abscess, empyema, secondary infection of a chronic respiratory disease, pharyngolaryngitis, tonsillitis, osteomyelitis, arthritis, peritonitis, intraperitoneal abscess, cholecystitis, cholangitis, liver abscess, deep skin infection, lymphangitis/lymphadenitis, secondary infection of trauma, burn injury, surgical wound, or the like, urinary tract infection, genital infection, eye infection, or odontogenic infection.

[0008]

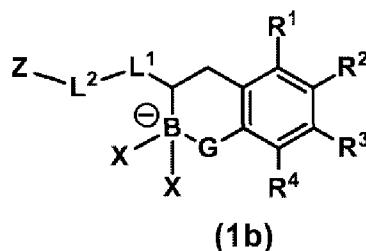
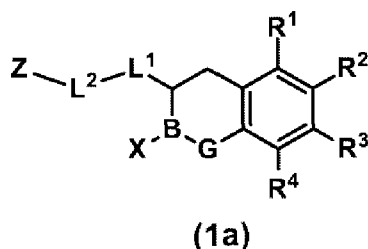
More specifically, the inventors completed the present invention by finding that a compound represented by formula (1a), (1b), or (11) described below or a pharmaceutically acceptable salt thereof (also referred to as the "compound of the invention" hereinafter) has excellent β -lactamase inhibitory action. Specifically, the present invention is the following.

[0009]

[Item A1]

A compound represented by formula (1a) or (1b):

[Chemical Formula 1]



or a pharmaceutically acceptable salt thereof

wherein

G is an oxygen atom, a sulfur atom, or $-NR^{a1}-$,

X is a hydroxyl group, an optionally substituted C_{1-6} alkoxy group, or $-NR^{a2}R^{b1}$,

5 R^{a1} , R^{a2} , and R^{b1} are the same or different, each independently

1) a hydrogen atom,

2) a C_{1-6} alkyl group,

3) a C_{3-10} alicyclic group,

10 4) C_{6-10} aryl,

5) 5- or 6-membered heteroaryl,

6) a 4- to 10-membered non-aryl heterocycle,

7) a C_{1-6} alkylcarbonyl group,

8) a C_{3-10} alicyclic carbonyl group,

15 9) a C_{6-10} arylcarbonyl group,

10) a 5- or 6-membered heteroarylcarbonyl group,

11) a C_{1-6} alkylsulfonyl group,

12) a C_{3-10} alicyclic sulfonyl group,

13) a C_{6-10} arylsulfonyl group,

20 14) a 5- or 6-membered heteroarylsulfonyl group, or

15) $-OR^{c1}$,

(wherein each substituent from 2) to 14) is optionally substituted),

25 wherein R^{a2} and R^{b1} together may form an optionally substituted 4- to 10-membered nitrogen-containing non-aryl heterocycle,

R^{c1} is

1) a hydrogen atom,

2) a C_{1-6} alkyl group,

30 3) a C_{3-10} alicyclic group,

4) C_{6-10} aryl,

5) 5- or 6-membered heteroaryl, or

6) a 4- to 10-membered non-aryl heterocycle,

35 (wherein each substituent from 2) to 6) is optionally substituted),

L^1 is a single bond, an oxygen atom, a sulfur atom, -

SO-, -SO₂-, -NR^d-, -NR^dC(=O)-, or -NR^dSO₂-,

L² is a single bond or an optionally substituted C₁₋₆ alkylene group,

Z is

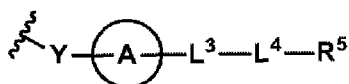
- 5 1) a hydrogen atom,
- 2) a hydroxyl group,
- 3) a cyano group,
- 4) a carboxyl group,
- 5) a C₃₋₁₀ alicyclic group,
- 10 6) C₆₋₁₀ aryl,
- 7) 5- or 6-membered heteroaryl,
- 8) a 4- to 10-membered non-aryl heterocycle,
- 9) a C₁₋₆ alkoxy group,
- 10) a C₃₋₁₀ alicyclic oxy group,
- 15 11) a C₆₋₁₀ aryloxy group,
- 12) a 5- or 6-membered heteroaryloxy group,
- 13) a 4- to 10-membered non-aryl heterocyclyl oxy group,
- 14) a C₁₋₆ alkylthio group,
- 15) a C₃₋₁₀ alicyclic thio group,
- 20 16) a C₆₋₁₀ arylthio group,
- 17) a 5- or 6-membered heteroarylthio group,
- 18) a 4- to 10-membered non-aryl heterocyclyl thio group,
- (wherein each substituent from 5) to 18) is optionally substituted),
- 25 19) -SO₂-NR^{e1}R^{f1},
- 20) -NR^{e1}-C(=O)OR^{f1},
- 21) -NR^{g1}-C(=O)NR^{e1}R^{f1},
- 22) -NR^{e1}-C(=S)R^{f1},
- 23) -NR^{e1}-C(=S)OR^{f1},
- 30 24) -NR^{g1}-C(=S)NR^{e1}R^{f1},
- 25) -NR^{g1}-CR^{e1}(=NR^{f1}),
- 26) -NR^{g1}-CR^{e1}(=N-OR^{f1}),
- 27) -NR^{h1}-C(=NR^{g1})NR^{e1}R^{f1},
- 28) -NR^{h1}-C(=N-OR^{g1})NR^{e1}R^{f1},
- 35 29) -NRⁱ¹-C(=NR^{h1})NR^{g1}-NR^{e1}R^{f1},
- 30) -NRⁱ¹-C(=N-OR^{h1})NR^{g1}-NR^{e1}R^{f1},

- 31) $-\text{NR}^{\text{e}1}-\text{SO}_2-\text{R}^{\text{f}1}$,
 32) $-\text{NR}^{\text{g}1}-\text{SO}_2-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 33) $-\text{C}(=\text{O})\text{OR}^{\text{e}1}$,
 34) $-\text{C}(=\text{S})\text{OR}^{\text{e}1}$,
 5 35) $-\text{C}(=\text{S})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 36) $-\text{C}(=\text{S})\text{NR}^{\text{e}1}\text{OR}^{\text{f}1}$,
 37) $-\text{C}(=\text{S})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 38) $-\text{C}(=\text{NR}^{\text{e}1})\text{R}^{\text{f}1}$,
 39) $-\text{C}(=\text{N}-\text{OR}^{\text{e}1})\text{R}^{\text{f}1}$,
 10 40) $-\text{C}(=\text{NR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 41) $-\text{C}(=\text{N}-\text{OR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 42) $-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 43) $-\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 44) $-\text{NR}^{\text{e}1}\text{OR}^{\text{f}1}$,
 15 45) $-\text{NR}^{\text{e}1}-\text{C}(=\text{O})\text{R}^{\text{f}1}$,
 46) $-\text{C}(=\text{O})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 47) $-\text{C}(=\text{O})\text{NR}^{\text{e}1}\text{OR}^{\text{f}1}$,
 48) $-\text{C}(=\text{O})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 49) $-\text{C}(=\text{O})\text{R}^{\text{e}1}$,
 20 50) $-\text{C}(=\text{NR}^{\text{g}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$, or
 51) $-\text{C}(=\text{N}-\text{OR}^{\text{h}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,

one of R^1 , R^2 , and R^3 is a group represented by formula

(2):

[Chemical Formula 2]



25 (2)

wherein

Y is an oxygen atom, a sulfur atom, or $-\text{NR}^{\text{j}}-$,

ring A is an optionally substituted 4- to 20-membered non-aryl heterocycle,

30 L^3 is $-\text{C}(=\text{O})-$, $-\text{S}(=\text{O})-$, or $-\text{S}(=\text{O})_2-$,

L^4 is

1) a single bond,

2) a C_{1-6} alkylene group,

- 3) a C₃₋₁₀ cycloalkylene group,
- 4) a C₆₋₁₀ arylene group
- 5) a 5- or 6-membered heteroarylene group,
- 6) a 4- to 10-membered non-aryl heterocyclylene group, or
- 5 7) -C(=N-OR^{h1})-
(wherein each substituent from 2) to 6) is optionally substituted), and

R⁵ is

- 1) a hydrogen atom,
- 10 2) a C₁₋₆ alkyl group,
- 3) a C₃₋₁₀ alicyclic group,
- 4) a 4- to 10-membered non-aryl heterocycle,
- 5) C₆₋₁₀ aryl,
- 6) 5- or 6-membered heteroaryl,
- 15 7) a C₁₋₆ alkylthio group,
(wherein each substituent from 2) to 7) is optionally substituted), or
- 8) -NR^{e1}OH,

the remaining two (without the structure of formula (2)
20 among R¹, R², and R³) are the same or different, each independently a hydrogen atom, a halogen atom, an optionally substituted C₁₋₆ alkyl group, an optionally substituted C₁₋₆ alkoxy group, an optionally substituted C₁₋₆ alkylthio group, an optionally substituted 5- or 6-membered
25 heteroaryl, or -NR^{a3}R^{b2},

R^d, R^{e1}, R^{e2}, R^{f1}, R^{f2}, R^{g1}, R^{g2}, R^{h1}, R^{h2}, Rⁱ¹, Rⁱ², and R^j
are the same or different, each independently a hydrogen atom, an optionally substituted C₁₋₆ alkyl group, an optionally substituted C₃₋₁₀ alicyclic group, optionally
30 substituted C₆₋₁₀ aryl, optionally substituted 5- or 6-membered heteroaryl, or an optionally substituted 4- to 10-membered non-aryl heterocycle,

a combination of R^{e1} and R^{f1} or R^{e2} and R^{f2}, when
attached to the same nitrogen atom, together may form an
35 optionally substituted 4- to 10-membered nitrogen-containing non-aryl heterocycle,

R⁴ is

- 1) -C(=O)R⁸,
- 2) -SO₂-L⁶-R⁸,
(wherein R⁸ in 1) and 2) is -NR^{a5}R^{b4}, -NR^{a5}-L⁷-B(OR^{m1})₂, -OR^{m1},
5 or an optionally substituted C₁₋₆ alkyl group, and L⁶ is a
single bond or -NR^{a6}-),
- 3) -NR^{a4}R^{b3},
- 4) -B(OR^{m1})₂,
- 5) -PO(OR^{m1})(OR^{m2}),
- 10 6) optionally substituted 5-membered heteroaryl,
- 7) an optionally substituted 5-membered non-aryl
heterocycle, or
- 8) a bioisostere of one of 1) to 7),
(wherein the formulas of 2), 4), 5), and 6) include a
15 carboxylic acid isostere, and 8) may include them in
duplicates),

R^{a3}, R^{a4}, R^{a5}, R^{a6}, R^{b2}, R^{b3}, and R^{b4} are the same or
different, each independently having the same definition as
R^{a1}, R^{a2}, and R^{b1}, wherein a combination of R^{a3} and R^{b2}, R^{a4}
20 and R^{b3}, or R^{a5} and R^{b4}, when attached to the same nitrogen
atom, together may form an optionally substituted 4- to 10-
membered nitrogen-containing non-aryl heterocycle,

R^{m1} is

- 1) a hydrogen atom,
- 25 2) a C₁₋₆ alkyl group,
- 3) a C₃₋₁₀ alicyclic group,
- 4) C₆₋₁₀ aryl,
- 5) 5- or 6-membered heteroaryl, or
- 6) a 4- to 10-membered non-aryl heterocycle
- 30 (wherein each substituent from 2) to 6) is optionally
substituted),

wherein if R^{m1} is attached to a boron atom via an
oxygen atom, two R^{m1}, as C₂₋₄ alkylene, together with the
boron atom and two oxygen atoms, may form a 5- to 7-
35 membered non-aryl heterocycle (wherein an alkylene moiety
is optionally substituted in the non-aryl heterocycle),

R^{m2} is a hydrogen atom, an optionally substituted C_{1-6} alkyl group, or an optionally substituted C_{3-10} alicyclic group, and

L^7 is an optionally substituted C_{1-3} alkylene group.

5 [Item A2]

The compound or the pharmaceutically acceptable salt thereof according to item A1, wherein

L^1 is a single bond, a sulfur atom, $-NR^dC(=O)-$, or $-NR^dSO_2-$,

10 L^2 is a single bond or an optionally substituted C_{1-6} alkylene group, and

Z is

- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 15 3) a C_{3-10} alicyclic group,
- 4) C_{6-10} aryl,
- 5) 5- or 6-membered heteroaryl,
- 6) a 4- to 10-membered non-aryl heterocycle,
- 7) $-C(=N-OR^{e1})R^{f1}$, or
- 20 8) $-NR^{e1}R^{f1}$.

[Item A3]

The compound or the pharmaceutically acceptable salt thereof according to item A1 or A2, wherein

25 $Z-L^2-L^1$ is a hydrogen atom, an optionally substituted C_{1-6} alkyl group, or an optionally substituted C_{1-6} alkylthio group.

[Item A4]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A3, wherein $Z-L^2-L^1$ is a hydrogen atom.

[Item A5]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A4, wherein G is an oxygen atom.

35 [Item A6]

The compound or the pharmaceutically acceptable salt

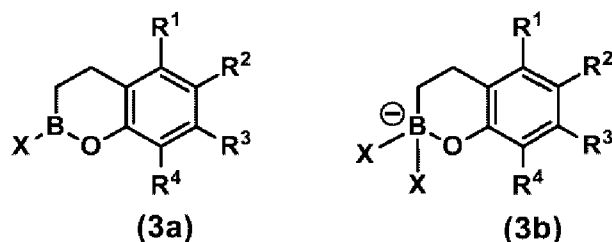
thereof according to any one of items A1 to A5, wherein X is a hydroxyl group or an optionally substituted C₁₋₆ alkoxy group.

[Item A7]

- 5 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A6, wherein X is a hydroxyl group.

[Item A8]

- 10 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A7, wherein the compounds of formulas (1a) and (1b) are represented by formulas (3a) and (3b), respectively:



- 15 wherein X, R¹, R², and R³ are defined the same as any one of items A1 to A7, and

R⁴ is selected from the group consisting of

- 1) -COOR^{m1} (wherein R^{m1} is a hydrogen atom, a C₁₋₆ alkyl group, a C₃₋₁₀ alicyclic group, C₆₋₁₀ aryl, 5- or 6-membered heteroaryl, or a 4- to 10-membered non-aryl heterocycle, and wherein the C₁₋₆ alkyl group, the C₃₋₁₀ alicyclic group, the C₆₋₁₀ aryl, the 5- or 6-membered heteroaryl, and the 4- to 10-membered non-aryl heterocycle are each optionally substituted), and
- 20 2) a bioisostere of 1).

[Item A9]

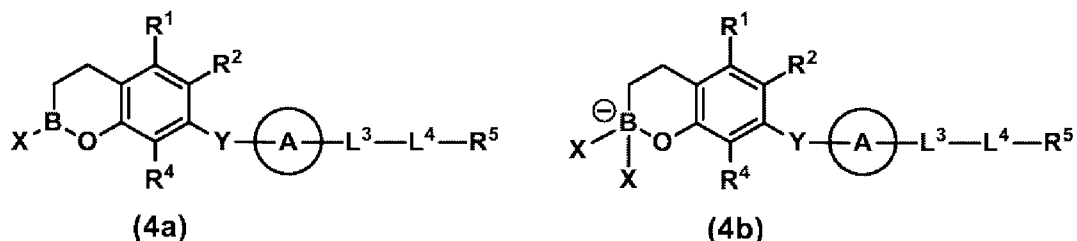
The compound or the pharmaceutically acceptable salt thereof according to item A8, wherein R⁴ is

- 1) -COOH (i.e., a carboxyl group), or
- 30 2) a carboxylic acid isostere.

[Item A10]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A9, wherein the compounds of formulas (1a) and (1b) or the compounds of formulas (3a) and (3b) are represented by formulas (4a) and (4b), respectively:

[Chemical Formula 4]



wherein X, R⁴, Y, ring A, L³, L⁴, and R⁵ are defined the same as any one of items A1 to A9, and

R¹ and R² are the same or different, each independently a hydrogen atom, a halogen atom, a C₁₋₆ alkyl group, or a C₁₋₆ alkoxy group (wherein the C₁₋₆ alkyl group and C₁₋₆ alkoxy group are optionally substituted with 1 to 5 halogen atoms). [Item A11]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A10, wherein ring A is an optionally substituted 4- to 10-membered non-aryl heterocycle. [Item A12]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A11, wherein ring A is an optionally substituted 4- to 7-membered non-aryl heterocycle. [Item A13]

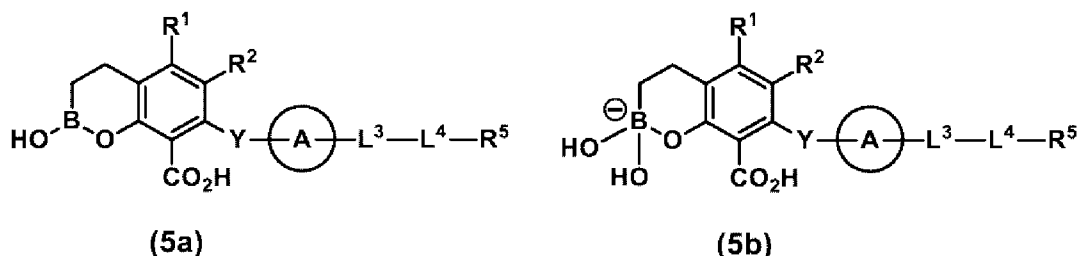
The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A12, wherein Y is an oxygen atom or a sulfur atom. [Item A14]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A13, wherein Y is an oxygen atom.

[Item A15]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A14, wherein the compounds of formulas (1a) and (1b), the compounds of formulas (3a) and (3b), or the compounds of formulas (4a) and (4b) are represented by formulas (5a) and (5b), respectively:

[Chemical Formula 5]



wherein ring A is an optionally substituted 4- to 6-membered nitrogen-containing non-aryl heterocycle.

[Item A16]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A15, wherein L^3 is $-C(=O)-$ or $-S(=O)_2-$.

[Item A17]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A16, wherein L^3 is $-C(=O)-$.

[Item A18]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A17, wherein L^4 is a single bond, $-C(=N-OR^{h1})-$, or an optionally substituted C_{1-6} alkylene group, wherein R^{h1} is an optionally substituted C_{1-6} alkyl group.

[Item A19]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A18, wherein L^4 is a single bond, or a C_{1-6} alkylene group optionally substituted with $-NR^{21}R^{22}$ or $=NOR^{23}$, wherein R^{21} , R^{22} , and R^{23} are each independently a hydrogen atom, an optionally

substituted C₁₋₆ alkyl group, or an optionally substituted 4- to 10-membered non-aryl heterocyclyl carbonyl group.

[Item A20]

5 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A19, wherein L⁴ is a single bond, -CH₂-, -CH(NH₂)-, or -CH(NH₂)-CH₂-, wherein if an amino group is present in L⁴, carbon that attaches to the amino group attaches to L³.

[Item A21]

10 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A20, wherein R⁵ is a hydrogen atom, an optionally substituted C₁₋₆ alkyl group, an optionally substituted 4- to 10-membered non-aryl heterocycle, optionally substituted C₆₋₁₀ aryl, optionally substituted 5- or 6-membered heteroaryl, an optionally substituted C₁₋₆ alkylthio group, or -NR^{e1}OH, wherein R^{e1} is a hydrogen atom or an optionally substituted C₁₋₆ alkyl group.

[Item A22]

20 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A21, wherein R⁵ is optionally substituted 5- or 6-membered heteroaryl or optionally substituted C₆₋₁₀ aryl.

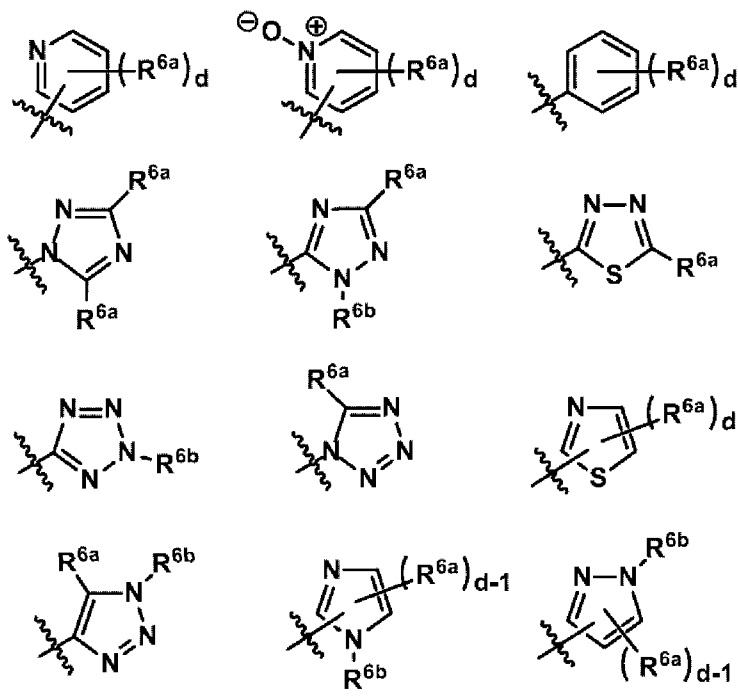
[Item A23]

25 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A21, wherein L⁴ is a single bond, and R⁵ is -NR^{e1}OH, wherein R^{e1} is a hydrogen atom or an optionally substituted C₁₋₆ alkyl group.

[Item A24]

30 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A22, wherein R⁵ is selected from the group consisting of

[Chemical Formula 6]



subscript d is the number of substitutable positions on a ring of R⁵,

- 5 each R^{6a} is independently selected from the group consisting of
- 1) a hydrogen atom,
 - 2) a hydroxyl group,
 - 3) a cyano group,
 - 10 4) halogen,
 - 5) a C₁₋₄ alkyl group,
 - 6) a C₃₋₁₀ alicyclic group,
 - 7) a C₁₋₄ alkoxy group,
 - 8) a C₃₋₁₀ alicyclic oxy group,
 - 15 9) a C₆₋₁₀ aryloxy group,
 - 10) a 5- or 6-membered heteroaryloxy group,
 - 11) a 4- to 10-membered non-aryl heterocyclyl oxy group, (wherein each substituent from 5) to 11) is optionally substituted),
 - 20 12) -SO₂-NR^{e2}R^{f2},
 - 13) -NR^{g2}-CR^{e2}(=NR^{f2}),

- 14) $-\text{NR}^{\text{g}2}-\text{CR}^{\text{e}2}(\text{=N}-\text{OR}^{\text{f}2})$,
- 15) $-\text{NR}^{\text{h}2}-\text{C}(\text{=NR}^{\text{g}2})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
- 16) $-\text{NR}^{\text{h}2}-\text{C}(\text{=N}-\text{OR}^{\text{g}2})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
- 17) $-\text{NR}^{\text{i}2}-\text{C}(\text{=NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
- 5 18) $-\text{NR}^{\text{i}2}-\text{C}(\text{=N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
- 19) $-\text{C}(\text{=NR}^{\text{e}2})\text{R}^{\text{f}2}$,
- 20) $-\text{C}(\text{=N}-\text{OR}^{\text{e}2})\text{R}^{\text{f}2}$,
- 21) $-\text{C}(\text{=NR}^{\text{h}2})-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
- 22) $-\text{C}(\text{=NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
- 10 23) $-\text{C}(\text{=N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
- 24) $-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
- 25) $-\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
- 26) $-\text{NR}^{\text{e}2}\text{OR}^{\text{f}2}$,
- 27) $-\text{NR}^{\text{e}2}-\text{C}(\text{=O})\text{R}^{\text{f}2}$,
- 15 28) $-\text{C}(\text{=O})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
- 29) $-\text{C}(\text{=O})\text{NR}^{\text{e}2}\text{OR}^{\text{f}2}$,
- 30) $-\text{C}(\text{=O})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
- 31) $-\text{C}(\text{=O})\text{R}^{\text{e}2}$,
- 32) $-\text{C}(\text{=O})\text{OR}^{\text{e}2}$, and
- 20 33) $-\text{C}(\text{=N}-\text{OR}^{\text{h}2})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$, and
each R^{6b} is independently selected from the group
consisting of
 - 1) a hydrogen atom,
 - 2) a hydroxyl group,
 - 25 3) a C_{1-4} alkyl group
(wherein the alkyl group is optionally substituted),
 - 4) a C_{3-10} alicyclic group
(wherein the alicyclic group is optionally substituted),
 - 5) $-\text{C}(\text{=NR}^{\text{e}2})\text{R}^{\text{f}2}$,
 - 30 6) $-\text{C}(\text{=N}-\text{OR}^{\text{e}2})\text{R}^{\text{f}2}$,
 - 7) $-\text{SO}_2-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 - 8) $-\text{C}(\text{=NR}^{\text{h}2})-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 - 9) $-\text{C}(\text{=NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 - 10) $-\text{C}(\text{=N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 - 35 11) $-\text{C}(\text{=O})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 - 12) $-\text{C}(\text{=O})\text{NR}^{\text{e}2}\text{OR}^{\text{f}2}$,

13) $-C(=O)NR^{g2}-NR^{e2}R^{f2}$,

14) $-C(=O)R^{e2}$, and

15) $-C(=N-OR^{h2})NR^{e2}R^{f2}$.

[Item A25]

5 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A24, wherein R^1 and R^2 are the same or different, each independently selected from the group consisting of

1) a hydrogen atom,

10 2) a halogen atom,

3) a C_{1-6} alkyl group,

4) a C_{1-6} alkoxy group, and

5) a C_{1-6} alkylthio group,

(wherein each substituent from 3) to 5) is optionally substituted).

[Item A26]

 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A25, wherein R^1 and R^2 are the same or different, each independently selected from the group consisting of

1) a hydrogen atom,

2) a halogen atom, and

3) an optionally substituted C_{1-6} alkyl group.

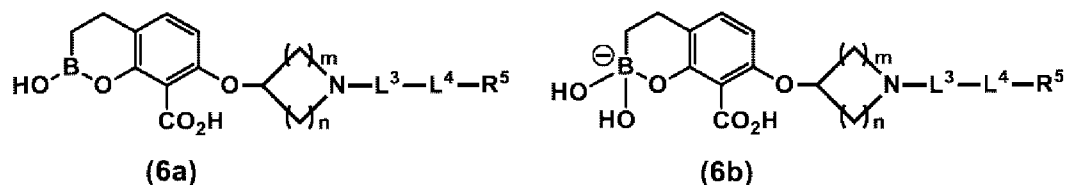
[Item A27]

25 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A26, wherein R^1 and R^2 are both hydrogen atoms.

[Item A28]

 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A27, wherein the compounds of formulas (1a) and (1b), the compounds of formulas (3a) and (3b), the compounds of formulas (4a) and (4b), or the compounds of formulas (5a) and (5b) are represented by formulas (6a) and (6b), respectively:

[Chemical Formula 7]



wherein

- 5 L^3 , L^4 , and R^5 are defined the same as any one of items A1 to A24,
- m is an integer 1, 2, or 3,
- n is an integer 1, 2, or 3, and
- $m + n$ is 2, 3, or 4.

[Item A29]

- 10 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A28, wherein m is 1 or 2, n is 1 or 2, and $m + n$ is 2 or 3.

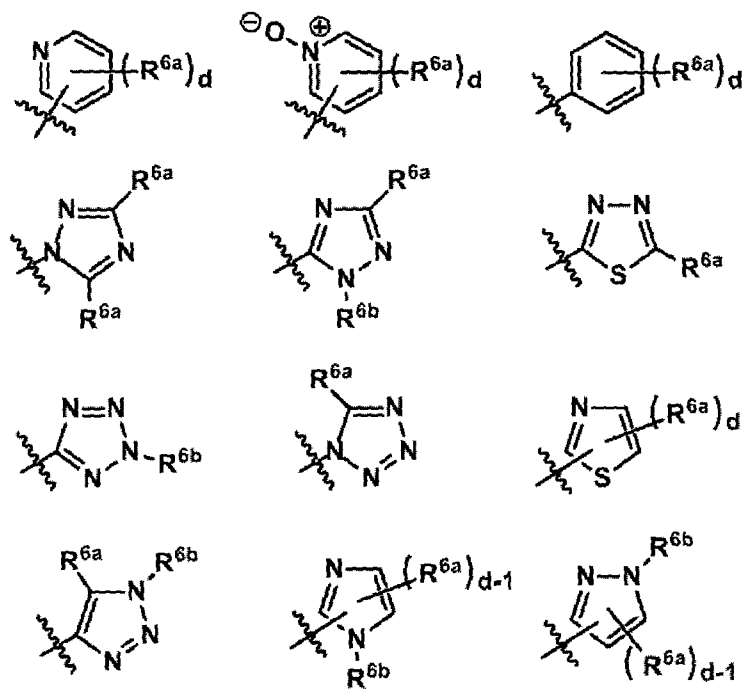
[Item A30]

- 15 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A29, wherein m is 1 and n is 1.

[Item A31]

- 20 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A30, wherein R^5 is 5- or 6-membered aryl or heteroaryl selected from the group consisting of

[Chemical Formula 8]



subscript d is the number of substitutable positions on a ring of R⁵,

5 each R^{6a} is independently selected from the group consisting of

- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 3) halogen,

10 4) a C₁₋₄ alkyl group

(wherein the alkyl group is optionally substituted with NR^{e2}R^{f2}, -C(=O)OR^{f2}, or a hydroxyl group),

5) a C₁₋₄ alkoxy group

6) -NR^{e2}R^{f2}, and

15 7) -C(=O)OR^{e2}, and

each R^{6b} is independently selected from the group consisting of

- 1) a hydrogen atom,
- 2) a hydroxyl group, and

20 3) a C₁₋₄ alkyl group,

(wherein the alkyl group is optionally substituted with

$\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$, $-\text{C}(=\text{O})\text{OR}^{\text{f}2}$, or a hydroxyl group).

[Item A32]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A31, wherein
 5 $\text{R}^{\text{e}2}$, and $\text{R}^{\text{f}2}$ are the same or different, each independently a hydrogen atom, an optionally substituted C_{1-6} alkyl group, or an optionally substituted C_{3-10} alicyclic group.

[Item A33]

The compound or the pharmaceutically acceptable salt
 10 thereof according to any one of items A1 to A32, wherein $\text{R}^{\text{e}2}$ and $\text{R}^{\text{f}2}$ are the same or different, each independently a hydrogen atom or an optionally substituted C_{1-6} alkyl group.

[Item A34]

The compound or the pharmaceutically acceptable salt
 15 thereof according to any one of items A1 to A33, wherein $\text{R}^{\text{e}2}$ and $\text{R}^{\text{f}2}$ are hydrogen atoms.

[Item A35]

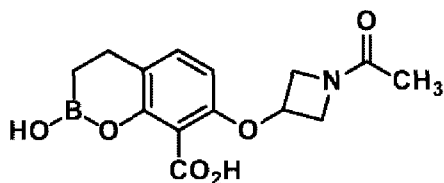
The compound or the pharmaceutically acceptable salt thereof according to any one of items A24 to A33, wherein
 20 R^{6a} is $-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$, and one of $\text{R}^{\text{e}2}$ and $\text{R}^{\text{f}2}$ is a hydrogen atom and the other is a C_{1-4} alkyl group (wherein the alkyl group is optionally substituted with an amino group or a hydroxyl group).

[Item A36]

25 The compound or the pharmaceutically acceptable salt thereof of item A1, represented by the following compound name or structural formula:

7-[(1-acetylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-
 1,2-benzoxaborinine-8-carboxylic acid

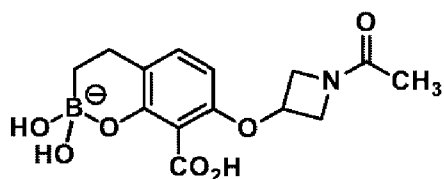
30 [Chemical Formula 9]



8-[(1-acetylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-

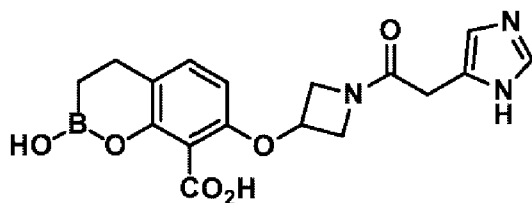
boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 10]



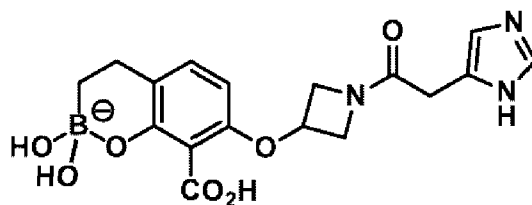
- 5 2-hydroxy-7-((1-[(1H-imidazol-5-yl)acetyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 11]



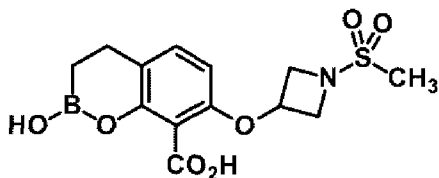
- 10 4,4-dihydroxy-8-((1-[(1H-imidazol-5-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 12]



- 15 2-hydroxy-7-([1-(methanesulfonyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

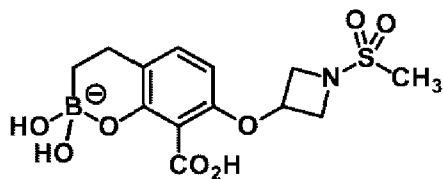
[Chemical Formula 13]



- 20 4,4-dihydroxy-8-([1-(methanesulfonyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-

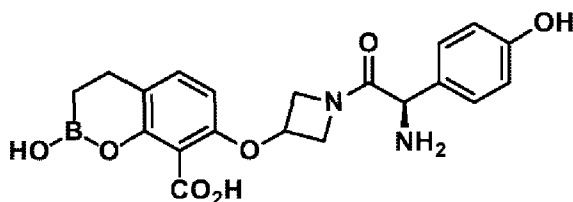
carboxylic acid

[Chemical Formula 14]



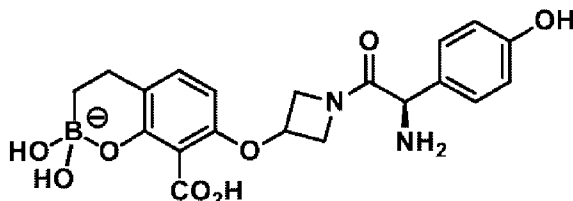
7-((1-((2R)-2-amino-2-(4-hydroxyphenyl)acetyl)azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 15]



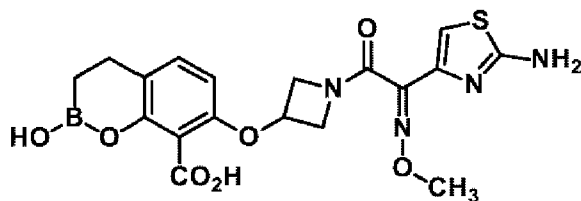
8-((1-((2R)-2-amino-2-(4-hydroxyphenyl)acetyl)azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 16]



7-((1-((2-amino-1,3-thiazol-4-yl)(methoxyimino)acetyl)azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

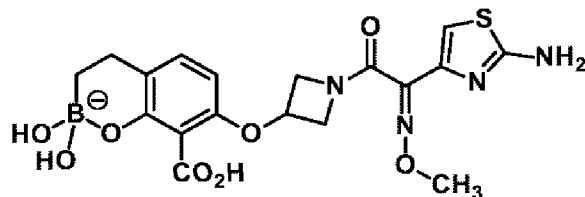
[Chemical Formula 17]



8-((1-((2-amino-1,3-thiazol-4-yl)(methoxyimino)acetyl)azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

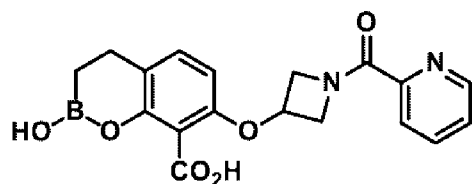
oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 18]



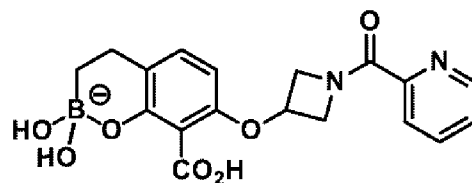
5 2-hydroxy-7-([1-(pyridine-2-carbonyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 19]



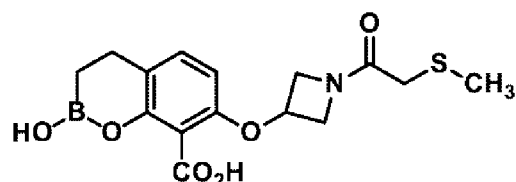
10 4,4-dihydroxy-8-([1-((pyridine-2-carbonyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 20]



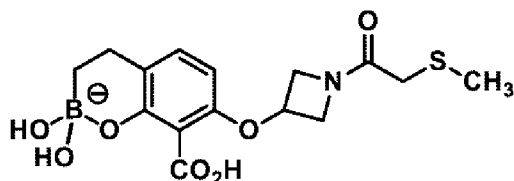
15 2-hydroxy-7-([1-((methylsulfonyl)acetyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 21]



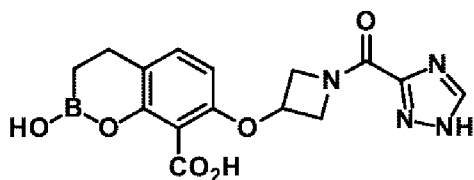
20 4,4-dihydroxy-8-([1-((methylsulfonyl)acetyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 22]



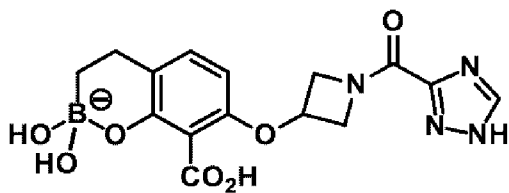
2-hydroxy-7-{[1-(1H-1,2,4-triazole-3-carbonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 23]



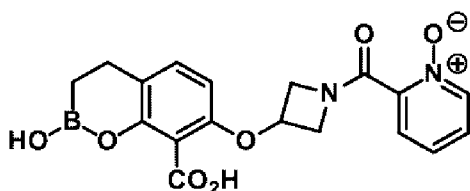
4,4-dihydroxy-8-{[1-(1H-1,2,4-triazole-3-carbonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 24]



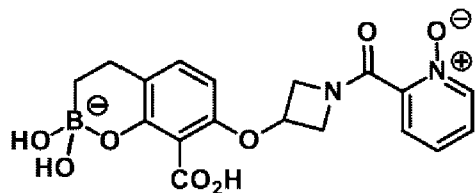
2-hydroxy-7-{[1-(1-oxido-2-pyridinylcarbonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 25]



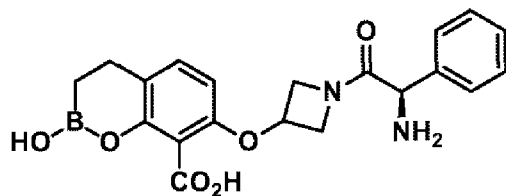
4,4-dihydroxy-8-{[1-(1-oxido-2-pyridinylcarbonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 26]



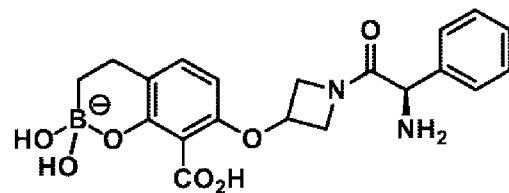
7-((1-((2R)-2-amino-2-phenylacetyl)azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 27]



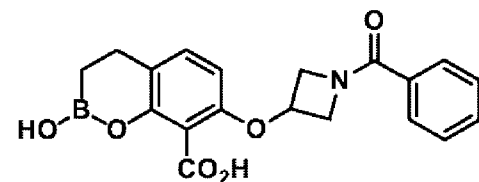
8-((1-((2R)-2-amino-2-phenylacetyl)azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 28]



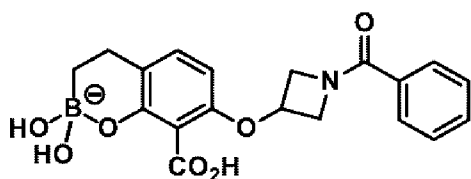
7-[(1-benzoylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 29]



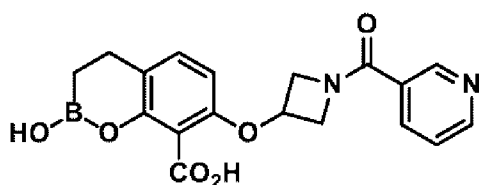
8-[(1-benzoylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 30]



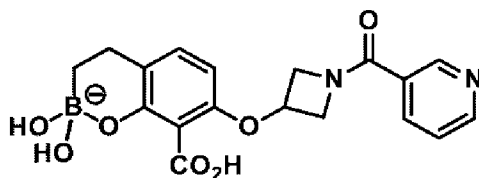
2-hydroxy-7-{[1-(pyridine-3-carbonyl)azetidin-3-yl]oxy}-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 31]



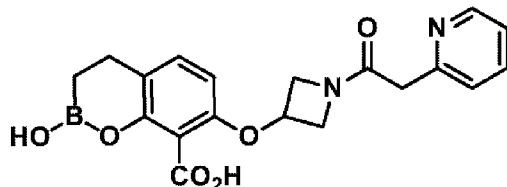
4,4-dihydroxy-8-{[1-(pyridine-3-carbonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 32]



2-hydroxy-7-({1-[(pyridin-2-yl)acetyl]azetidin-3-yl}oxy)-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

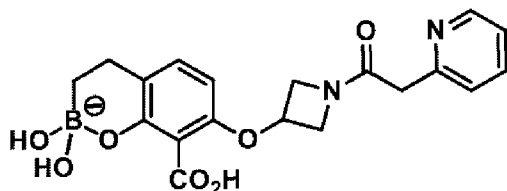
[Chemical Formula 33]



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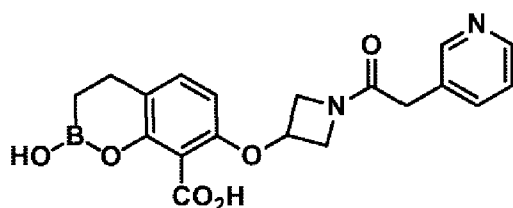
4,4-dihydroxy-8-({1-[(pyridin-2-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 34]



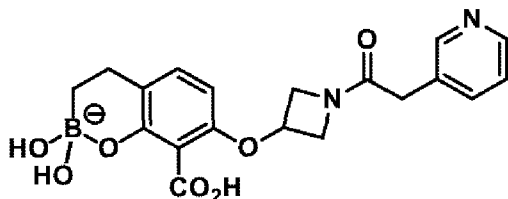
2-hydroxy-7-((1-[(pyridin-3-yl)acetyl]azetidin-3-yl)oxy)-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 35]



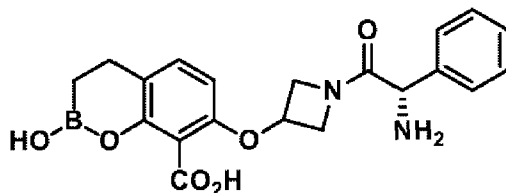
4,4-dihydroxy-8-((1-[(pyridin-3-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 36]



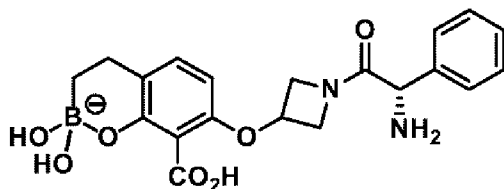
7-((1-[(2S)-2-amino-2-phenylacetyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 37]



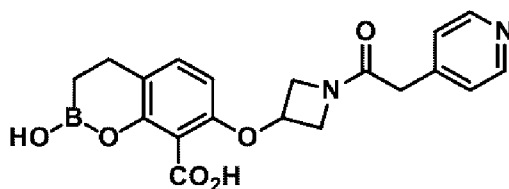
8-((1-[(2S)-2-amino-2-phenylacetyl]azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 38]



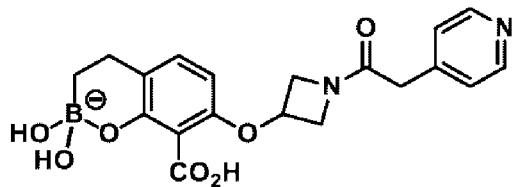
2-hydroxy-7-((1-[(pyridin-4-yl)acetyl]azetidin-3-yl)oxy)-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 39]



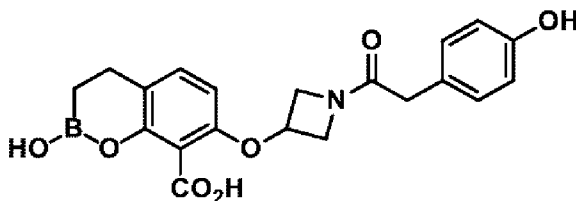
4,4-dihydroxy-8-((1-[(pyridin-4-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
triene-7-carboxylic acid

10 [Chemical Formula 40]



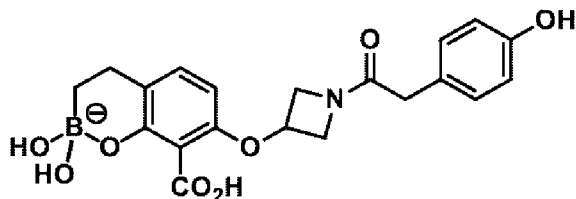
2-hydroxy-7-((1-[(4-hydroxyphenyl)acetyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic
acid

15 [Chemical Formula 41]



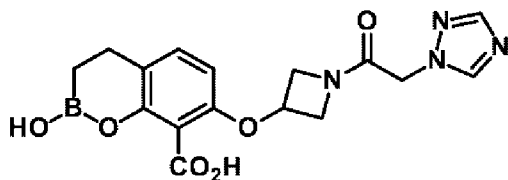
4,4-dihydroxy-8-((1-[(4-hydroxyphenyl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
triene-7-carboxylic acid

[Chemical Formula 42]



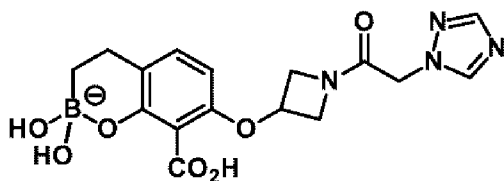
2-hydroxy-7-((1-[(1H-1,2,4-triazol-1-yl)acetyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 43]



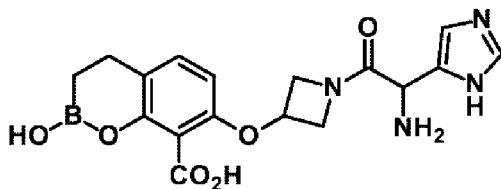
4,4-dihydroxy-8-((1-[(1H-1,2,4-triazol-1-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 44]



7-((1-[amino(1H-imidazol-5-yl)acetyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

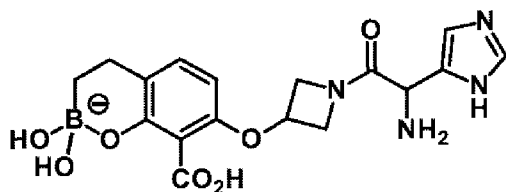
[Chemical Formula 45]



8-((1-[amino(1H-imidazol-5-yl)acetyl]azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

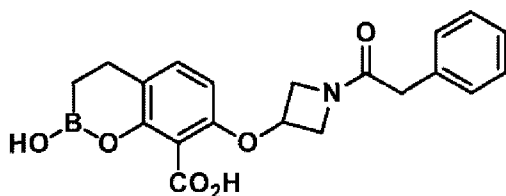
triene-7-carboxylic acid

[Chemical Formula 46]



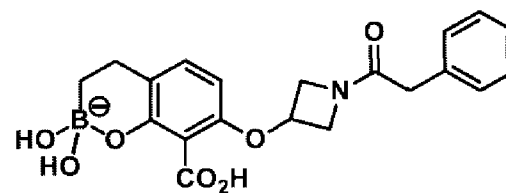
2-hydroxy-7-([1-(phenylacetyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 47]



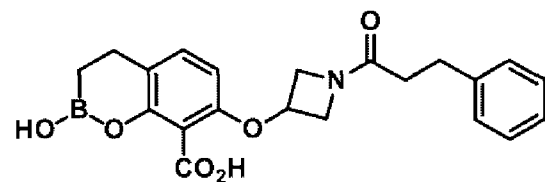
4,4-dihydroxy-8-([1-(phenylacetyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 48]



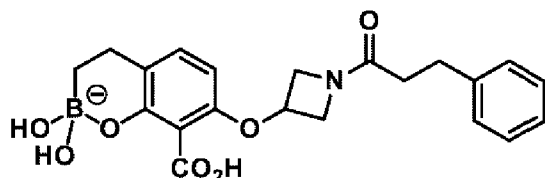
2-hydroxy-7-([1-(3-phenylpropanoyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 49]



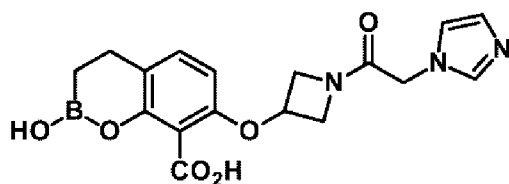
4,4-dihydroxy-8-([1-(3-phenylpropanoyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 50]



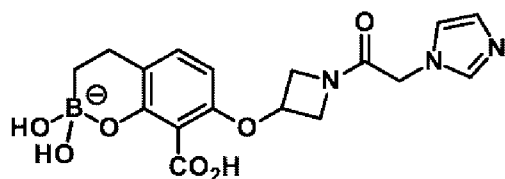
2-hydroxy-7-((1-[(1H-imidazol-1-yl)acetyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 51]



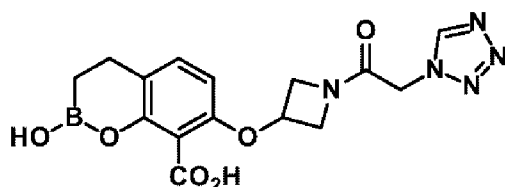
4,4-dihydroxy-8-((1-[(1H-imidazol-1-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 52]



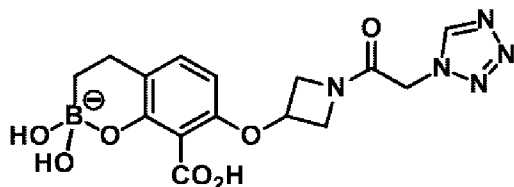
2-hydroxy-7-((1-[(1H-tetrazol-1-yl)acetyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 53]



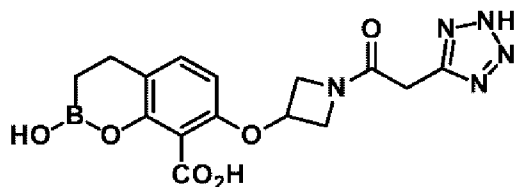
4,4-dihydroxy-8-((1-[(1H-tetrazol-1-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 54]



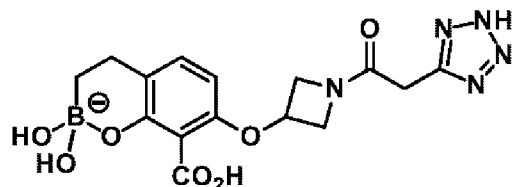
2-hydroxy-7-((1-((2H-tetrazol-5-yl)acetyl)azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 55]



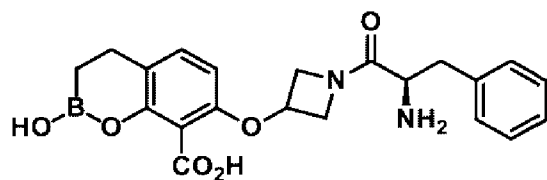
4,4-dihydroxy-8-((1-((2H-tetrazol-5-yl)acetyl)azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 56]



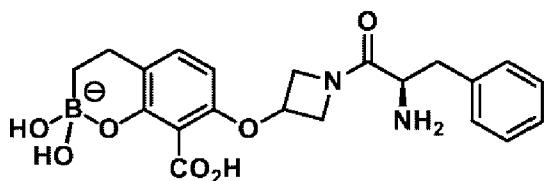
2-hydroxy-7-[(1-D-phenylalanylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 57]



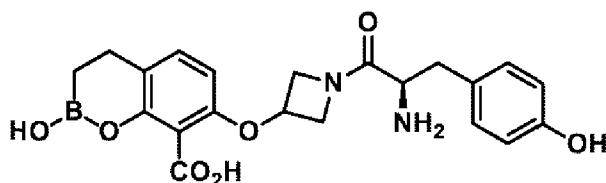
4,4-dihydroxy-8-[(1-D-phenylalanylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 58]



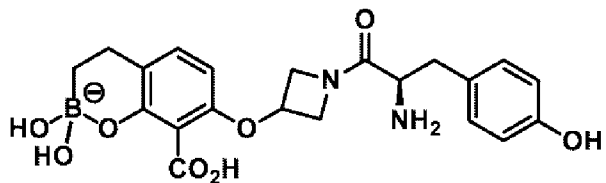
2-hydroxy-7-[(1-D-tyrosylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 59]



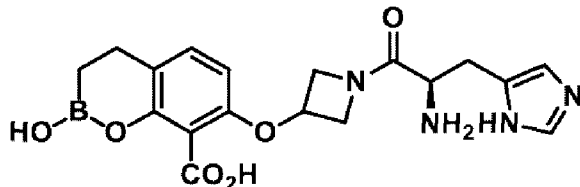
4,4-dihydroxy-8-[(1-D-tyrosylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 60]



7-[(1-D-histidylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

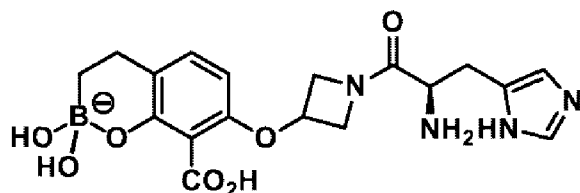
[Chemical Formula 61]



15

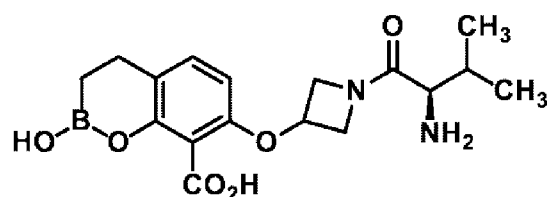
8-[(1-D-histidylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 62]



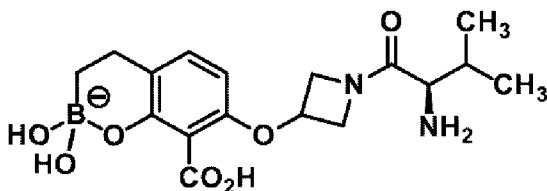
2-hydroxy-7-[(1-D-valylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 63]



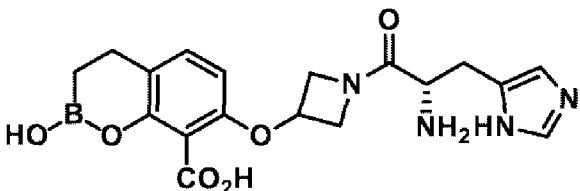
4,4-dihydroxy-8-[(1-D-valylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 64]



7-[(1-L-histidylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

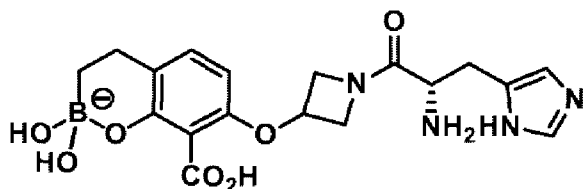
[Chemical Formula 65]



15

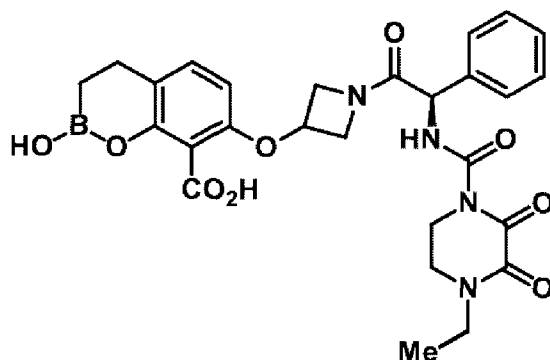
8-[(1-L-histidylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 66]



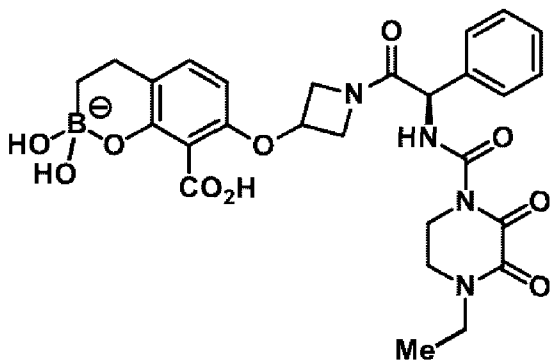
7-[(1-{(2R)-2-[(4-ethyl-2,3-dioxopiperazine-1-carbonyl)amino]-2-phenylacetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 67]



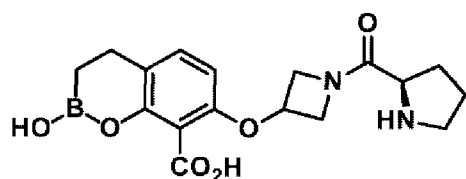
8-[(1-{(2R)-2-[(4-ethyl-2,3-dioxopiperazine-1-carbonyl)amino]-2-phenylacetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 68]



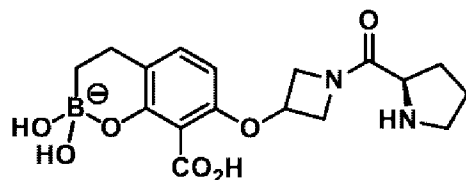
2-hydroxy-7-[(1-D-prolylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 69]



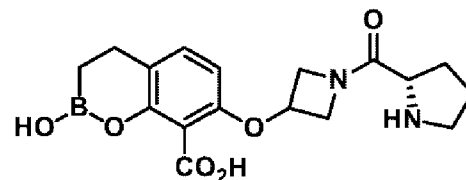
4,4-dihydroxy-8-[(1-D-prolylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 70]



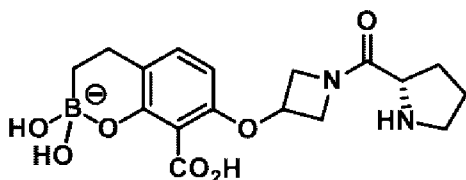
2-hydroxy-7-[(1-L-prolylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 71]



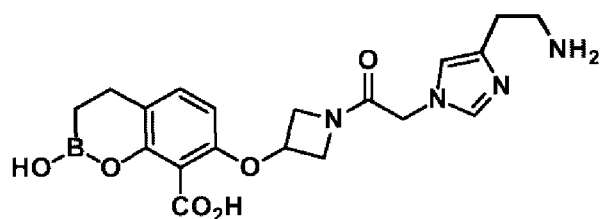
4,4-dihydroxy-8-[(1-L-prolylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 72]



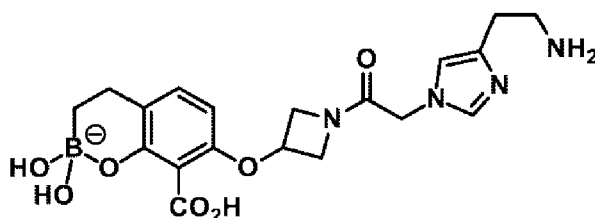
7-[(1-{[4-(2-aminoethyl)-1H-imidazol-1-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 73]



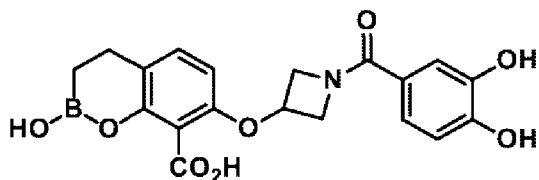
8-[(1-{[4-(2-aminoethyl)-1H-imidazol-1-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 74]



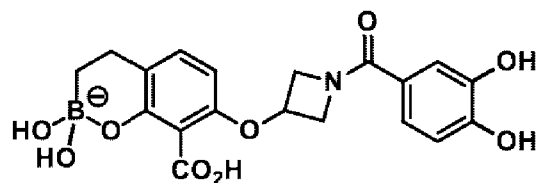
7-{[1-(3,4-dihydroxybenzoyl)azetidin-3-yl]oxy}-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 75]



8-{[1-(3,4-dihydroxybenzoyl)azetidin-3-yl]oxy}-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

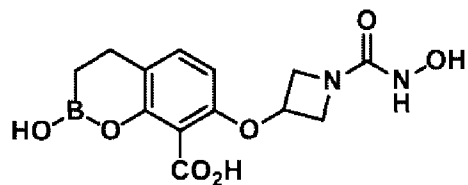
[Chemical Formula 76]



2-hydroxy-7-{[1-(hydroxycarbamoyl)azetidin-3-yl]oxy}-3,4-

dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

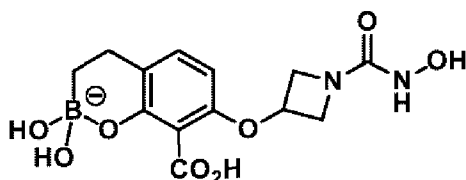
[Chemical Formula 77]



, or

4,4-dihydroxy-8-{{1-(hydroxycarbamoyl)azetidin-3-yl}oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 78]

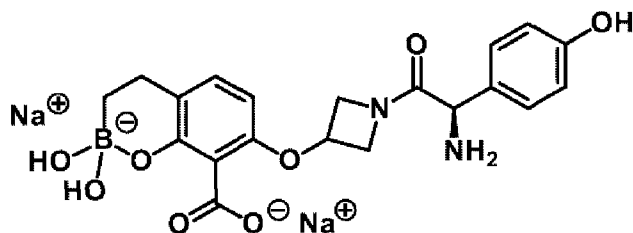


[Item A37]

10 A salt of the compound of item A36, represented by the following compound name or structural formula:

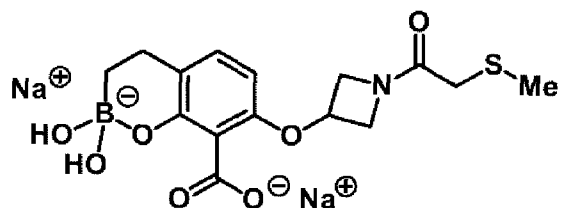
8-({1-[(2R)-2-amino-2-(4-hydroxyphenyl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

15 [Chemical Formula 79]



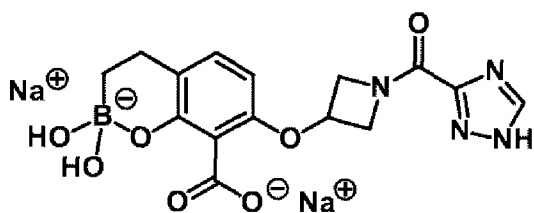
4,4-dihydroxy-8-({1-[(methanesulfonyl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 80]



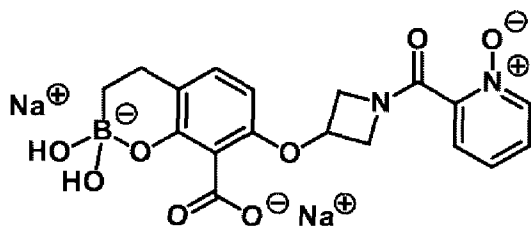
4,4-dihydroxy-8-([1-(1H-1,2,4-triazole-3-carbonyl)azetidin-
3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
5 triene-7-carboxylic acid disodium salt

[Chemical Formula 81]



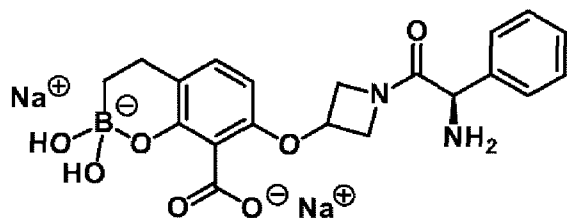
4,4-dihydroxy-8-([1-(1-oxido-2-pyridinylcarbonyl)azetidin-
3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
10 triene-7-carboxylic acid disodium salt

[Chemical Formula 82]



8-([1-[(2R)-2-amino-2-phenylacetyl]azetidin-3-yl]oxy)-4,4-
dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
15 triene-7-carboxylic acid disodium salt

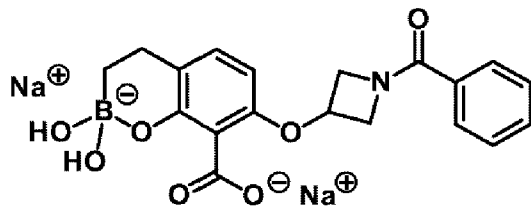
[Chemical Formula 83]



8-[(1-benzoylazetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-

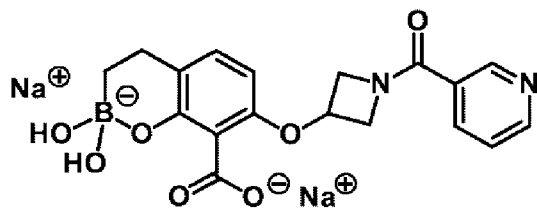
boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 84]



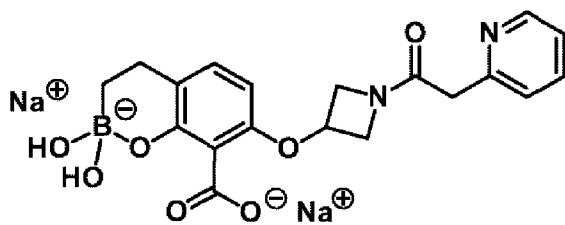
- 5 4,4-dihydroxy-8-([1-(pyridine-3-carbonyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 85]



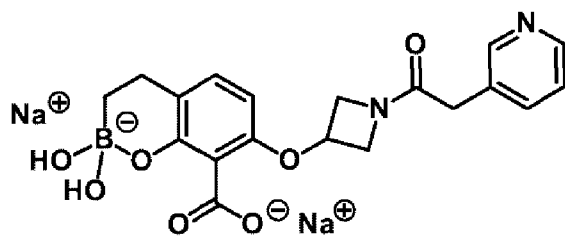
- 10 4,4-dihydroxy-8-([1-[(pyridin-2-yl)acetyl]azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 86]



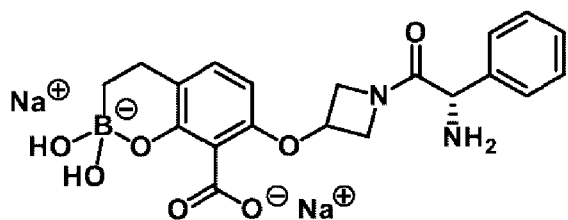
- 15 4,4-dihydroxy-8-([1-[(pyridin-3-yl)acetyl]azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 87]



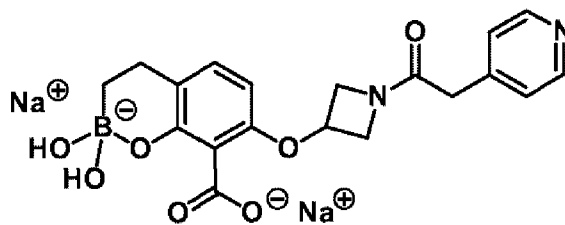
8-((1-[(2S)-2-amino-2-phenylacetyl]azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 88]



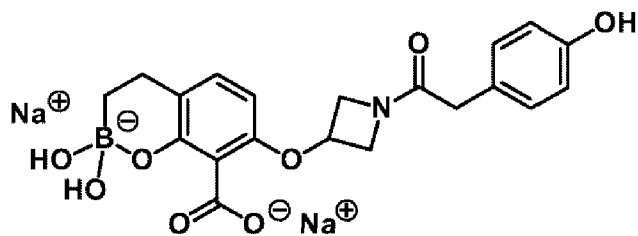
4,4-dihydroxy-8-((1-[(pyridin-4-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 89]



4,4-dihydroxy-8-((1-[(4-hydroxyphenyl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

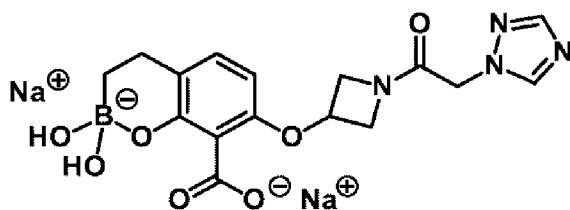
[Chemical Formula 90]



4,4-dihydroxy-8-({1-[(1H-1,2,4-triazol-1-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-

5 boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

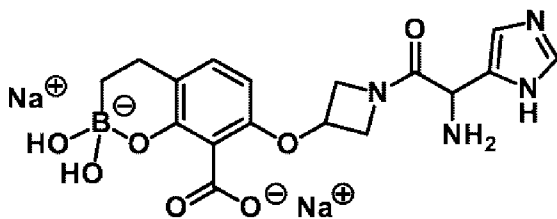
[Chemical Formula 91]



8-({1-[amino(1H-imidazol-5-yl)acetyl]azetidin-3-yl}oxy)-

10 4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

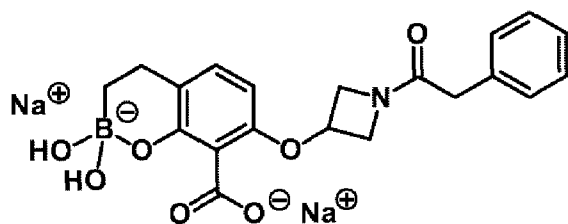
[Chemical Formula 92]



4,4-dihydroxy-8-([1-(phenylacetyl)azetidin-3-yl]oxy)-5-oxa-

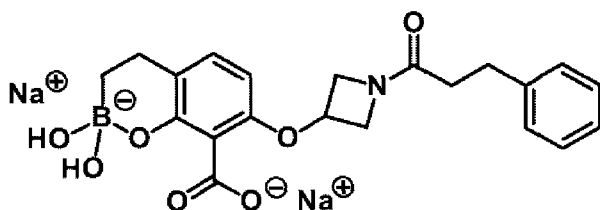
15 4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 93]



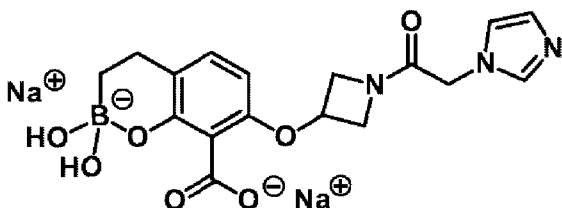
4,4-dihydroxy-8-([1-(3-phenylpropanoyl)azetidin-3-yl]oxy)-
5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-
5 carboxylic acid disodium salt

[Chemical Formula 94]



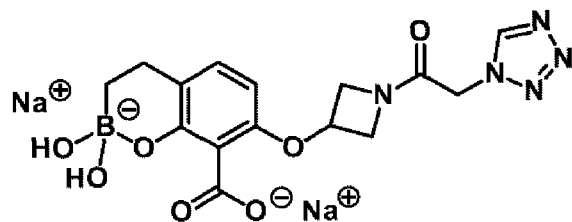
4,4-dihydroxy-8-([1-[(1H-imidazol-1-yl)acetyl]azetidin-3-
yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
10 triene-7-carboxylic acid disodium salt

[Chemical Formula 95]



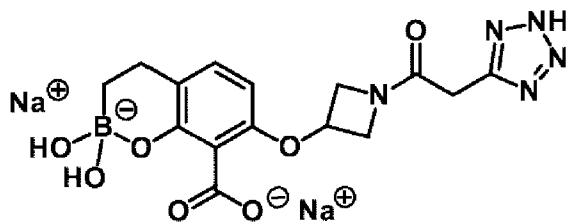
4,4-dihydroxy-8-([1-[(1H-tetrazol-1-yl)acetyl]azetidin-3-
yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
15 triene-7-carboxylic acid disodium salt

[Chemical Formula 96]

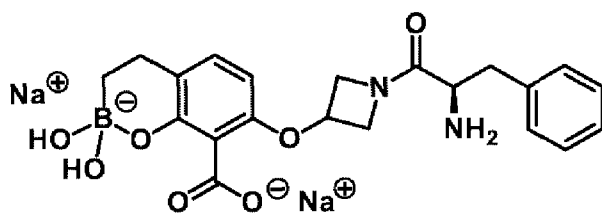


4,4-dihydroxy-8-([1-[(2H-tetrazol-5-yl)acetyl]azetidin-3-

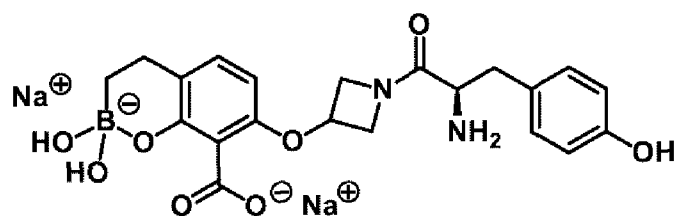
yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt
[Chemical Formula 97]



- 5 4,4-dihydroxy-8-[(1-D-phenylalanylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt
[Chemical Formula 98]

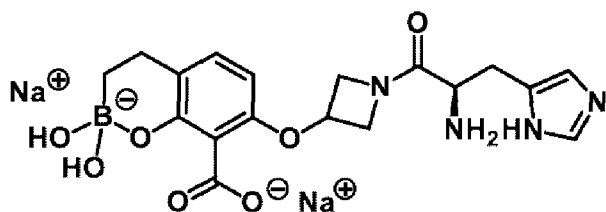


- 10 4,4-dihydroxy-8-[(1-D-tyrosylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt
[Chemical Formula 99]



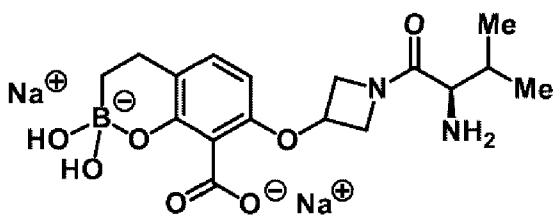
- 15 8-[(1-D-histidylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 100]



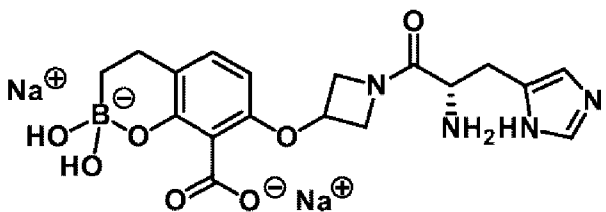
4,4-dihydroxy-8-[(1-D-valylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 101]



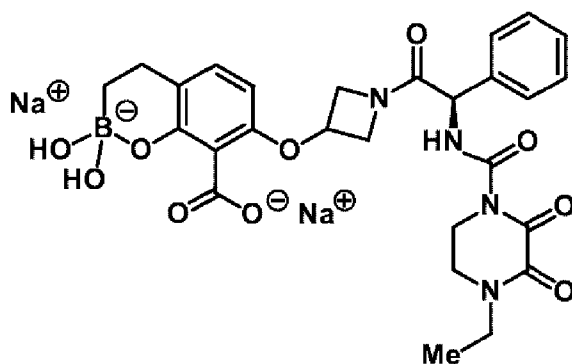
8-[(1-L-histidylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 102]



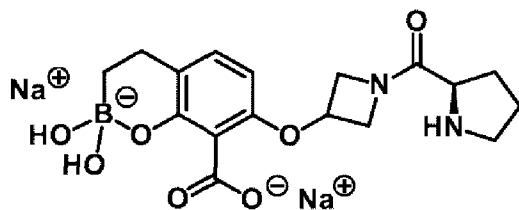
8-[(1-{(2R)-2-[(4-ethyl-2,3-dioxopiperazine-1-carbonyl)amino]-2-phenylacetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 103]



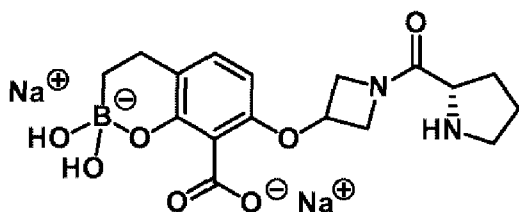
4,4-dihydroxy-8-[(1-D-prolylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 104]



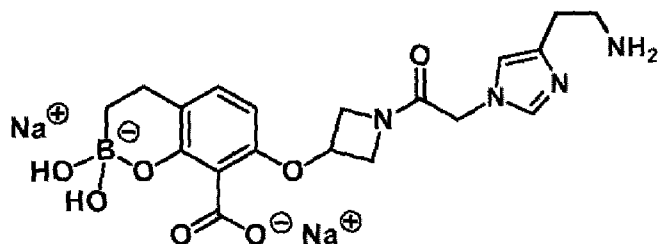
4,4-dihydroxy-8-[(1-L-prolylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

[Chemical Formula 105]



8-[(1-{[4-(2-aminoethyl)-1H-imidazol-1-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid disodium salt

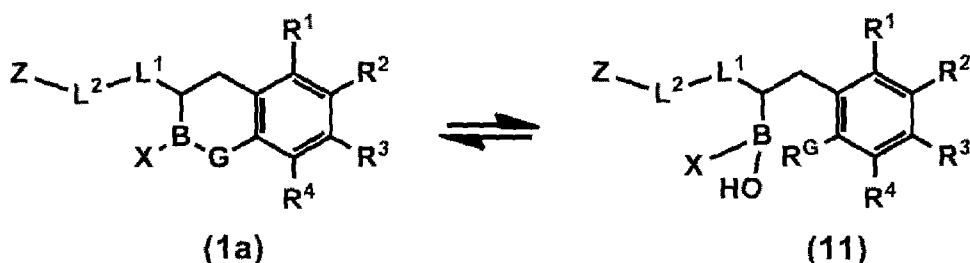
[Chemical Formula 106]



[Item A38]

A compound represented by formula (11):

5 [Chemical Formula 107]



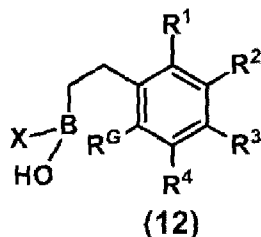
or a pharmaceutically acceptable salt thereof, wherein

R^G is a hydroxyl group, a thiol group, or $-NHR^{a1}$, R^{a1} , Z, L^1 , L^2 , X, R^1 , R^2 , R^3 , and R^4 are defined the same as the
 10 definition according to item A1, and formula (1a) is defined the same as item A1.

[Item A39]

The compound or the pharmaceutically acceptable salt thereof according to item A38, wherein the compound of
 15 formula (11) is represented by formula (12):

[Chemical Formula 108]



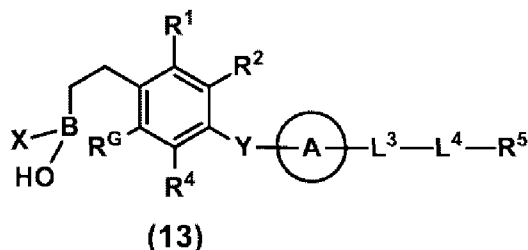
wherein X, R^1 , R^2 , R^3 , and R^4 are defined by the same the
 definition according to item A8.

20 [Item A40]

The compound or the pharmaceutically acceptable salt

thereof according to item A38 or A39, wherein the compound of formula (12) is represented by formula (13):

[Chemical Formula 109]



5 wherein X, Y, ring A, L³, L⁴, R¹, R², R⁴, and R⁵ are defined the same as the definition according to any one of items A10 to A14 and items A16 to A27.

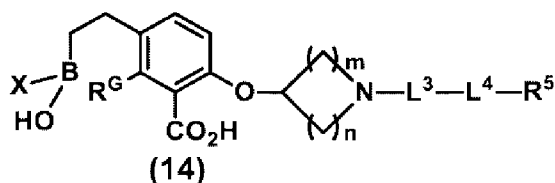
[Item A41]

10 The compound or the pharmaceutically acceptable salt thereof according to item A40, wherein X and R^G are hydroxyl groups, R⁴ is a carboxyl group, and ring A is an optionally substituted 4- to 6-membered nitrogen-containing non-aryl heterocycle.

[Item A42]

15 The compound or the pharmaceutically acceptable salt thereof according to any one of items A38 to A41, wherein the compound of formula (13) is represented by formula (14):

[Chemical Formula 110]



20

wherein X, L³, L⁴, m, n, and R⁵ are defined the same as the definition according to item A28.

[Item A43]

25 The compound or the pharmaceutically acceptable salt thereof according to any one of items A38 to A42, wherein R^G is a hydroxyl group or a thiol group.

[Item A44]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A38 to A43, wherein R^G is a hydroxyl group.

[Item A45]

5 The compound or the pharmaceutically acceptable salt thereof according to any one of items A38 to A44, wherein X is a hydroxyl group or a C₁₋₆ alkoxy group.

[Item A46]

10 The compound or the pharmaceutically acceptable salt thereof according to any one of items A38 to A45, wherein X is a hydroxyl group.

[Item A47]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A42 to A46, wherein m is 1 or 2, n is 1 or 2, and m + n is 2 or 3.

[Item A48]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A42 to A47, wherein m is 1, and n is 1.

20 [Item A49]

The compound or the pharmaceutically acceptable salt thereof according to any one of items A38 to A48, wherein L³ is defined the same as the definition according to item A16 or A17.

25 [Item A50]

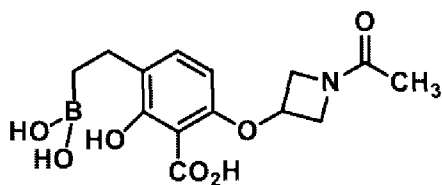
The compound or the pharmaceutically acceptable salt thereof according to any one of items A38 to A49, wherein L⁴ is defined the same as the definition according to any one of items A18 to A20.

30 [Item A51]

The compound or the pharmaceutically acceptable salt thereof according to item A38, selected from the group consisting of the following compounds::

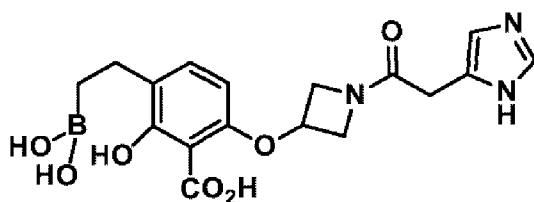
6-[(1-acetylazetidin-3-yl)oxy]-3-(2-boronoethyl)-2-
35 hydroxybenzoic acid

[Chemical Formula 111]



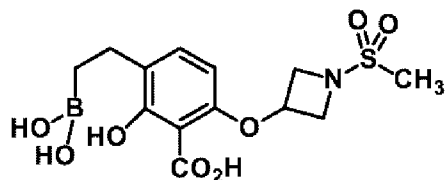
3-(2-boronoethyl)-2-hydroxy-6-({1-[(1H-imidazol-5-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

5 [Chemical Formula 112]



3-(2-boronoethyl)-2-hydroxy-6-{{1-[(methanesulfonyl)azetidin-3-yl]oxy}benzoic acid

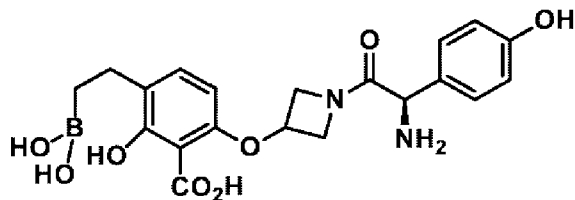
[Chemical Formula 113]



10

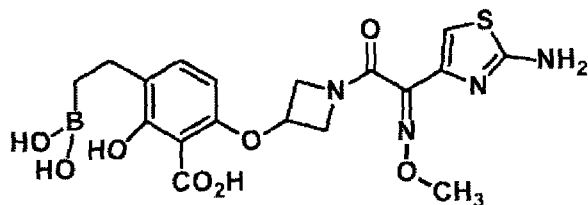
6-({1-[(2R)-2-amino-2-(4-hydroxyphenyl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 114]



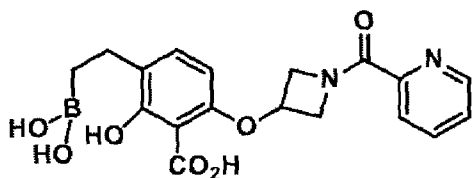
15 6-({1-[(2-amino-1,3-thiazol-4-yl)(methoxyimino)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 115]

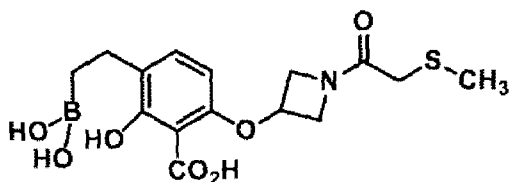


3-(2-boronoethyl)-2-hydroxy-6-({[1-(pyridine-2-carbonyl)azetidin-3-yl]oxy}benzoic acid

5 [Chemical Formula 116]

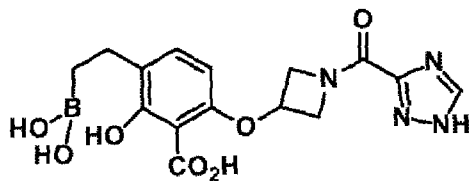


3-(2-boronoethyl)-2-hydroxy-6-({[1-(methanysulfanyl)acetyl]azetidin-3-yl]oxy}benzoic acid
[Chemical Formula 117]



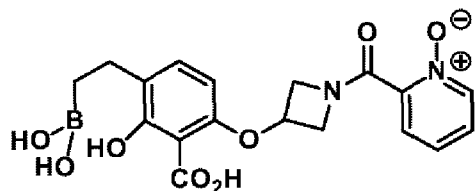
10

3-(2-boronoethyl)-2-hydroxy-6-({[1-(1H-1,2,4-triazole-3-carbonyl)azetidin-3-yl]oxy}benzoic acid
[Chemical Formula 118]



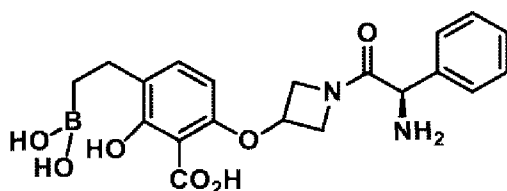
15 3-(2-boronoethyl)-2-hydroxy-6-({[1-(1-oxido-2-pyridinylcarbonyl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 119]



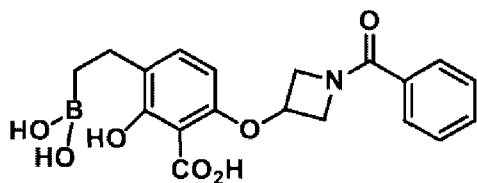
6-({1-[(2R)-2-amino-2-phenylacetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 120]



6-[(1-benzoylazetidin-3-yl)oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid

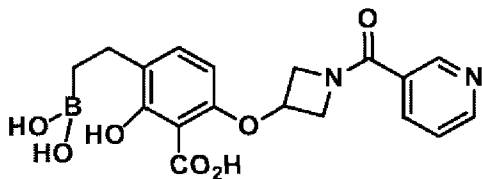
[Chemical Formula 121]



10

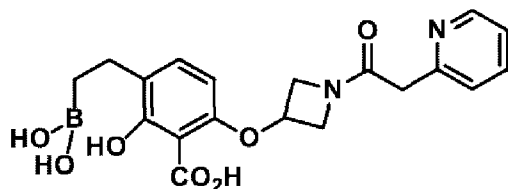
3-(2-boronoethyl)-2-hydroxy-6-({1-(pyridine-3-carbonyl)azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 122]



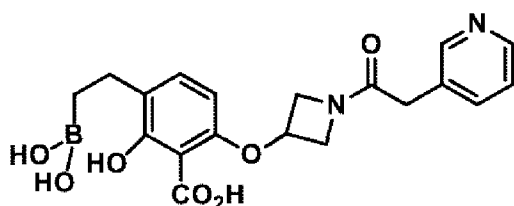
15 3-(2-boronoethyl)-2-hydroxy-6-({1-[(pyridin-2-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 123]



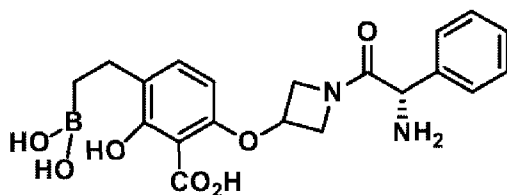
3-(2-boronoethyl)-2-hydroxy-6-({1-[(pyridin-3-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

5 [Chemical Formula 124]



6-({1-[(2S)-2-amino-2-phenylacetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

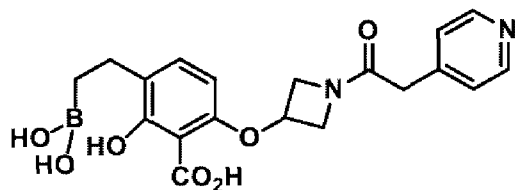
[Chemical Formula 125]



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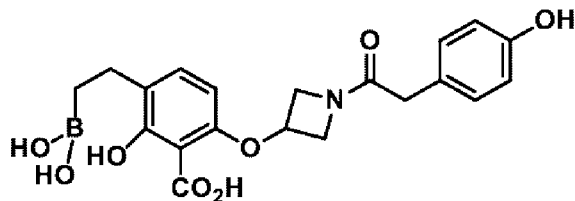
3-(2-boronoethyl)-2-hydroxy-6-({1-[(pyridin-4-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 126]



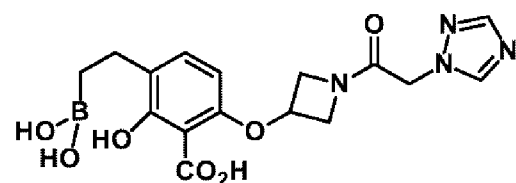
15 3-(2-boronoethyl)-2-hydroxy-6-({1-[(4-hydroxyphenyl)acetyl]azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 127]



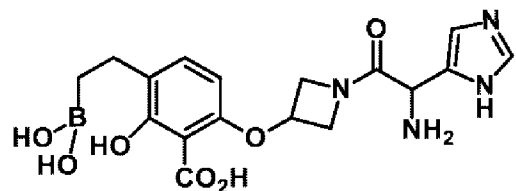
3-(2-boronoethyl)-2-hydroxy-6-({1-[(1H-1,2,4-triazol-1-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

5 [Chemical Formula 128]



6-({1-[amino(1H-imidazol-5-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

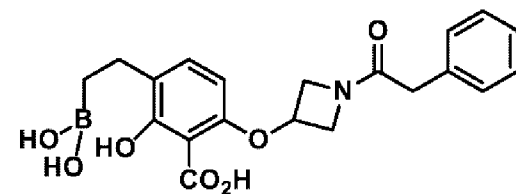
[Chemical Formula 129]



10

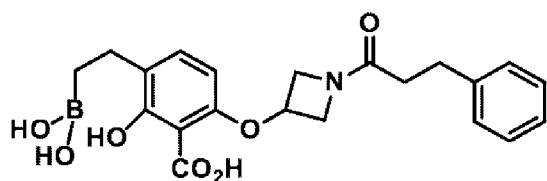
3-(2-boronoethyl)-2-hydroxy-6-({1-(phenylacetyl)azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 130]



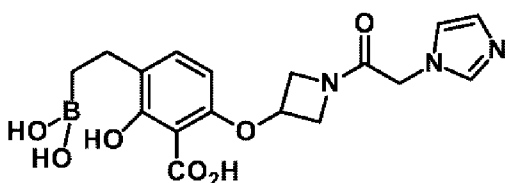
15 3-(2-boronoethyl)-2-hydroxy-6-({1-(3-phenylpropanoyl)azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 131]



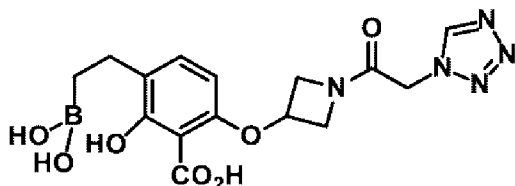
3-(2-boronoethyl)-2-hydroxy-6-((1-[(1H-imidazol-1-yl)acetyl]azetidin-3-yl)oxy)benzoic acid

5 [Chemical Formula 132]



3-(2-boronoethyl)-2-hydroxy-6-((1-[(1H-tetrazol-1-yl)acetyl]azetidin-3-yl)oxy)benzoic acid

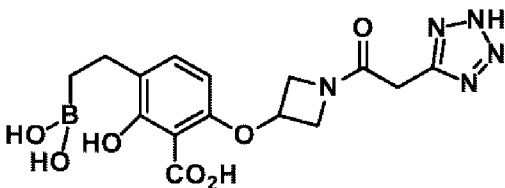
[Chemical Formula 133]



10

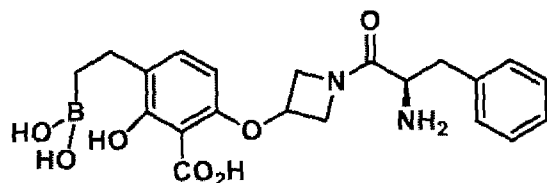
3-(2-boronoethyl)-2-hydroxy-6-((1-[(2H-tetrazol-5-yl)acetyl]azetidin-3-yl)oxy)benzoic acid

[Chemical Formula 134]



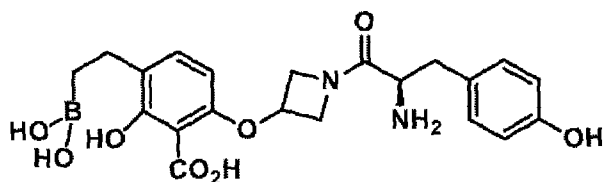
15 3-(2-boronoethyl)-2-hydroxy-6-[(1-D-phenylalanylazetidin-3-yl)oxy]benzoic acid

[Chemical Formula 135]



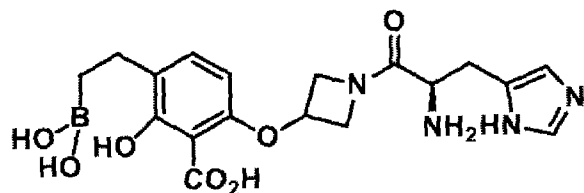
3-(2-boronoethyl)-2-hydroxy-6-[(1-D-tyrosylazetidin-3-yl)oxy]benzoic acid

5 [Chemical Formula 136]



3-(2-boronoethyl)-6-[(1-D-histidylazetidin-3-yl)oxy]-2-hydroxybenzoic acid

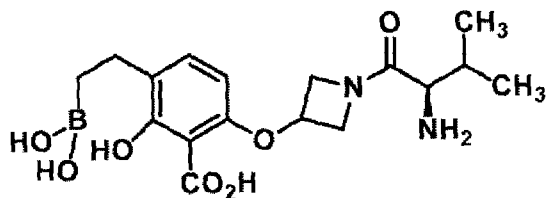
[Chemical Formula 137]



10

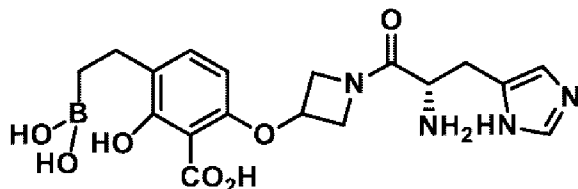
3-(2-boronoethyl)-2-hydroxy-6-[(1-D-valylazetidin-3-yl)oxy]benzoic acid

[Chemical Formula 138]



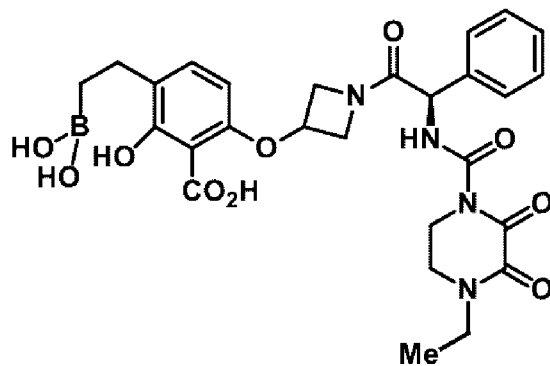
15 3-(2-boronoethyl)-6-[(1-L-histidylazetidin-3-yl)oxy]-2-hydroxybenzoic acid

[Chemical Formula 139]



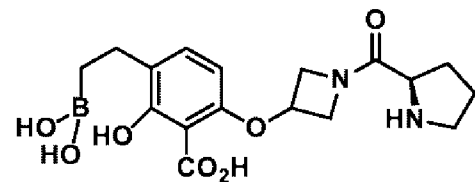
3-(2-boronoethyl)-6-[(1-{(2R)-2-[(4-ethyl-2,3-
 dioxopiperazine-1-carbonyl)amino]-2-phenylacetyl}azetidin-
 5 3-yl)oxy]-2-hydroxybenzoic acid

[Chemical Formula 140]



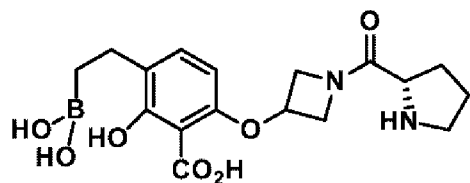
3-(2-boronoethyl)-2-hydroxy-6-[(1-D-prolylazetidin-3-
 yl)oxy]benzoic acid

10 [Chemical Formula 141]



3-(2-boronoethyl)-2-hydroxy-6-[(1-L-prolylazetidin-3-
 yl)oxy]benzoic acid

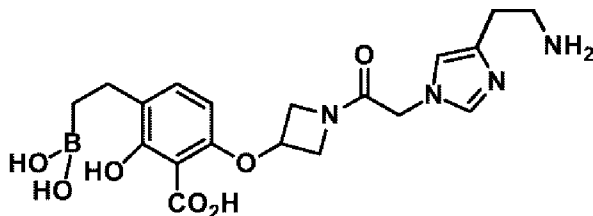
[Chemical Formula 142]



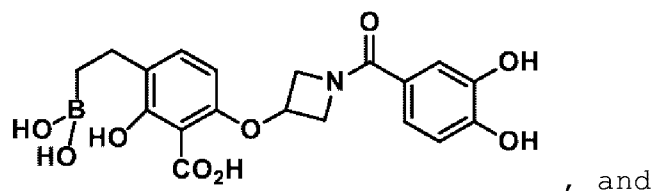
15

6-[(1-{[4-(2-aminoethyl)-1H-imidazol-1-yl]acetyl}azetidin-

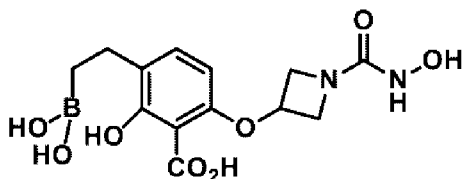
3-yl)oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid
[Chemical Formula 143]



3-(2-boronoethyl)-6-{[1-(3,4-dihydroxybenzoyl)azetidin-3-yl]oxy}-2-hydroxybenzoic acid
[Chemical Formula 144]



3-(2-boronoethyl)-2-hydroxy-6-{[1-(hydroxycarbamoyl)azetidin-3-yl]oxy}benzoic acid
[Chemical Formula 145]



[Item A52]

A medicament comprising the compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A51.

[Item A53]

The medicament according to item A52, which is a therapeutic drug or a prophylactic drug for a bacterial infection.

[Item A54]

A β -lactamase inhibiting agent comprising the compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A51 as an active ingredient.

[Item A55]

A pharmaceutical composition comprising the compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A51 and a pharmaceutically acceptable carrier.

[Item A56]

The pharmaceutical composition according to item A55, further comprising an additional agent.

[Item A57]

The pharmaceutical composition according to item A56, wherein the additional agent is selected from the group consisting of an antibacterial agent, an antifungal agent, an antiviral agent, an anti-inflammatory agent, and an anti-allergic agent.

[Item A58]

The pharmaceutical composition according to item A56 or A57, wherein the additional agent is a β -lactam agent.

[Item A59]

The pharmaceutical composition according to item A57 or A58, wherein a β -lactam agent, which is the additional agent, is selected from the group consisting of amoxicillin, ampicillin (pivampicillin, hetacillin, bacampicillin, metampicillin, and talampicillin), epicillin, carbenicillin (carindacillin), ticarcillin, temocillin, azlocillin, piperacillin, mezlocillin, mecillinam (pivmecillinam), sulbenicillin, benzylpenicillin (G), clometocillin, benzathine benzylpenicillin, procaine benzylpenicillin, azidocillin, penamecillin, phenoxymethyl penicillin (V), propicillin, benzathine phenoxymethylpenicillin, phenethicillin, cloxacillin (dicloxacillin and flucloxacillin), oxacillin, methicillin, nafcillin, faropenem, biapenem, doripenem, ertapenem, imipenem, meropenem, panipenem, tomopenem, razupenem, cefazolin, cefacetrile, cefadroxil, cephalixin, cefaloglycin, cefalonium, cefaloridine, cephalothin, cephapirin, cefatrizine, cefazedone, cefazaflur, cefradine, cefroxadine,

ceftezole, cefaclor, cefamandole, cefminox, cefonicide, ceforanide, cefotiam, cefprozil, cefbuperazone, cefuroxime, cefuzonam, cefoxitin, cefotetan, cefmetazole, loracarbef, cefixime, ceftazidime, ceftriaxone, cefcapene, cefdaloxime, 5 cefdinir, cefditoren, cefetamet, cefmenoxime, cefodizime, cefoperazone, cefotaxime, cefpimizole, cefpiramide, cefpodoxime, cefsulodin, cefteram, ceftibuten, ceftiolene, ceftizoxime, flomoxef, latamoxef, cefepime, ceftazopran, cefpirome, cefquinome, ceftobiprole, ceftaroline, CXA-101, 10 RWJ-54428, MC-04546, ME1036, BAL30072, SYN2416, ceftiofur, cefquinome, cefovecin, aztreonam, tigemonam, carumonam, RWJ-442831, RWJ-333441, and RWJ-333442.

[Item A60]

The pharmaceutical composition according to item A58 or 15 A59, wherein the β -lactam agent is selected from ceftazidime, biapenem, doripenem, ertapenem, imipenem, meropenem, or panipenem.

[Item A61]

The pharmaceutical composition according to item A58 or 20 A59, wherein the β -lactam agent is selected from aztreonam, tigemonam, BAL30072, SYN2416, or carumonam.

[Item A62]

The pharmaceutical composition according to item A55, characterized in that an additional agent is concomitantly 25 administered.

[Item A63]

The pharmaceutical composition according to item A62, wherein the additional agent is selected from an antibacterial agent, an antifungal agent, an antiviral 30 agent, an anti-inflammatory agent, or an anti-allergic agent.

[Item A64]

The pharmaceutical composition according to item A62 or A63, wherein the additional agent is a β -lactam agent.

35 [Item A65]

The pharmaceutical composition according to item A63 or

A64, wherein a β -lactam agent, which is the additional agent, is selected from the group consisting of amoxicillin, ampicillin (pivampicillin, hetacillin, bacampicillin, metampicillin, and talampicillin), epicillin, carbenicillin
 5 (carindacillin), ticarcillin, temocillin, azlocillin, piperacillin, mezlocillin, mecillinam (pivmecillinam), sulbenicillin, benzylpenicillin (G), clometocillin, benzathine benzylpenicillin, procaine benzylpenicillin, azidocillin, penamecillin, phenoxymethyl penicillin (V),
 10 propicillin, benzathine phenoxymethylpenicillin, phenethicillin, cloxacillin (dicloxacillin and flucloxacillin), oxacillin, methicillin, nafcillin, faropenem, biapenem, doripenem, ertapenem, imipenem, meropenem, panipenem, tomopenem, razupenem, cefazolin,
 15 cefacetrile, cefadroxil, cephalixin, cefaloglycin, cefalonium, cefaloridine, cephalothin, cephapirin, cefatrizine, cefazedone, cefazaflur, cefradine, cefroxadine, ceftezole, cefaclor, cefamandole, cefminox, cefonicide, ceforanide, cefotiam, cefprozil, cefbuperazone, cefuroxime,
 20 cefuzonam, cefoxitin, cefotetan, cefmetazole, loracarbef, cefixime, ceftazidime, ceftriaxone, cefcapene, cefdaloxime, cefdinir, cefditoren, cefetamet, cefmenoxime, cefodizime, cefoperazone, cefotaxime, cefpimizole, cefpiramide, cefpodoxime, cefsulodin, cefteram, ceftibuten, ceftiolene,
 25 ceftizoxime, flomoxef, latamoxef, cefepime, cefozopran, cefpirome, cefquinome, ceftobiprole, ceftaroline, CXA-101, RWJ-54428, MC-04546, ME1036, BAL30072, SYN2416, ceftiofur, cefquinome, cefovecin, aztreonam, tigemonam, carumonam, RWJ-442831, RWJ-333441, and RWJ-333442.

30 [Item A66]

The pharmaceutical composition according to item A64 or A65, wherein the β -lactam agent is selected from the group consisting of ceftazidime, biapenem, doripenem, ertapenem, imipenem, meropenem, and panipenem.

35 [Item A67]

The pharmaceutical composition according to item A64 or

A65, wherein the β -lactam agent is selected from the group consisting of aztreonam, tigemonam, BAL30072, SYN2416, and carumonam.

[Item A68]

5 The compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A51 for treating a bacterial infection.

[Item A69]

10 The compound or the pharmaceutically acceptable salt thereof according to item A68, wherein the bacterial infection is a bacterial infection in which a bacteria that can have a β -lactamase is involved.

[Item A70]

15 The compound or the pharmaceutically acceptable salt thereof according to item A68 or A69, wherein the bacterial infection is sepsis, febrile neutropenia, bacterial meningitis, bacterial endocarditis, otitis media, sinusitis, pneumonia, lung abscess, empyema, secondary infection of a chronic respiratory disease, pharyngolaryngitis, tonsillitis, osteomyelitis, arthritis, peritonitis, intraperitoneal abscess, cholecystitis, cholangitis, liver abscess, a deep skin infection, lymphangitis/lymphadenitis, secondary infection of trauma, burn injury, surgical wound, or the like, a urinary tract infection, a genital infection, 25 an eye infection, or an odontogenic infection.

[Item A71]

30 A medicament comprised of a combination of the compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to A51 and at least one agent selected from the group consisting of therapeutic agents for sepsis, febrile neutropenia, bacterial meningitis, bacterial endocarditis, otitis media, sinusitis, pneumonia, lung abscess, empyema, secondary infection of a chronic respiratory disease, pharyngolaryngitis, tonsillitis, 35 osteomyelitis, arthritis, peritonitis, intraperitoneal abscess, cholecystitis, cholangitis, liver abscess, a deep

skin infection, lymphangitis/lymphadenitis, secondary infection of trauma, burn injury, surgical wound, or the like, a urinary tract infection, a genital infection, an eye infection, and an odontogenic infection.

5 [Item A72]

A pharmaceutical composition comprising a β -lactam agent, wherein the pharmaceutical composition is administered with the compound or the pharmaceutically acceptable salt thereof according to any one of items A1 to
10 A51.

[Item A73]

A method for treating a bacterial infection, characterized in that a therapeutically effective amount of the compound or the pharmaceutically acceptable salt
15 thereof according to any one of items A1 to A51 is administered to a patient in need thereof.

[Item A74]

The method according to item A73, wherein the bacterial infection is a bacterial infection in which a bacteria that
20 can have a β -lactamase is involved.

[Item A75]

The method according to item A73 or A74, wherein the bacterial infection is sepsis, febrile neutropenia, bacterial meningitis, bacterial endocarditis, otitis media, sinusitis, pneumonia, lung abscess, empyema, secondary
25 infection of a chronic respiratory disease, pharyngolaryngitis, tonsillitis, osteomyelitis, arthritis, peritonitis, intraperitoneal abscess, cholecystitis, cholangitis, liver abscess, a deep skin infection, lymphangitis/lymphadenitis, secondary infection of trauma, burn injury, surgical wound, or the like, a urinary tract infection, a genital infection, an eye infection, or an odontogenic infection.

[Item A76]

35 The method according to any one of items A73 to A75, characterized in that an additional agent is concomitantly

administered.

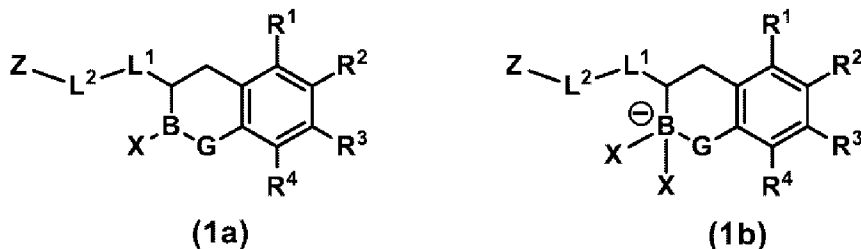
[0010]

The present invention also provides the following.

[Item 1]

5 A compound represented by formula (1a) or (1b):

[Chemical Formula 146]



or a pharmaceutically acceptable salt thereof,
wherein

10 G is an oxygen atom, a sulfur atom, or $\text{-NR}^{\text{a1-}}$,

X is a hydroxyl group, an optionally substituted C_{1-6} alkoxy group, or $\text{-NR}^{\text{a2}}\text{R}^{\text{b1}}$,

R^{a1} , R^{a2} , and R^{b1} are the same or different, each independently

15 1) a hydrogen atom,

2) a C_{1-6} alkyl group,

3) a C_{3-10} alicyclic group,

4) C_{6-10} aryl

5) 5- or 6-membered heteroaryl,

20 6) a 4- to 10-membered non-aryl heterocycle,

7) a C_{1-6} alkylcarbonyl group,

8) a C_{3-10} alicyclic carbonyl group,

9) a C_{6-10} arylcarbonyl group,

10) a 5- or 6-membered heteroarylcarbonyl group,

25 11) a C_{1-6} alkylsulfonyl group,

12) a C_{3-10} alicyclic sulfonyl group,

13) a C_{6-10} arylsulfonyl group,

14) a 5- or 6-membered heteroarylsulfonyl group, or

15) -OR^{c1} ,

30 (wherein each substituent from 2) to 14) is optionally substituted),

wherein R^{a2} and R^{b1} together may form an optionally substituted 4- to 10-membered nitrogen-containing non-aryl heterocycle,

R^{c1} is

- 5 1) a hydrogen atom,
- 2) a C_{1-6} alkyl group,
- 3) a C_{3-10} alicyclic group,
- 4) C_{6-10} aryl,
- 5) 5- or 6-membered heteroaryl, or
- 10 6) a 4- to 10-membered non-aryl heterocycle,
(wherein each substituent from 2) to 6) is optionally substituted),

L^1 is a single bond, an oxygen atom, a sulfur atom, -SO-, -SO₂-, -NR^d-, -NR^dC(=O)-, or -NR^dSO₂-,

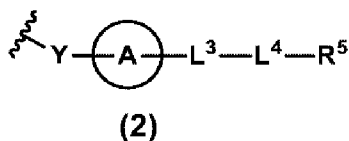
- 15 L^2 is a single bond or an optionally substituted C_{1-6} alkylene group,

Z is

- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 20 3) a cyano group,
- 4) a carboxyl group,
- 5) a C_{3-10} alicyclic group,
- 6) C_{6-10} aryl,
- 7) 5- or 6-membered heteroaryl,
- 25 8) a 4- to 10-membered non-aryl heterocycle,
- 9) a C_{1-6} alkoxy group,
- 10) a C_{3-10} alicyclic oxy group,
- 11) a C_{6-10} aryloxy group,
- 12) a 5- or 6-membered heteroaryloxy group,
- 30 13) a 4- to 10-membered non-aryl heterocyclyl oxy group,
- 14) a C_{1-6} alkylthio group,
- 15) a C_{3-10} alicyclic thio group,
- 16) a C_{6-10} arylthio group,
- 17) a 5- or 6-membered heteroarylthio group,
- 35 18) a 4- to 10-membered non-aryl heterocyclyl thio group,
(wherein each substituent from 5) to 18) is optionally

- substituted),
- 19) $-\text{SO}_2-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 20) $-\text{NR}^{\text{e}1}-\text{C}(=\text{O})\text{OR}^{\text{f}1}$,
 - 21) $-\text{NR}^{\text{g}1}-\text{C}(=\text{O})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 5 22) $-\text{NR}^{\text{e}1}-\text{C}(=\text{S})\text{R}^{\text{f}1}$,
 - 23) $-\text{NR}^{\text{e}1}-\text{C}(=\text{S})\text{OR}^{\text{f}1}$,
 - 24) $-\text{NR}^{\text{g}1}-\text{C}(=\text{S})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 25) $-\text{NR}^{\text{g}1}-\text{CR}^{\text{e}1}(=\text{NR}^{\text{f}1})$,
 - 26) $-\text{NR}^{\text{g}1}-\text{CR}^{\text{e}1}(=\text{N}-\text{OR}^{\text{f}1})$,
 - 10 27) $-\text{NR}^{\text{h}1}-\text{C}(=\text{NR}^{\text{g}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 28) $-\text{NR}^{\text{h}1}-\text{C}(=\text{N}-\text{OR}^{\text{g}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 29) $-\text{NR}^{\text{i}1}-\text{C}(=\text{NR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 30) $-\text{NR}^{\text{i}1}-\text{C}(=\text{N}-\text{OR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 31) $-\text{NR}^{\text{e}1}-\text{SO}_2-\text{R}^{\text{f}1}$,
 - 15 32) $-\text{NR}^{\text{g}1}-\text{SO}_2-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 33) $-\text{C}(=\text{O})\text{OR}^{\text{e}1}$,
 - 34) $-\text{C}(=\text{S})\text{OR}^{\text{e}1}$,
 - 35) $-\text{C}(=\text{S})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 36) $-\text{C}(=\text{S})\text{NR}^{\text{e}1}\text{OR}^{\text{f}1}$,
 - 20 37) $-\text{C}(=\text{S})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 38) $-\text{C}(=\text{NR}^{\text{e}1})\text{R}^{\text{f}1}$,
 - 39) $-\text{C}(=\text{N}-\text{OR}^{\text{e}1})\text{R}^{\text{f}1}$,
 - 40) $-\text{C}(=\text{NR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 41) $-\text{C}(=\text{N}-\text{OR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 25 42) $-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 43) $-\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 44) $-\text{NR}^{\text{e}1}\text{OR}^{\text{f}1}$,
 - 45) $-\text{NR}^{\text{e}1}-\text{C}(=\text{O})\text{R}^{\text{f}1}$,
 - 46) $-\text{C}(=\text{O})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 30 47) $-\text{C}(=\text{O})\text{NR}^{\text{e}1}\text{OR}^{\text{f}1}$,
 - 48) $-\text{C}(=\text{O})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 49) $-\text{C}(=\text{O})\text{R}^{\text{e}1}$,
 - 50) $-\text{C}(=\text{NR}^{\text{g}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$, or
 - 51) $-\text{C}(=\text{N}-\text{OR}^{\text{h}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 - 35 one of R^1 , R^2 , and R^3 is a group represented by formula
(2):

[Chemical Formula 147]



wherein

Y is an oxygen atom, a sulfur atom, or -NR^j-,

5 ring A is an optionally substituted 4- to 20-membered non-aryl heterocycle,

L³ is -C(=O)-, -S(=O)-, or -S(=O)₂-,L⁴ is

- 1) a single bond,
 - 10 2) a C₁₋₆ alkylene group,
 - 3) a C₃₋₁₀ cycloalkylene group,
 - 4) a C₆₋₁₀ arylene group,
 - 5) a 5- or 6-membered heteroarylene group,
 - 6) a 4- to 10-membered non-aryl heterocyclylene group, or
 - 15 7) -C(=N-OR^{h1})-,
- (wherein each substituent from 2) to 6) is optionally substituted), and

R⁵ is

- 1) a hydrogen atom,
 - 20 2) a C₁₋₆ alkyl group,
 - 3) a C₃₋₁₀ alicyclic group,
 - 4) a 4- to 10-membered non-aryl heterocycle,
 - 5) C₆₋₁₀ aryl,
 - 6) 5- or 6-membered heteroaryl,
 - 25 7) a C₁₋₆ alkylthio group,
- (wherein each substituent from 2) to 7) is optionally substituted), or
- 8) -NR^{e1}OH,

the remaining two (without the structure of formula (2) among R¹, R², and R³) are the same or different, each

30 independently a hydrogen atom, a halogen atom, an optionally substituted C₁₋₆ alkyl group, an optionally substituted C₁₋₆ alkoxy group, an optionally substituted C₁₋₆

alkylthio group, an optionally substituted 5- or 6-membered heteroaryl, or $-NR^{a3}R^{b2}$,

R^d , R^{e1} , R^{e2} , R^{f1} , R^{f2} , R^{g1} , R^{g2} , R^{h1} , R^{h2} , R^{i1} , R^{i2} , and R^j are the same or different, each independently a hydrogen atom, an optionally substituted C_{1-6} alkyl group, an optionally substituted C_{3-10} alicyclic group, optionally substituted C_{6-10} aryl, optionally substituted 5- or 6-membered heteroaryl, or an optionally substituted 4- to 10-membered non-aryl heterocycle,

a combination of R^{e1} and R^{f1} or R^{e2} and R^{f2} , when attached to the same nitrogen atom, together may form an optionally substituted 4- to 10-membered nitrogen-containing non-aryl heterocycle,

R^4 is

- 1) $-C(=O)R^8$,
- 2) $-SO_2-L^6-R^8$,
(wherein R^8 in 1) and 2) is $-NR^{a5}R^{b4}$, $-NR^{a5}-L^7-B(OR^{m1})_2$, $-OR^{m1}$, or an optionally substituted C_{1-6} alkyl group, and L^6 is a single bond or $-NR^{a6}-$),
- 3) $-NR^{a4}R^{b3}$,
- 4) $-B(OR^{m1})_2$,
- 5) $-PO(OR^{m1})(OR^{m2})$,
- 6) optionally substituted 5-membered heteroaryl,
- 7) an optionally substituted 5-membered non-aryl heterocycle, or
- 8) a bioisostere of one of 1) to 7),
(wherein the formulas of 2), 4), 5), and 6) include a carboxylic acid isostere, and 8) may include them in duplicates),

R^{a3} , R^{a4} , R^{a5} , R^{a6} , R^{b2} , R^{b3} , and R^{b4} are the same or different, each independently having the same definition as R^{a1} , R^{a2} , and R^{b1} , wherein a combination of R^{a3} and R^{b2} , R^{a4} and R^{b3} , or R^{a5} and R^{b4} , when attached to the same nitrogen atom, together may form an optionally substituted 4- to 10-membered nitrogen-containing non-aryl heterocycle,

R^{m1} is

- 1) a hydrogen atom,
 - 2) a C₁₋₆ alkyl group,
 - 3) a C₃₋₁₀ alicyclic group,
 - 4) C₆₋₁₀ aryl,
 - 5) 5- or 6-membered heteroaryl, or
 - 6) a 4- to 10-membered non-aryl heterocycle,
- (wherein each substituent from 2) to 6) is optionally substituted),

wherein if R^{m1} is attached to a boron atom via an oxygen atom, two R^{m1}, as C₂₋₄ alkylene, together with the boron atom and two oxygen atoms, may form a 5- to 7-membered non-aryl heterocycle (wherein an alkylene moiety is optionally substituted in the non-aryl heterocycle),

R^{m2} is a hydrogen atom, an optionally substituted C₁₋₆ alkyl group, or an optionally substituted C₃₋₁₀ alicyclic group, and

L⁷ is an optionally substituted C₁₋₃ alkylene group.

[Item 2]

The compound or the pharmaceutically acceptable salt thereof according to item 1, wherein

L¹ is a single bond, a sulfur atom, -NR^dC(=O)-, or -NR^dSO₂-,

L² is a single bond or an optionally substituted C₁₋₆ alkylene group, and

Z is

- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 3) a C₃₋₁₀ alicyclic group,
- 4) C₆₋₁₀ aryl,
- 5) 5- or 6-membered heteroaryl,
- 6) a 4- to 10-membered non-aryl heterocycle,
- 7) -C(=N-OR^{e1})R^{f1}, or
- 8) -NR^{e1}R^{f1}.

[Item 3]

The compound or the pharmaceutically acceptable salt thereof according to item 1 or 2, wherein

Z-L²-L¹ is a hydrogen atom, an optionally substituted C₁₋₆ alkyl group, or an optionally substituted C₁₋₆ alkylthio group.

[Item 4]

5 The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein Z-L²-L¹ is a hydrogen atom.

[Item 5]

10 The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein G is an oxygen atom.

[Item 6]

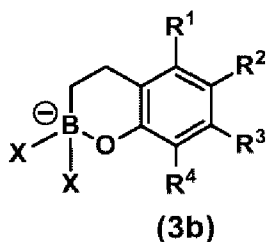
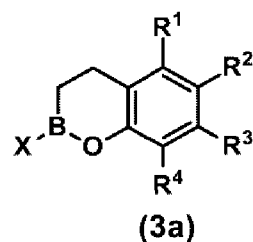
15 The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein X is a hydroxyl group or an optionally substituted C₁₋₆ alkoxy group.

[Item 7]

20 The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein X is a hydroxyl group.

[Item 8]

25 The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein the compounds of formulas (1a) and (1b) are represented by formulas (3a) and (3b), respectively:



30 wherein X, R¹, R², and R³ are defined the same as any one of the preceding items, and

R⁴ is selected from the group consisting of

1) $-\text{COOR}^{\text{m1}}$ (wherein R^{m1} is a hydrogen atom, a C_{1-6} alkyl group, a C_{3-10} alicyclic group, C_{6-10} aryl, 5- or 6-membered heteroaryl, or a 4- to 10-membered non-aryl heterocycle, wherein the C_{1-6} alkyl group, the C_{3-10} alicyclic group, the C_{6-10} aryl, the 5- or 6-membered heteroaryl, and the 4- to 10-membered non-aryl heterocycle are each optionally substituted), and
 2) a bioisostere of 1).

[Item 9]

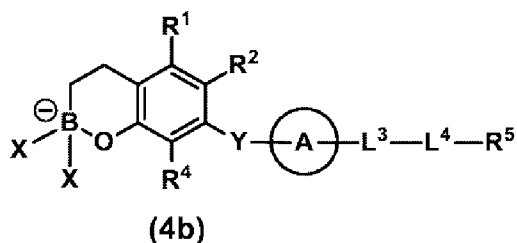
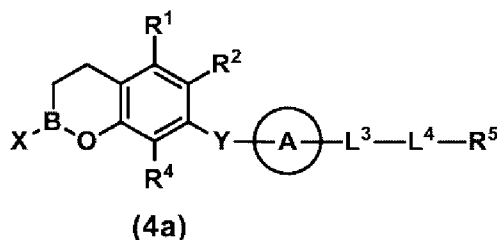
The compound or the pharmaceutically acceptable salt thereof according to item 8, wherein R^4 is

1) $-\text{COOH}$ (i.e., a carboxyl group), or
 2) a carboxylic acid isostere.

[Item 10]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein the compounds of formulas (1a) and (1b) or the compounds of formulas (3a) and (3b) are represented by formulas (4a) and (4b), respectively:

[Chemical Formula 149]



wherein X , R^4 , Y , ring A , L^3 , L^4 , and R^5 are defined the same as any one of the preceding items, and

R^1 and R^2 are the same or different, each independently a hydrogen atom, a halogen atom, a C_{1-6} alkyl group, or a C_{1-6} alkoxy group (wherein the C_{1-6} alkyl group and the C_{1-6} alkoxy group are optionally substituted with 1 to 5 halogen atoms).

[Item 11]

The compound or the pharmaceutically acceptable salt

thereof according to any one of the preceding items,
wherein ring A is an optionally substituted 4- to 10-
membered non-aryl heterocycle.

[Item 12]

5 The compound or the pharmaceutically acceptable salt
thereof according to any one of the preceding items,
wherein ring A is an optionally substituted 4- to 7-
membered non-aryl heterocycle.

[Item 13]

10 The compound or the pharmaceutically acceptable salt
thereof according to any one of the preceding items,
wherein Y is an oxygen atom or a sulfur atom.

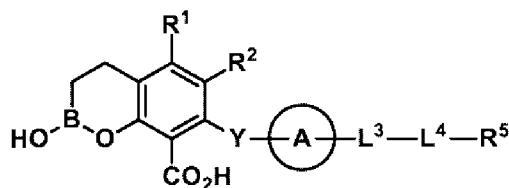
[Item 14]

The compound or the pharmaceutically acceptable salt
15 thereof according to any one of the preceding items,
wherein Y is an oxygen atom.

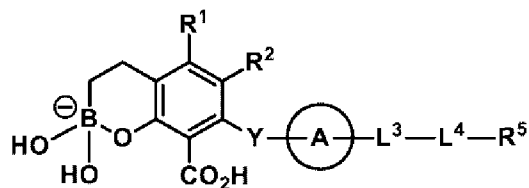
[Item 15]

The compound or the pharmaceutically acceptable salt
thereof according to any one of the preceding items,
20 wherein the compounds of formulas (1a) and (1b), the
compounds of formulas (3a) and (3b), or the compounds of
formulas (4a) and (4b) are represented by formulas (5a) and
(5b), respectively:

[Chemical Formula 150]



(5a)



(5b)

25 wherein ring A is an optionally substituted 4- to 6-
membered nitrogen-containing non-aryl heterocycle.

[Item 16]

The compound or the pharmaceutically acceptable salt
30 thereof according to any one of the preceding items,
wherein L³ is -C(=O)- or -S(=O)₂-.

[Item 17]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein L³ is -C(=O)-.

5 [Item 18]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein L⁴ is a single bond, -C(=N-OR^{h1})-, or an optionally substituted C₁₋₆ alkylene group, wherein R^{h1} is an
10 optionally substituted C₁₋₆ alkyl group.

[Item 19]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein R¹ and R² are the same or different, each
15 independently selected from the group consisting of

- 1) a hydrogen atom,
 - 2) a halogen atom,
 - 3) a C₁₋₆ alkyl group,
 - 4) a C₁₋₆ alkoxy group, and
 - 20 5) a C₁₋₆ alkylthio group,
- (wherein each substituent from 3) to 5) is optionally substituted).

[Item 20]

The compound or the pharmaceutically acceptable salt
25 thereof according to any one of the preceding items, wherein R¹ and R² are the same or different, each independently selected from the group consisting of

- 1) a hydrogen atom,
- 2) a halogen atom, and
- 30 3) an optionally substituted C₁₋₆ alkyl group.

[Item 21]

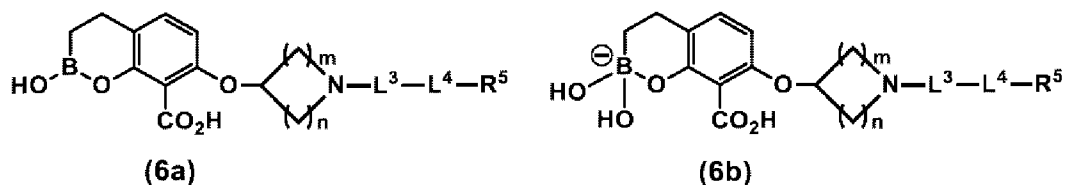
The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein R¹ and R² are both hydrogen atoms.

35 [Item 22]

The compound or the pharmaceutically acceptable salt

thereof according to any one of the preceding items,
 wherein the compounds of formulas (1a) and (1b), the
 compounds of formulas (3a) and (3b), the compounds of
 formulas (4a) and (4b), or the compounds of formulas (5a)
 5 and (5b) are represented by formulas (6a) and (6b),
 respectively:

[Chemical Formula 151]



wherein L^3 , L^4 , and R^5 are defined the same as any one of
 10 the preceding items,

m is an integer 1, 2, or 3,

n is an integer 1, 2, or 3, and

$m + n$ is 2, 3, or 4.

[Item 23]

15 The compound or the pharmaceutically acceptable salt
 thereof according to any one of the preceding items,
 wherein m is 1 or 2, n is 1 or 2, and $m + n$ is 2 or 3.

[Item 24]

The compound or the pharmaceutically acceptable salt
 20 thereof according to any one of the preceding items,
 wherein m is 1 and n is 1.

[Item 25]

The compound or the pharmaceutically acceptable salt
 thereof according to any one of the preceding items,
 25 wherein L^4 is a single bond, or a C_{1-6} alkylene group
 optionally substituted with $-NR^{21}R^{22}$ or $=NOR^{23}$, wherein R^{21} ,
 R^{22} , and R^{23} are each independently a hydrogen atom, an
 optionally substituted C_{1-6} alkyl group, or an optionally
 substituted 4- to 10-membered non-aryl heterocyclyl
 30 carbonyl group.

[Item 26]

The compound or the pharmaceutically acceptable salt

thereof according to any one of the preceding items, wherein L^4 is a single bond, $-CH_2-$, $-CH(NH_2)-$, or $-CH(NH_2)-CH_2-$, wherein if an amino group is present in L^4 , carbon that attaches to the amino group attaches to L^3 .

5 [Item 27]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein L^4 is a single bond, $-CH_2-$, $-CMe(NH_2)-$, $-CH(NHMe)-$, $-CD(NH_2)-$ (wherein D represents a heavy hydrogen atom), $-CH(NH_2)-$, or $-CH_2CH_2-$.

10 [Item 28]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein L^4 is a single bond, $-CH_2-$, or $-CH(NH_2)-$.

15 [Item 29]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein R^5 is a hydrogen atom, an optionally substituted C_{1-6} alkyl group, an optionally substituted 4- to 10-membered non-aryl heterocycle, optionally substituted C_{6-10} aryl, optionally substituted 5- or 6-membered heteroaryl, an optionally substituted C_{1-6} alkylthio group, or $-NR^{e1}OH$, wherein R^{e1} is a hydrogen atom or an optionally substituted C_{1-6} alkyl group.

20 [Item 30]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein R^5 is optionally substituted 5- or 6-membered heteroaryl or optionally substituted C_{6-10} aryl.

25 [Item 31]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein R^5 is optionally substituted 5- or 6-membered heteroaryl.

30 [Item 32]

The compound or the pharmaceutically acceptable salt

thereof according to any one of the preceding items, wherein R^5 is an optionally substituted 4- to 10-membered non-aryl heterocycle.

[Item 33]

5 The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein L^4 is a single bond, and R^5 is $-NR^{e1}OH$, wherein R^{e1} is a hydrogen atom or an optionally substituted C_{1-6} alkyl group.

10 [Item 34]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein L^4 is

- 1) $-(CH_2)_p-CR^{10}(NHR^{11})-$,
- 15 2) $-(CH_2)_q-CR^{12}R^{13}-$, or
- 3) $-(CH_2)_p-CR^{10}(NHR^{11})-(CH_2)_q-CR^{12}R^{13}-$ (wherein p and q are independently 0 or 1),

R^{10} is

- 1) a hydrogen atom,
- 20 2) a carboxyl group, or
- 3) $-C(=O)NR^{10a}R^{10b}$,

R^{11} is

- 1) a hydrogen atom,
 - 2) $-C(=O)R^{11a}$, or
 - 25 3) an optionally substituted 5- or 6-membered non-aryl heterocyclyl carbonyl group,
- wherein if R^{10} is $-C(=O)NR^{10a}R^{10b}$, R^{10b} and R^{11} together may form $-CH_2CH_2-$,

R^{12} is

- 30 1) a hydrogen atom, or
- 2) an optionally substituted C_{1-4} alkyl group,

R^{13} is

- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 35 3) an optionally substituted C_{1-4} alkyl group,
- 4) a sulfanyl group,

- 5) a carboxyl group,
- 6) an optionally substituted C₁₋₄ alkylthio group,
- 7) -NR^{13a}R^{13b},
- 8) -NR^{13a}-C(=O)R^{13b},
- 5 9) an optionally substituted 5- or 6-membered non-aryl heterocyclyl carbonylamino group,
- 10) -NR^{13a}-C(=O)NR^{13b}R^{13c},
- 11) -C(=O)NR^{13a}R^{13b},
- 12) -C(=O)NR^{13a}OR^{13b},
- 10 13) -S(=O)₂-R^{13a},
- 14) -S(=O)₂-NR^{13a}R^{13b},
- 15) -C(=O)NR^{13a}-S(=O)₂-R^{13b}, or
- 16) -C(=O)NR^{13a}-S(=O)₂-NR^{13b}R^{13c}, and
- R^{10a}, R^{10b}, R^{11a}, R^{13a}, R^{13b}, and R^{13c} are each independently
- 15 a hydrogen atom or an optionally substituted C₁₋₄ alkyl group.

[Item 35]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items,

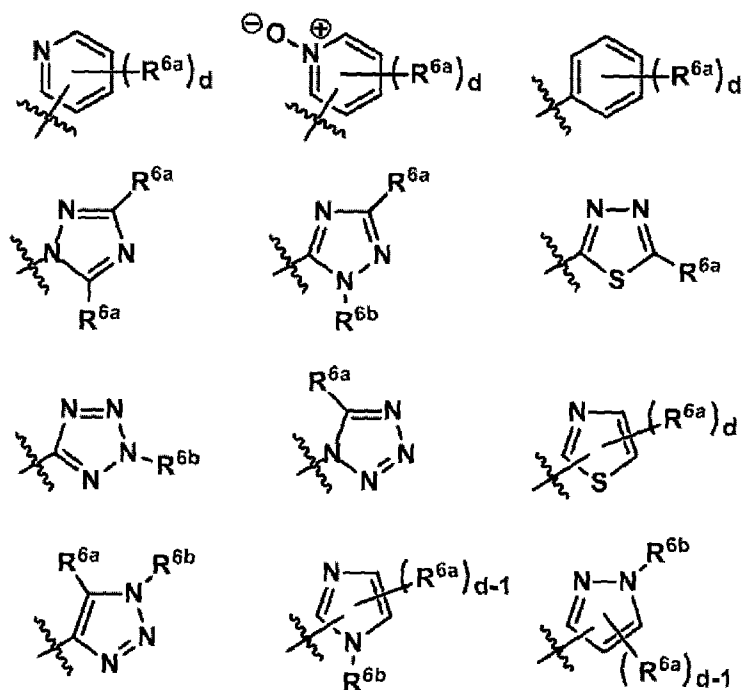
20 wherein R⁵ is a hydrogen atom or an optionally substituted C₁₋₄ alkyl group.

[Item 36]

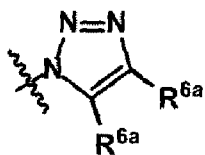
The compound or the pharmaceutically acceptable salt thereof according to any one of items 1 to 31, wherein

25 R⁵ is selected from the group consisting of

[Chemical Formula 152]



[Chemical Formula 153]



- 5 subscript d is the number of substitutable positions on
a ring of R⁵,
- each R^{6a} is independently selected from the group
consisting of
- 1) a hydrogen atom,
 - 10 2) a hydroxyl group,
 - 3) a cyano group,
 - 4) a nitro group,
 - 5) halogen,
 - 6) a C₁₋₄ alkyl group,
 - 15 7) a C₃₋₁₀ alicyclic group,
 - 8) a C₁₋₄ alkoxy group,
 - 9) a C₃₋₁₀ alicyclic oxy group,
 - 10) a C₆₋₁₀ aryloxy group,

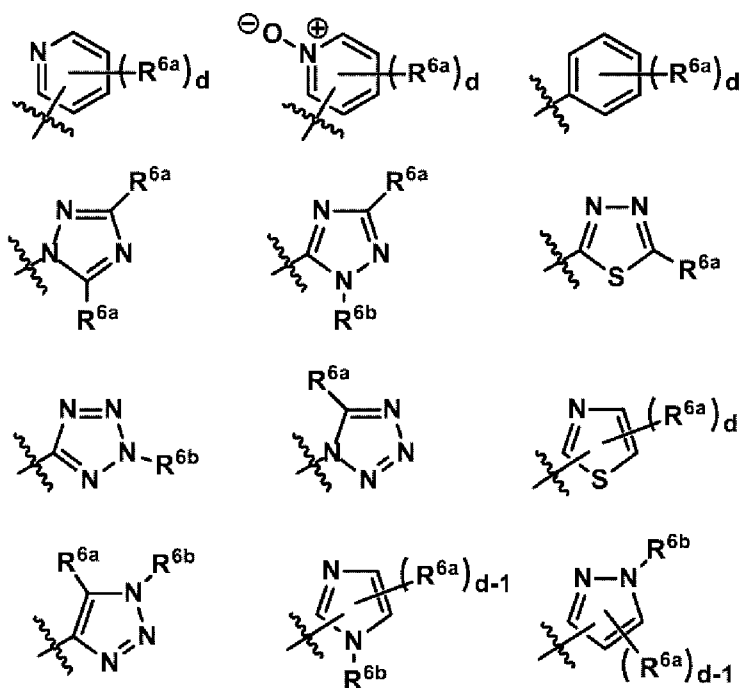
- 11) a 5- or 6-membered heteroaryloxy group,
 12) a 4- to 10-membered non-aryl heterocyclyl oxy group,
 (wherein each substituent from 6) to 12) is optionally substituted),
- 5 13) $-\text{SO}_2-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 14) $-\text{NR}^{\text{g}2}-\text{CR}^{\text{e}2}(=\text{NR}^{\text{f}2})$,
 15) $-\text{NR}^{\text{g}2}-\text{CR}^{\text{e}2}(=\text{N}-\text{OR}^{\text{f}2})$,
 16) $-\text{NR}^{\text{h}2}-\text{C}(=\text{NR}^{\text{g}2})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 17) $-\text{NR}^{\text{h}2}-\text{C}(=\text{N}-\text{OR}^{\text{g}2})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
- 10 18) $-\text{NR}^{\text{i}2}-\text{C}(=\text{NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 19) $-\text{NR}^{\text{i}2}-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 20) $-\text{C}(=\text{NR}^{\text{e}2})\text{R}^{\text{f}2}$,
 21) $-\text{C}(=\text{N}-\text{OR}^{\text{e}2})\text{R}^{\text{f}2}$,
 22) $-\text{C}(=\text{NR}^{\text{h}2})-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
- 15 23) $-\text{C}(=\text{NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 24) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 25) $-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 26) $-\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 27) $-\text{NR}^{\text{e}2}\text{OR}^{\text{f}2}$,
- 20 28) $-\text{NR}^{\text{e}2}-\text{C}(=\text{O})\text{R}^{\text{f}2}$,
 29) $-\text{C}(=\text{O})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 30) $-\text{C}(=\text{O})\text{NR}^{\text{e}2}\text{OR}^{\text{f}2}$,
 31) $-\text{C}(=\text{O})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 32) $-\text{C}(=\text{O})\text{R}^{\text{e}2}$,
- 25 33) $-\text{C}(=\text{O})\text{OR}^{\text{e}2}$, and
 34) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$, and
- each R^{6b} is independently selected from the group consisting of
- 1) a hydrogen atom,
 30 2) a hydroxyl group,
 3) a C_{1-4} alkyl group
 (wherein the alkyl group is optionally substituted)
 4) a C_{3-10} alicyclic group
 (wherein the alicyclic group is optionally substituted),
- 35 5) $-\text{C}(=\text{NR}^{\text{e}2})\text{R}^{\text{f}2}$,
 6) $-\text{C}(=\text{N}-\text{OR}^{\text{e}2})\text{R}^{\text{f}2}$,

- 7) $-\text{SO}_2-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 8) $-\text{C}(=\text{NR}^{\text{h}2})-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 9) $-\text{C}(=\text{NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 10) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 5 11) $-\text{C}(=\text{O})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 12) $-\text{C}(=\text{O})\text{NR}^{\text{e}2}\text{OR}^{\text{f}2}$,
 13) $-\text{C}(=\text{O})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 14) $-\text{C}(=\text{O})\text{R}^{\text{e}2}$, and
 15) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$.

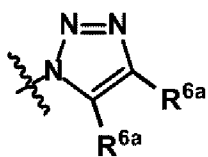
10 [Item 37]

The compound or the pharmaceutically acceptable salt thereof according to any one of items 1 to 31 and 36, wherein R^5 is 5- or 6-membered aryl or heteroaryl selected from the group consisting of

15 [Chemical Formula 154]



[Chemical Formula 155]



subscript d is the number of substitutable positions on a ring of R^5 ,

each R^{6a} is independently selected from the group consisting of

- 5 1) a hydrogen atom,
- 2) a hydroxyl group,
- 3) halogen,
- 4) a C_{1-4} alkyl group
(wherein the alkyl group is optionally substituted with
- 10 $NR^{e2}R^{f2}$, a 5- or 6-membered non-aryl heterocycle, $-C(=O)OR^{f2}$,
or a hydroxyl group),
- 5) a C_{1-4} alkoxy group
- 6) $-NR^{e2}R^{f2}$, and
- 7) $-C(=O)OR^{e2}$, and

15 each R^{6b} is independently selected from the group consisting of

- 1) a hydrogen atom,
- 2) a hydroxyl group, and
- 3) a C_{1-4} alkyl group
(wherein the alkyl group is optionally substituted with
- 20 $NR^{e2}R^{f2}$, $-C(=O)NR^{e2}R^{f2}$, $-C(=O)OR^{f2}$, or a hydroxyl group).

[Item 38]

The compound or the pharmaceutically acceptable salt thereof according to any one of items 1 to 31, 36, and 37,
25 wherein Re^2 and R^{f2} are the same or different, each independently a hydrogen atom, an optionally substituted C_{1-6} alkyl group, or an optionally substituted C_{3-10} alicyclic group.

[Item 39]

30 The compound or the pharmaceutically acceptable salt thereof according to any one of items 1 to 31 and 36 to 38, wherein Re^2 and R^{f2} are the same or different, each independently a hydrogen atom or an optionally substituted C_{1-6} alkyl group.

35 [Item 40]

The compound or the pharmaceutically acceptable salt

thereof according to any one of items 1 to 31 and 36 to 39, wherein R^{e2} and R^{f2} are hydrogen atoms.

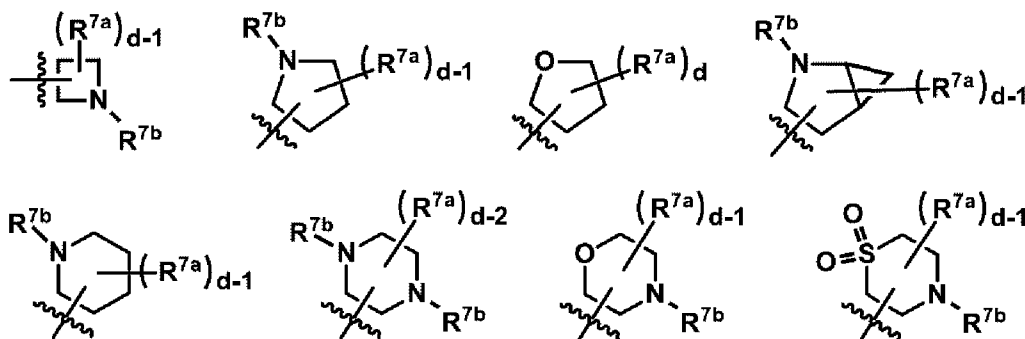
[Item 41]

The compound or the pharmaceutically acceptable salt thereof according to any one of items 36 to 39, wherein R^{6a} is $-NR^{e2}R^{f2}$, and one of R^{e2} and R^{f2} is a hydrogen atom and the other is a C_{1-4} alkyl group (wherein the alkyl group is optionally substituted with an amino group or a hydroxyl group).

10 [Item 42]

The compound or the pharmaceutically acceptable salt thereof according to any one of items 1 to 29 and 32, wherein R^5 is a 4- to 6-membered non-aryl heterocycle selected from the group consisting of

15 [Chemical Formula 156]



subscript d is the number of substitutable positions on a ring of R^5 ,

each R^{7a} is independently selected from the group consisting of

- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 3) a cyano group,
- 4) halogen,
- 25 5) a C_{1-4} alkyl group,
- 6) a C_{3-10} alicyclic group,
- 7) a C_{1-4} alkoxy group,
- 8) a C_{3-10} alicyclic oxy group,
- 9) a C_{6-10} aryloxy group,

- 10) a 5- or 6-membered heteroaryloxy group,
 11) a 4- to 10-membered non-aryl heterocyclyl oxy group,
 (wherein each substituent from 5) to 11) is optionally substituted),
- 5 12) $-\text{SO}_2-\text{NRe}^3\text{R}^{\text{f}3}$,
 13) $-\text{NR}^{\text{g}2}-\text{CRe}^3(=\text{NR}^{\text{f}3})$,
 14) $-\text{NR}^{\text{g}2}-\text{CRe}^3(=\text{N}-\text{OR}^{\text{f}3})$,
 15) $-\text{NR}^{\text{h}2}-\text{C}(=\text{NR}^{\text{g}2})\text{NRe}^3\text{R}^{\text{f}3}$,
 16) $-\text{NR}^{\text{h}2}-\text{C}(=\text{N}-\text{OR}^{\text{g}2})\text{NRe}^3\text{R}^{\text{f}3}$,
- 10 17) $-\text{NR}^{\text{i}2}-\text{C}(=\text{NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NRe}^3\text{R}^{\text{f}3}$,
 18) $-\text{NR}^{\text{i}2}-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NRe}^3\text{R}^{\text{f}3}$,
 19) $-\text{C}(=\text{NRe}^3)\text{R}^{\text{f}3}$,
 20) $-\text{C}(=\text{N}-\text{OR}^{\text{e}3})\text{R}^{\text{f}3}$,
 21) $-\text{C}(=\text{NR}^{\text{h}2})-\text{NRe}^3\text{R}^{\text{f}3}$,
- 15 22) $-\text{C}(=\text{NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NRe}^3\text{R}^{\text{f}3}$,
 23) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NRe}^3\text{R}^{\text{f}3}$,
 24) $-\text{NRe}^3\text{R}^{\text{f}3}$,
 25) $-\text{NR}^{\text{g}2}-\text{NRe}^3\text{R}^{\text{f}3}$,
 26) $-\text{NRe}^3\text{OR}^{\text{f}3}$,
- 20 27) $-\text{NRe}^3-\text{C}(=\text{O})\text{R}^{\text{f}3}$,
 28) $-\text{C}(=\text{O})\text{NRe}^3\text{R}^{\text{f}3}$,
 29) $-\text{C}(=\text{O})\text{NRe}^3\text{OR}^{\text{f}3}$,
 30) $-\text{C}(=\text{O})\text{NR}^{\text{g}2}-\text{NRe}^3\text{R}^{\text{f}3}$,
 31) $-\text{C}(=\text{O})\text{Re}^3$,
- 25 32) $-\text{C}(=\text{O})\text{OR}^{\text{e}3}$, and
 33) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NRe}^3\text{R}^{\text{f}3}$,
- each R^{7b} is independently selected from the group consisting of
- 1) a hydrogen atom,
 30 2) a hydroxyl group,
 3) a C_{1-4} alkyl group
 (wherein the alkyl group is optionally substituted),
 4) a C_{3-10} alicyclic group
 (wherein the alicyclic group is optionally substituted),
- 35 5) $-\text{C}(=\text{NRe}^3)\text{R}^{\text{f}3}$,
 6) $-\text{C}(=\text{N}-\text{OR}^{\text{e}3})\text{R}^{\text{f}3}$,

- 7) $-\text{SO}_2-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 8) $-\text{C}(=\text{NR}^{\text{h}2})-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 9) $-\text{C}(=\text{NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 10) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 11) $-\text{C}(=\text{O})\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 12) $-\text{C}(=\text{O})\text{NR}^{\text{e}3}\text{OR}^{\text{f}3}$,
 13) $-\text{C}(=\text{O})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 14) $-\text{C}(=\text{O})\text{R}^{\text{e}3}$, and
 15) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$, and

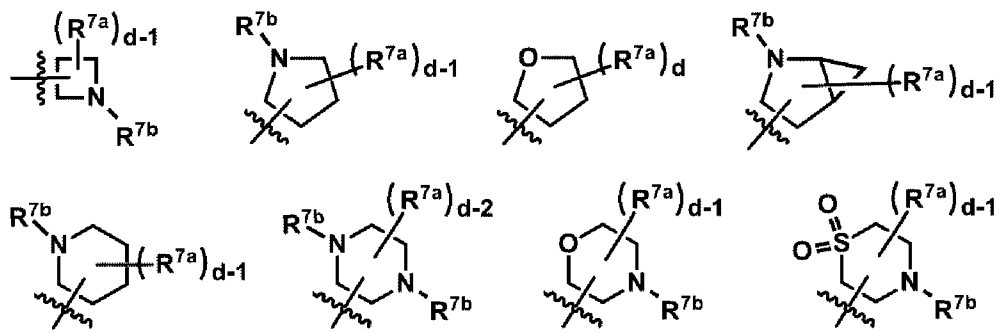
10 $\text{R}^{\text{e}3}$ and $\text{R}^{\text{f}3}$ are defined the same as $\text{R}^{\text{e}2}$ and $\text{R}^{\text{f}2}$ according to item 1.

[Item 43]

The compound or the pharmaceutically acceptable salt thereof according to any one of items 1 to 29, 32, and 42,
 15 wherein

R^5 is a 4- to 6-membered non-aryl heterocycle selected from the group consisting of

[Chemical Formula 157]



20 subscript d is the number of substitutable positions on a ring of R^5 ,

each R^{7a} is independently selected from the group consisting of

- 1) a hydrogen atom,
 25 2) a hydroxyl group,
 3) halogen,
 4) a C_{1-4} alkyl group
 (wherein the alkyl group is optionally substituted with $\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$, a 5- or 6-membered non-aryl heterocycle, $-\text{C}(=\text{O})\text{OR}^{\text{f}3}$,

or a hydroxyl group),

5) a C₁₋₄ alkoxy group

6) -NR^{e3}R^{f3},

7) -C(=O)OR^{e3},

5 8) C₆₋₁₀ aryl, and

9) -C(=O)NR^{e3}R^{f3},

each R^{7b} is independently selected from the group consisting of

1) a hydrogen atom,

10 2) a hydroxyl group, and

3) a C₁₋₄ alkyl group

(wherein the alkyl group is optionally substituted with NR^{e3}R^{f3}, -C(=O)OR^{f3}, or a hydroxyl group), and

15 R^{e3} and R^{f3} are defined the same as R^{e2} and R^{f2} according to any one of items 38 to 40.

[Item 44]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein

20 L⁴ is -CH(NH₂)-CHR¹³-, wherein carbon that attaches to the NH₂ attaches to L³,

R⁵ is a hydrogen atom, and

R¹³ is

1) -NH-C(=O)CH₃,

25 2) -NH-C(=O)NH₂,

3) -NH-C(=O)CH(NH₂)-CH₂C(=O)NH₂,

4) -NH-C(=O)CH₂-NH₂,

5) -NH-C(=O)CH(NH₂)-CH₂OH, or

6) a pyrrolidin-2-ylcarbonylamino group.

30 [Item 45]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein L⁴ is -CH(NH₂)-CR¹²R¹³-, wherein carbon that attaches to the NH₂ attaches to L³,

35 R⁵ is a hydrogen atom or methyl,

R¹² is a hydrogen atom or methyl, and

R^{13} is a benzylthio group or a sulfanyl group.

[Item 46]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein L^4 is $-\text{CH}(\text{NH}_2)-(\text{CH}_2)_q-\text{CHR}^{13}-$, wherein q is 0 or 1, and carbon that attaches to the NH_2 attaches to L^3 ,

R^5 is a hydrogen atom, and

R^{13} is

- 1) a carboxyl group,
- 10 2) $-\text{C}(=\text{O})\text{NH}_2$,
- 3) $-\text{C}(=\text{O})\text{NH}(\text{CH}_3)$,
- 4) $-\text{C}(=\text{O})\text{N}(\text{CH}_3)_2$,
- 5) $-\text{C}(=\text{O})\text{NH}-(\text{CH}_2)_2-\text{OH}$,
- 6) $-\text{C}(=\text{O})\text{NH}-(\text{CH}_2)_2-\text{NH}_2$,
- 15 7) $-\text{C}(=\text{O})\text{NH}-\text{S}(=\text{O})_2-\text{CH}_3$,
- 8) $-\text{C}(=\text{O})\text{NHOH}$,
- 9) $-\text{S}(=\text{O})_2-\text{NH}_2$,
- 10) $-\text{S}(=\text{O})_2-\text{CH}_3$, or
- 11) a hydroxyl group.

20 [Item 47]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein

L^4 is $-\text{CH}(\text{NHR}^{11})-\text{CH}_2-$, wherein carbon that attaches to the NHR^{11} attaches to L^3 ,

R^5 is hydrogen, and

R^{11} is

- 1) $-\text{C}(=\text{O})\text{CH}(\text{NH}_2)-\text{CH}_2\text{C}(=\text{O})\text{NH}_2$,
- 2) $-\text{C}(=\text{O})\text{CH}_2-\text{NH}_2$,
- 30 3) $-\text{C}(=\text{O})\text{CH}(\text{CH}_3)-\text{NH}_2$,
- 4) $-\text{C}(=\text{O})\text{CH}(\text{NH}_2)-\text{CH}_2\text{OH}$, or
- 5) pyrrolidin-2-ylcarbonyl.

[Item 48]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein

L^4 is $-\text{CH}(\text{NHR}^{11})-\text{CH}(\text{COOH})-$, wherein carbon that attaches to the NHR^{11} attaches to L^3 ,

R^5 is hydrogen, and

R^{11} is

- 5 1) $-\text{C}(=\text{O})\text{CH}(\text{NH}_2)-\text{CH}_2\text{C}(=\text{O})\text{NH}_2$,
- 2) $-\text{C}(=\text{O})\text{CH}_2-\text{NH}_2$,
- 3) $-\text{C}(=\text{O})\text{CH}(\text{CH}_3)-\text{NH}_2$,
- 4) $-\text{C}(=\text{O})\text{CH}(\text{NH}_2)-\text{CH}_2\text{OH}$, or
- 5) pyrrolidin-2-ylcarbonyl.

10 [Item 49]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein

L^4 is $-\text{CHR}^{13}-$ or $-\text{CH}_2-\text{CHR}^{13}-$,

15 R^5 is hydrogen, and

R^{13} is $-\text{C}(=\text{O})\text{NH}_2$ or $-\text{C}(=\text{O})\text{NHOH}$.

[Item 50]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein

20

L^4 is $-\text{CH}_2-\text{CR}^{10}(\text{NH}_2)-$, wherein the CH_2 attaches to L^3 ,

R^5 is hydrogen, and

R^{10} is a carboxy group or $-\text{C}(=\text{O})\text{NH}_2$.

[Item 51]

25 The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein

L^4 is $-(\text{CH}_2)_p-\text{CR}^{10}(\text{NHR}^{11})-(\text{CH}_2)_q-\text{CHR}^{13}-$ or $-\text{CHR}^{13}-(\text{CH}_2)_q-\text{CR}^{10}(\text{NHR}^{11})-(\text{CH}_2)_p-$, wherein q is 0 or 1,

30 R^5 is hydrogen,

(1) if L^4 is $-\text{CHR}^{13}-(\text{CH}_2)_q-\text{CR}^{10}(\text{NHR}^{11})-(\text{CH}_2)_p-$, carbon of the $-\text{CHR}^{13}-$ group attaches to L^3 ,

p is 0,

35 R^{10} is a hydrogen atom, a carboxyl group, or $-\text{C}(=\text{O})\text{NHR}^{10b}$,

R^{11} is a hydrogen atom,

R^{10b} is a hydrogen atom,
wherein if R^{10} is $-C(=O)NHR^{10b}$, R^{10b} and R^{11} together may form
 $-CH_2CH_2-$, and

- R^{13} is a hydrogen atom, and
5 (2) if L^4 is $-(CH_2)_p-CR^{10}(NHR^{11})-(CH_2)_q-CHR^{13}-$,
carbon of the $-(CH_2)_p-$ group attaches to L^3 ,
 p is 1,
 R^{10} and R^{11} are both hydrogen atoms,
 R^{13} is a carboxyl group or $-C(=O)NR^{13a}R^{13b}$, and
10 R^{13a} and R^{13b} are each independently a hydrogen atom or
an optionally substituted C_{1-4} alkyl group.

[Item 52]

The compound or the pharmaceutically acceptable salt
thereof according to any one of the preceding items,
15 wherein

L^4 is $-CR^{12}(NH_2)-$,

R^{12} is a hydrogen atom or a methyl group, and

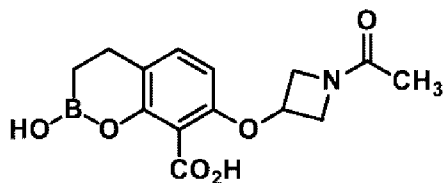
R^5 is a C_{1-4} alkyl group optionally substituted with a
hydroxyl group.

20 [Item 53]

The compound or the pharmaceutically acceptable salt
thereof according to item 1, represented by the following
compound name or structural formula:

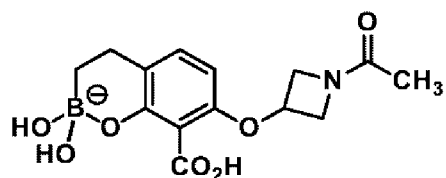
7-[(1-acetylazetid-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-
25 1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 158]



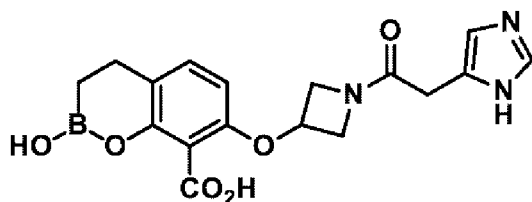
8-[(1-acetylazetid-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-
boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic
30 acid

[Chemical Formula 159]



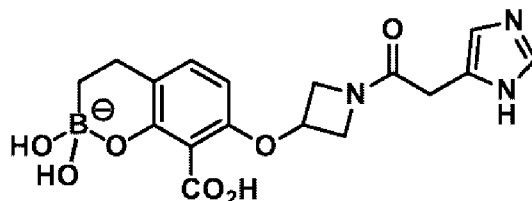
2-hydroxy-7-((1-((1H-imidazol-5-yl)acetyl)azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 160]



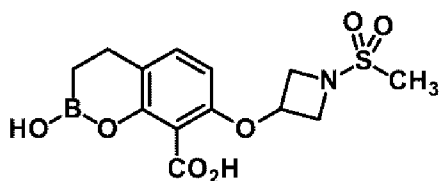
4,4-dihydroxy-8-((1-((1H-imidazol-5-yl)acetyl)azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 161]



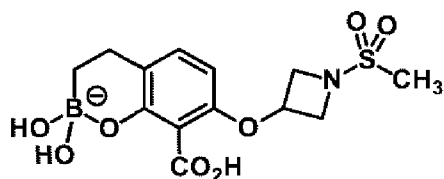
2-hydroxy-7-([1-(methanesulfonyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 162]



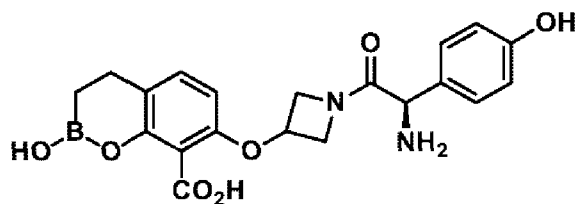
4,4-dihydroxy-8-([1-(methanesulfonyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 163]



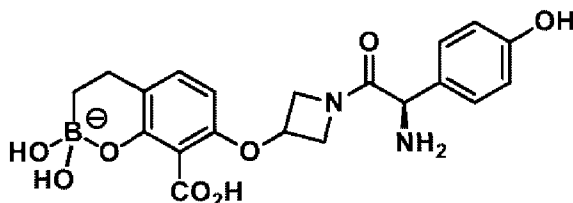
7-((1-((2R)-2-amino-2-(4-hydroxyphenyl)acetyl)azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 164]



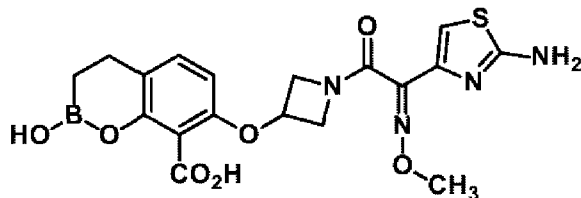
8-((1-((2R)-2-amino-2-(4-hydroxyphenyl)acetyl)azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 165]



7-((1-((2-amino-1,3-thiazol-4-yl)(methoxyimino)acetyl)azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

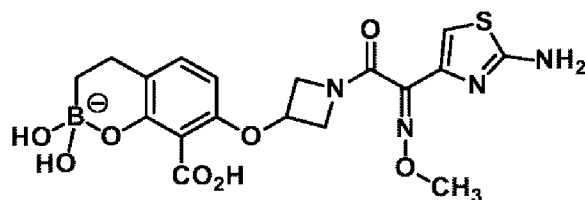
[Chemical Formula 166]



8-((1-((2-amino-1,3-thiazol-4-yl)(methoxyimino)acetyl)azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-

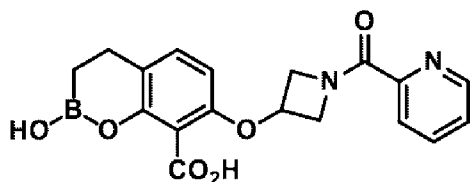
carboxylic acid

[Chemical Formula 167]



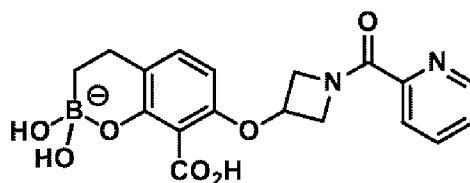
2-hydroxy-7-([1-((pyridine-2-carbonyl)azetidin-3-yl)oxy]-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 168]



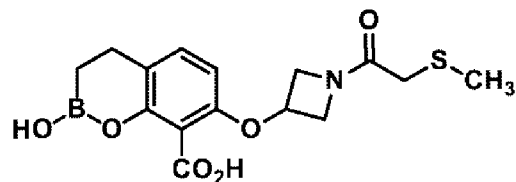
4,4-dihydroxy-8-([1-((pyridine-2-carbonyl)azetidin-3-yl)oxy]-
5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
triene-7-carboxylic acid

[Chemical Formula 169]



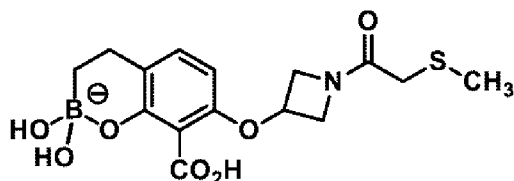
2-hydroxy-7-([1-((methylsulfonyl)acetyl)azetidin-3-yl]oxy)-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 170]



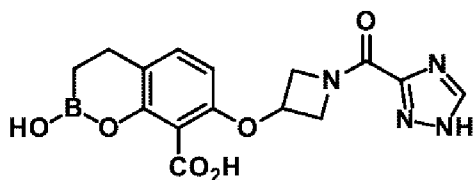
4,4-dihydroxy-8-([1-((methylsulfonyl)acetyl)azetidin-3-yl]oxy)-
5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
triene-7-carboxylic acid

[Chemical Formula 171]



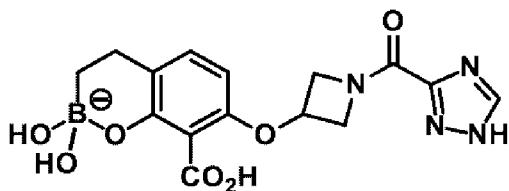
2-hydroxy-7-{[1-(1H-1,2,4-triazole-3-carbonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 172]



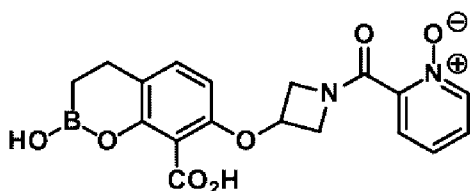
4,4-dihydroxy-8-{[1-(1H-1,2,4-triazole-3-carbonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 173]



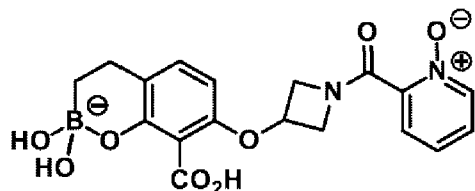
2-hydroxy-7-{[1-(1-oxido-2-pyridinylcarbonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 174]



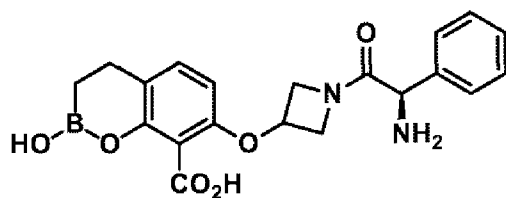
4,4-dihydroxy-8-{[1-(1-oxido-2-pyridinylcarbonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 175]



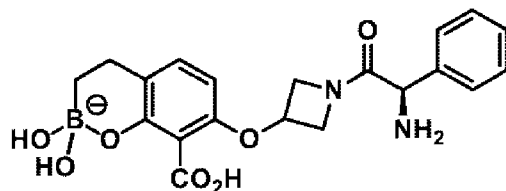
7-((1-((2R)-2-amino-2-phenylacetyl)azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 176]



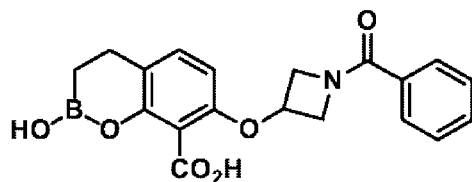
8-((1-((2R)-2-amino-2-phenylacetyl)azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 177]



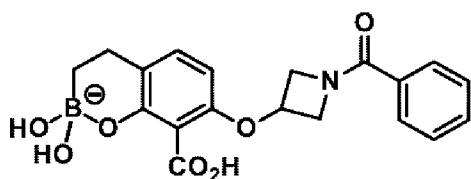
7-((1-benzoylazetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 178]



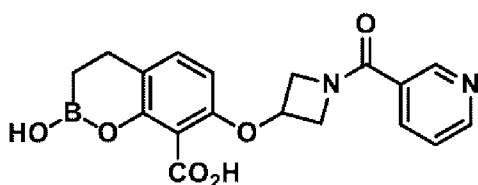
8-((1-benzoylazetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 179]



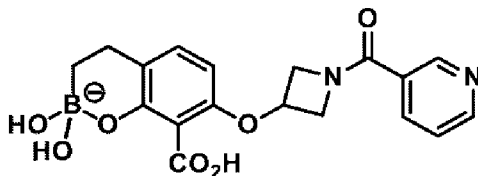
2-hydroxy-7-{[1-(pyridine-3-carbonyl)azetidin-3-yl]oxy}-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 180]



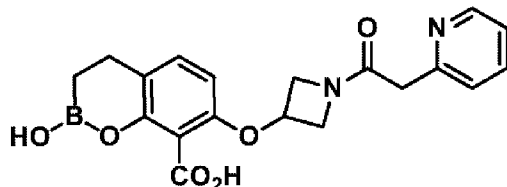
4,4-dihydroxy-8-{[1-(pyridine-3-carbonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 181]



2-hydroxy-7-({1-[(pyridin-2-yl)acetyl]azetidin-3-yl}oxy)-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

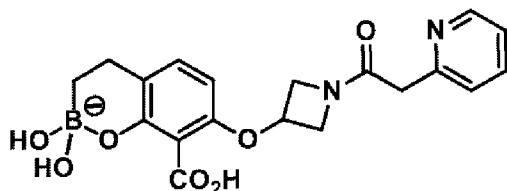
[Chemical Formula 182]



15

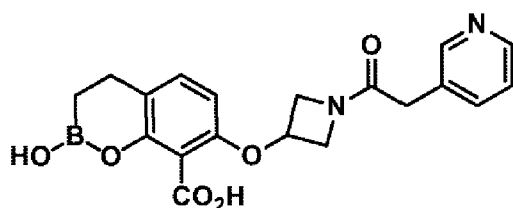
4,4-dihydroxy-8-({1-[(pyridin-2-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 183]



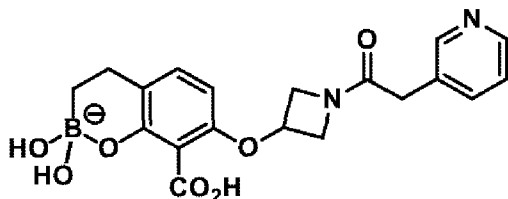
2-hydroxy-7-({1-[(pyridin-3-yl)acetyl]azetidin-3-yl}oxy)-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 184]



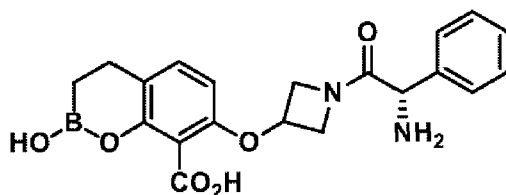
4,4-dihydroxy-8-({1-[(pyridin-3-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 185]



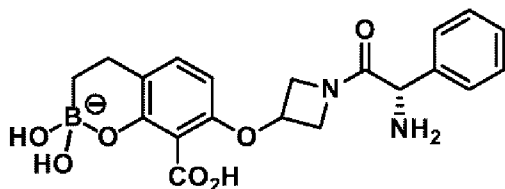
7-({1-[(2S)-2-amino-2-phenylacetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 186]



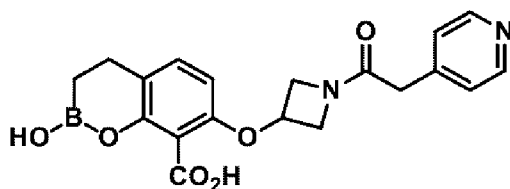
8-({1-[(2S)-2-amino-2-phenylacetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 187]



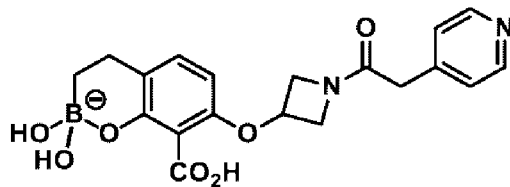
2-hydroxy-7-((1-[(pyridin-4-yl)acetyl]azetidin-3-yl)oxy)-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 188]



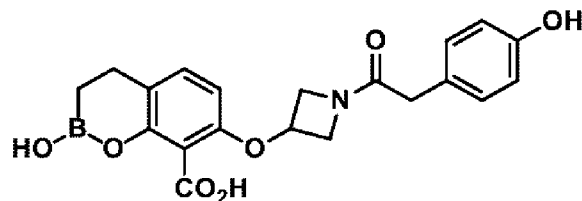
4,4-dihydroxy-8-((1-[(pyridin-4-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
triene-7-carboxylic acid

10 [Chemical Formula 189]



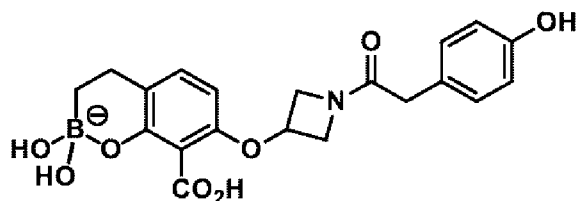
2-hydroxy-7-((1-[(4-hydroxyphenyl)acetyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic
acid

15 [Chemical Formula 190]



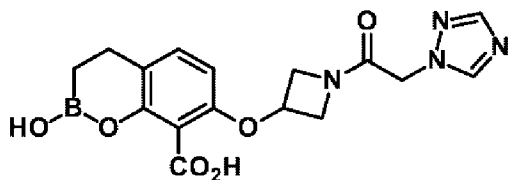
4,4-dihydroxy-8-((1-[(4-hydroxyphenyl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
triene-7-carboxylic acid

[Chemical Formula 191]



2-hydroxy-7-((1-[(1H-1,2,4-triazol-1-yl)acetyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

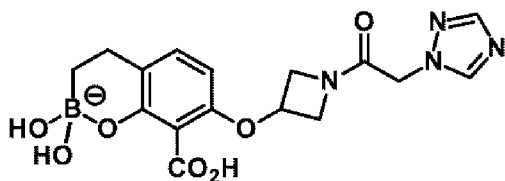
[Chemical Formula 192]



4,4-dihydroxy-8-((1-[(1H-1,2,4-triazol-1-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-

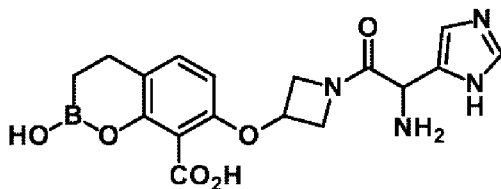
boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 193]



7-((1-[amino(1H-imidazol-5-yl)acetyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

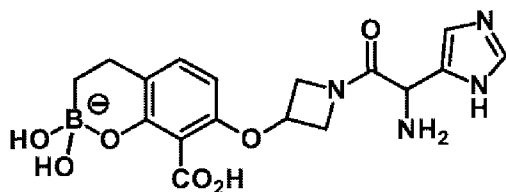
[Chemical Formula 194]



8-((1-[amino(1H-imidazol-5-yl)acetyl]azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-

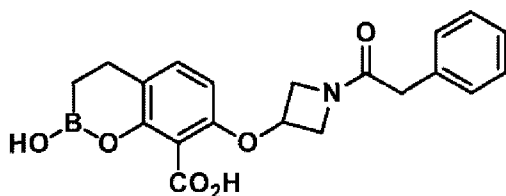
triene-7-carboxylic acid

[Chemical Formula 195]



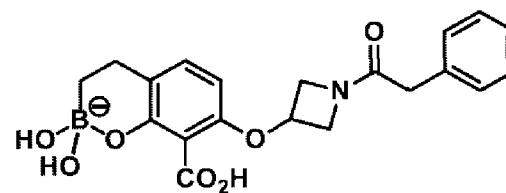
2-hydroxy-7-([1-(phenylacetyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 196]



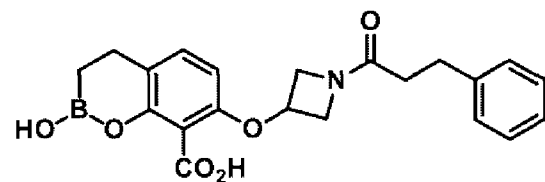
4,4-dihydroxy-8-([1-(phenylacetyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 197]



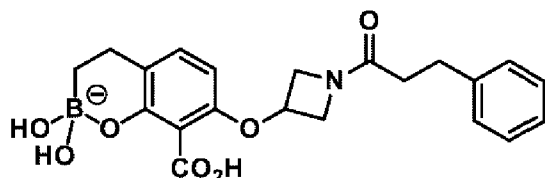
2-hydroxy-7-([1-(3-phenylpropanoyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 198]



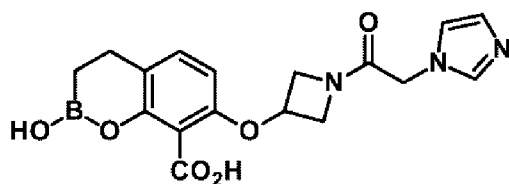
4,4-dihydroxy-8-([1-(3-phenylpropanoyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 199]



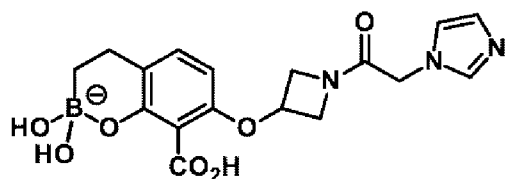
2-hydroxy-7-((1-[(1H-imidazol-1-yl)acetyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 200]



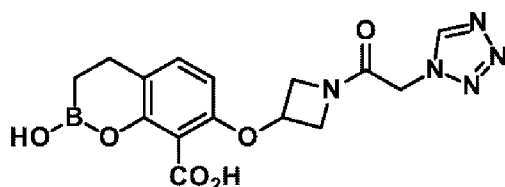
4,4-dihydroxy-8-((1-[(1H-imidazol-1-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 201]



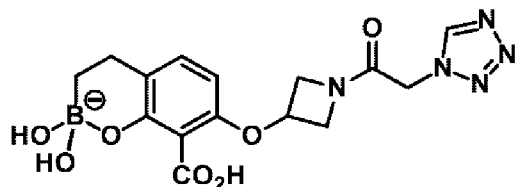
2-hydroxy-7-((1-[(1H-tetrazol-1-yl)acetyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 202]



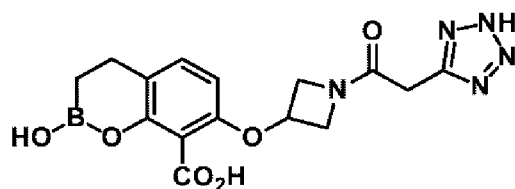
4,4-dihydroxy-8-((1-[(1H-tetrazol-1-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 203]



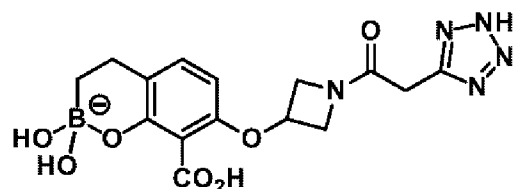
2-hydroxy-7-((1-((2H-tetrazol-5-yl)acetyl)azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 204]



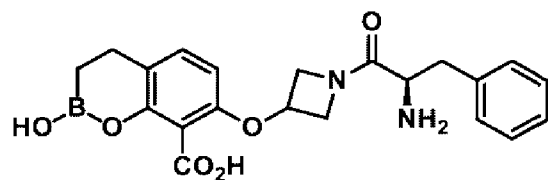
4,4-dihydroxy-8-((1-((2H-tetrazol-5-yl)acetyl)azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 205]



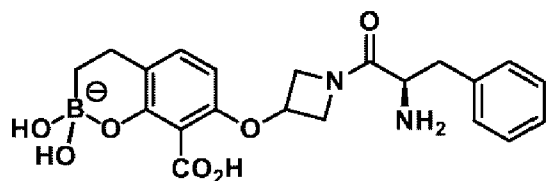
2-hydroxy-7-[(1-D-phenylalanylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 206]



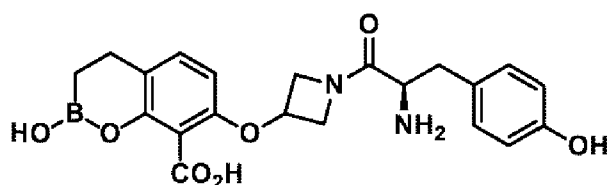
4,4-dihydroxy-8-[(1-D-phenylalanylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 207]



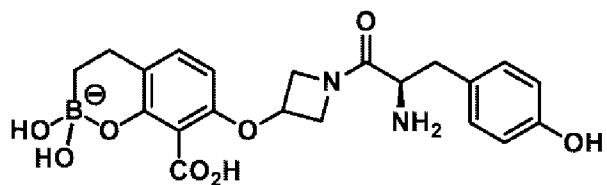
2-hydroxy-7-[(1-D-tyrosylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 208]



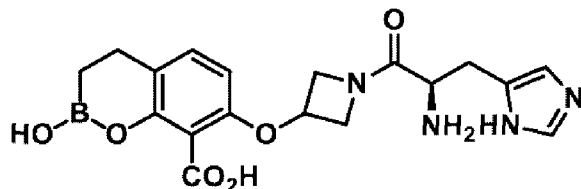
4,4-dihydroxy-8-[(1-D-tyrosylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 209]



7-[(1-D-histidylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

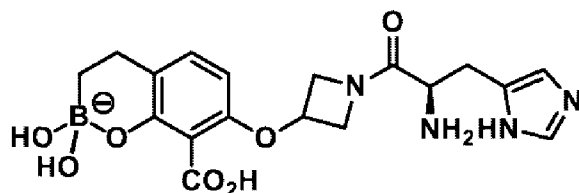
[Chemical Formula 210]



15

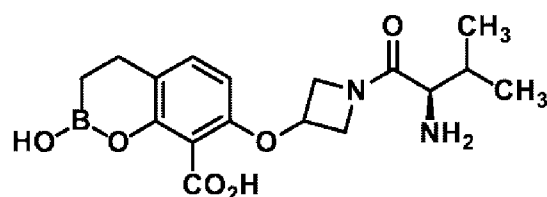
8-[(1-D-histidylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 211]



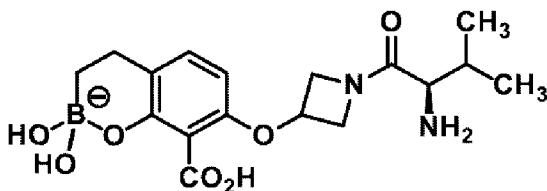
2-hydroxy-7-[(1-D-valylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 212]



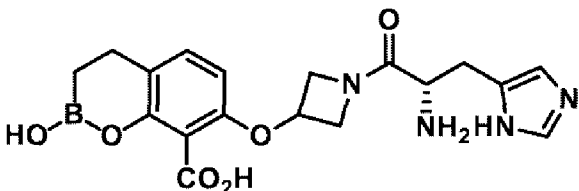
4,4-dihydroxy-8-[(1-D-valylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 213]



7-[(1-L-histidylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

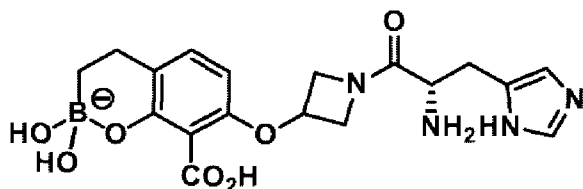
[Chemical Formula 214]



15

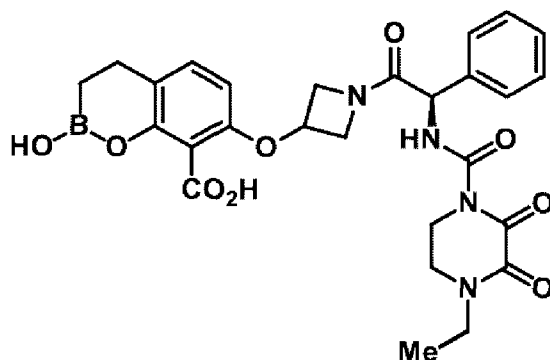
8-[(1-L-histidylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 215]



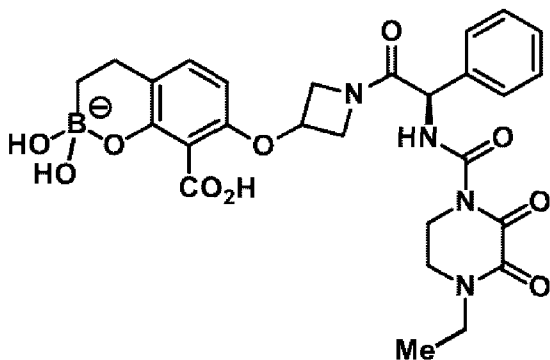
7-[(1-((2R)-2-[(4-ethyl-2,3-dioxopiperazine-1-carbonyl)amino]-2-phenylacetyl)azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 216]



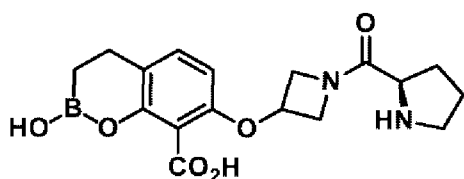
8-[(1-((2R)-2-[(4-ethyl-2,3-dioxopiperazine-1-carbonyl)amino]-2-phenylacetyl)azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 217]



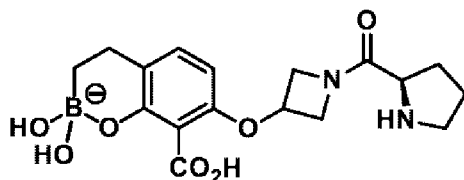
2-hydroxy-7-[(1-D-prolylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 218]

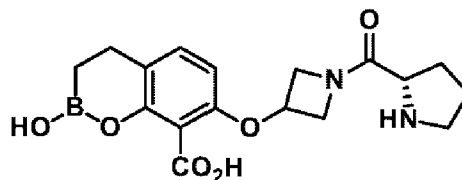


4,4-dihydroxy-8-[(1-D-prolylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 219]

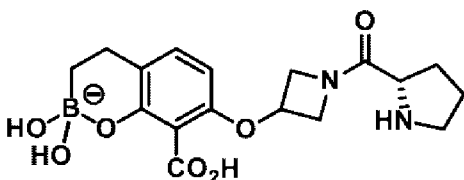


2-hydroxy-7-[(1-L-prolylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid



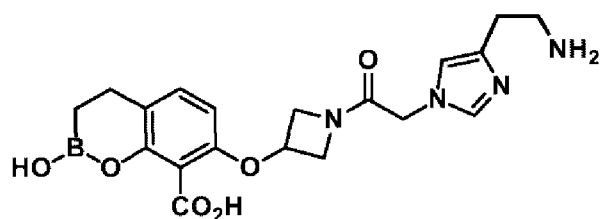
4,4-dihydroxy-8-[(1-L-prolylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 221]



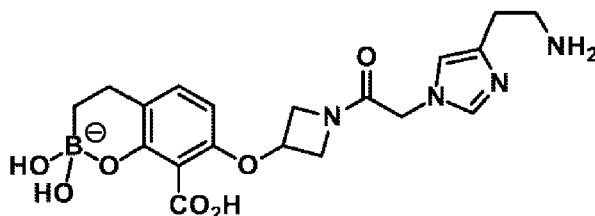
7-[(1-{[4-(2-aminoethyl)-1H-imidazol-1-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 222]



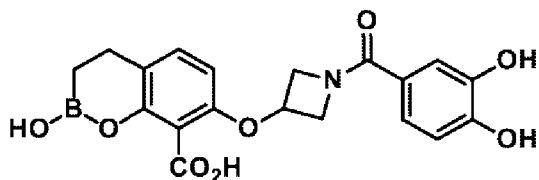
8-[(1-{[4-(2-aminoethyl)-1H-imidazol-1-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 223]



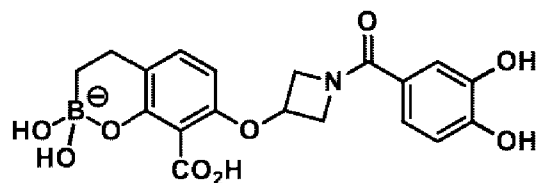
7-{[1-(3,4-dihydroxybenzoyl)azetidin-3-yl]oxy}-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 224]



8-{[1-(3,4-dihydroxybenzoyl)azetidin-3-yl]oxy}-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

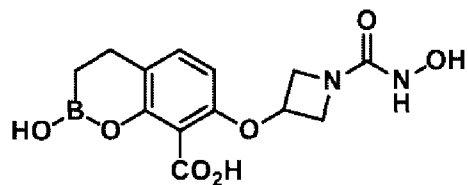
[Chemical Formula 225]



2-hydroxy-7-{[1-(hydroxycarbamoyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

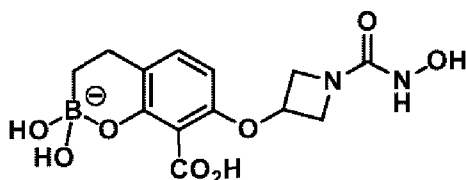
[Chemical Formula 226]



, or

4,4-dihydroxy-8-{{1-[(hydroxycarbamoyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 227]

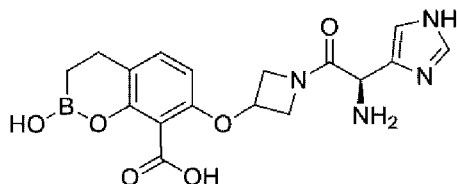


[Item 54]

The compound or the pharmaceutically acceptable salt thereof of item 1, represented by the following compound name or structural formula:

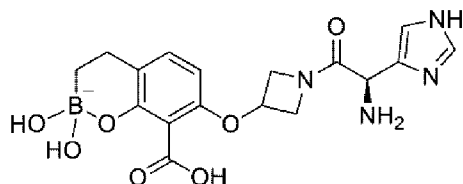
7-({1-[(2R)-2-amino-2-(1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 228]



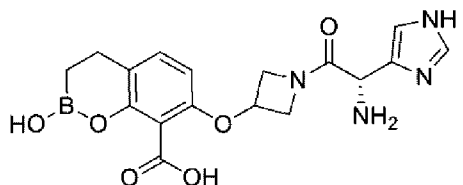
8-({1-[(2R)-2-amino-2-(1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 229]



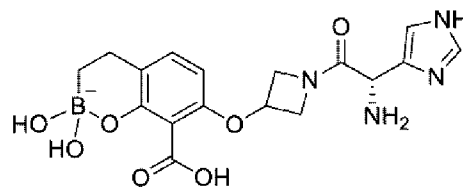
7-({1-[(2S)-2-amino-2-(1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 230]



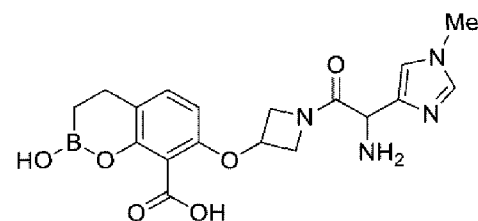
8-({1-[(2S)-2-amino-2-(1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 231]



7-({1-[amino(1-methyl-1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

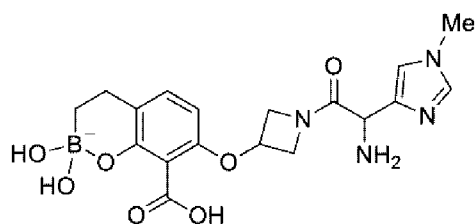
[Chemical Formula 232]



8-({1-[amino(1-methyl-1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-

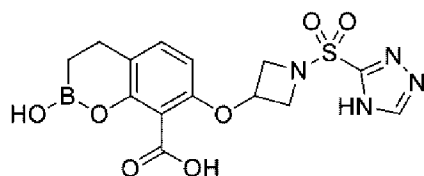
1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 233]



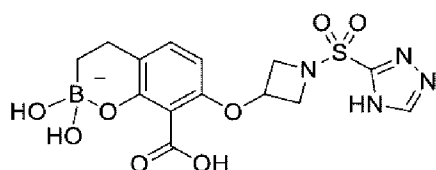
2-hydroxy-7-{[1-(4H-1,2,4-triazole-3-sulfonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 234]



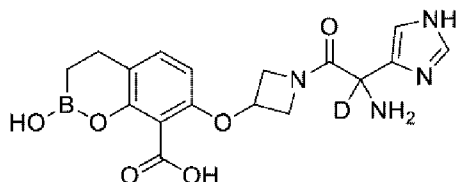
4,4-dihydroxy-8-{[1-(4H-1,2,4-triazole-3-sulfonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 235]



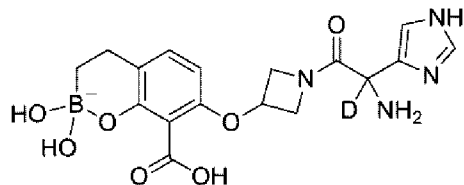
7-({1-[2-amino-2-(1H-imidazol-4-yl) (2H)ethanoyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 236]

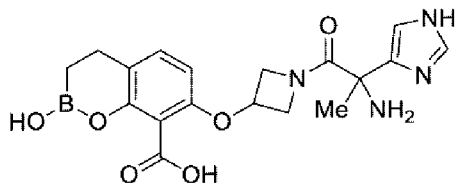


8-({1-[2-amino-2-(1H-imidazol-4-yl) (2H)ethanoyl]azetidin-3-

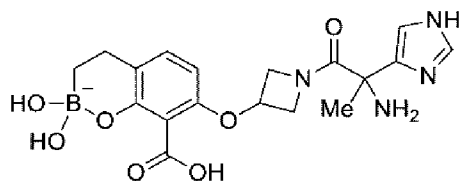
yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-
1(6),7,9-triene-7-carboxylic acid
[Chemical Formula 237]



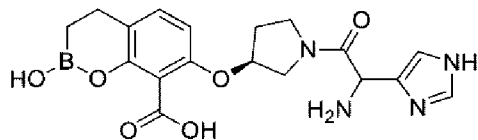
- 5 7-((1-[2-amino-2-(1H-imidazol-4-yl)propanoyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid
[Chemical Formula 238]



- 10 8-((1-[2-amino-2-(1H-imidazol-4-yl)propanoyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid
[Chemical Formula 239]



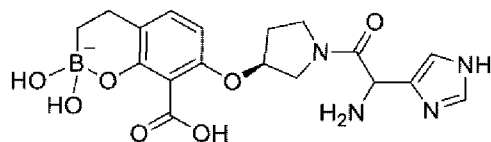
- 15 7-((1-(3S)-1-[amino(1H-imidazol-4-yl)acetyl]pyrrolidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid
[Chemical Formula 240]



- 20 8-((1-(3S)-1-[amino(1H-imidazol-4-yl)acetyl]pyrrolidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-

1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 241]

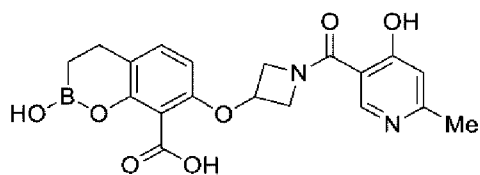


2-hydroxy-7-{[1-(4-hydroxy-6-methylpyridine-3-

5 carbonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-

benzoxaborinine-8-carboxylic acid

[Chemical Formula 242]

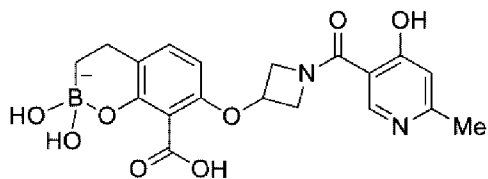


4,4-dihydroxy-8-{[1-(4-hydroxy-6-methylpyridine-3-

10 carbonyl)azetidin-3-yl]oxy}-5-oxa-4-

boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 243]

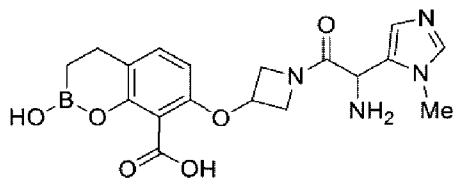


15 7-({1-[amino(1-methyl-1H-imidazol-5-yl)acetyl]azetidin-3-

yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-

carboxylic acid

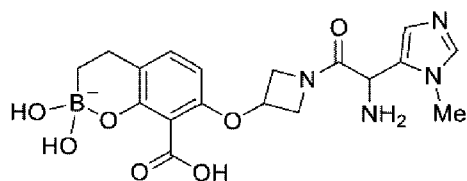
[Chemical Formula 244]



20 8-({1-[amino(1-methyl-1H-imidazol-5-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-

1(6),7,9-triene-7-carboxylic acid

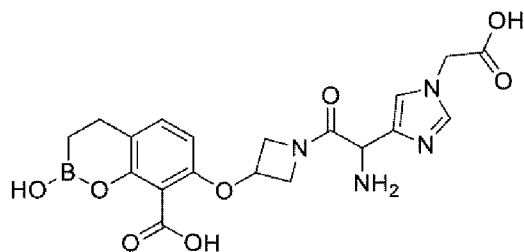
[Chemical Formula 245]



7-[(1-{amino[1-(carboxymethyl)-1H-imidazol-4-

5 yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

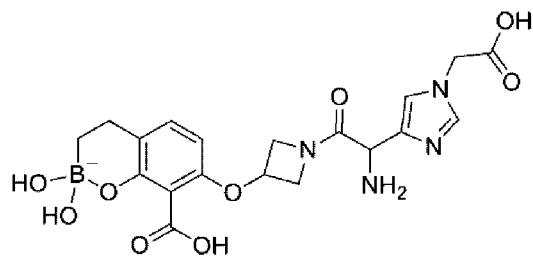
[Chemical Formula 246]



8-[(1-{amino[1-(carboxymethyl)-1H-imidazol-4-

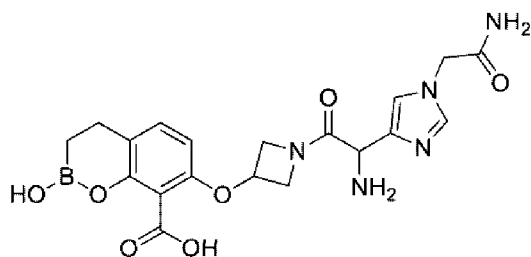
10 yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 247]



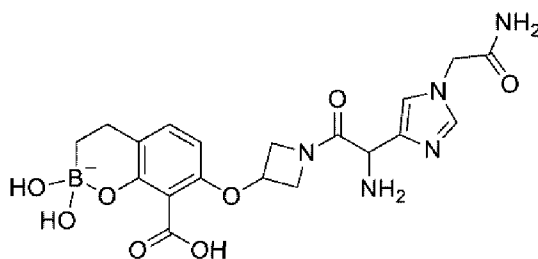
15 7-[(1-{amino[1-(2-amino-2-oxoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 248]



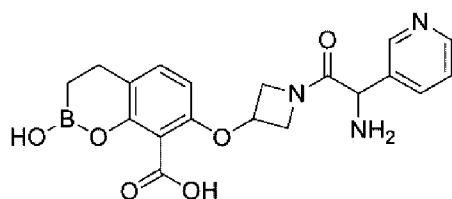
8-[(1-{amino[1-(2-amino-2-oxoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 249]



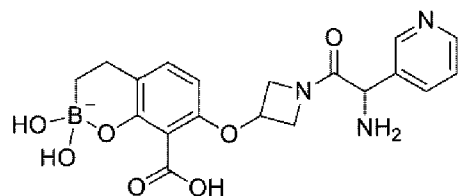
7-({1-[amino(pyridin-3-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 250]



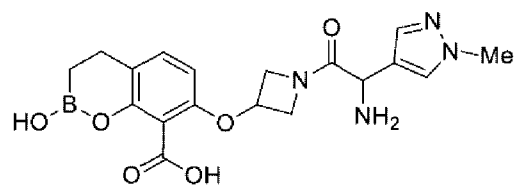
8-({1-[amino(pyridin-3-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 251]



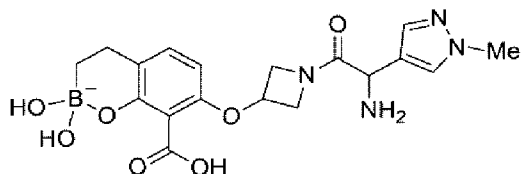
7-({1-[amino(1-methyl-1H-pyrazol-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 252]



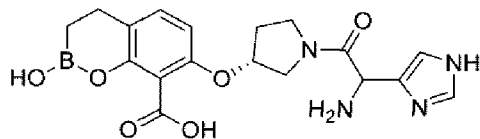
8-({1-[amino(1-methyl-1H-pyrazol-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 253]



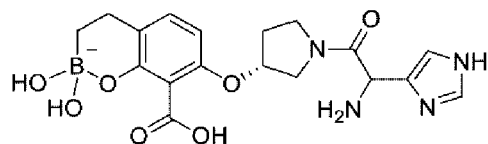
7-({(3R)-1-[amino(1H-imidazol-4-yl)acetyl]pyrrolidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 254]



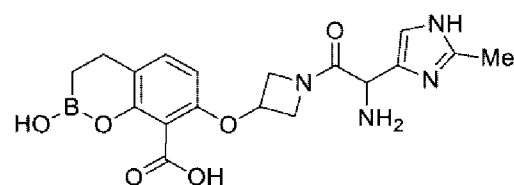
8-({(3R)-1-[amino(1H-imidazol-4-yl)acetyl]pyrrolidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 255]



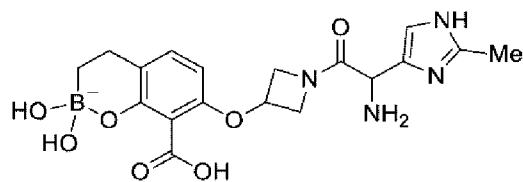
7-({1-[amino(2-methyl-1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 256]



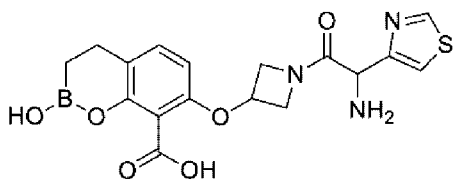
8-({1-[amino(2-methyl-1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 257]



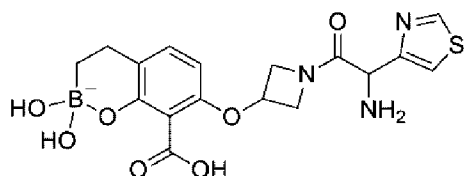
7-({1-[amino(1,3-thiazol-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 258]



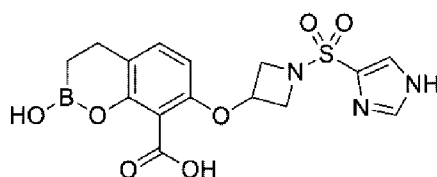
8-({1-[amino(1,3-thiazol-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 259]



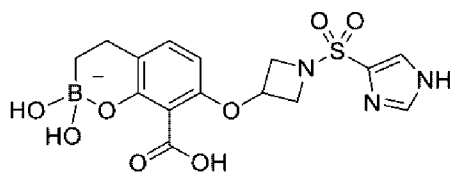
2-hydroxy-7-{[1-(1H-imidazole-4-sulfonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 260]



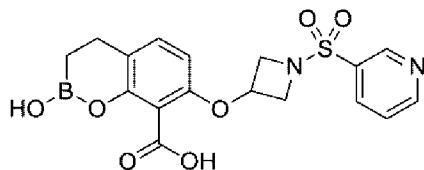
4,4-dihydroxy-8-{[1-(1H-imidazole-4-sulfonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 261]



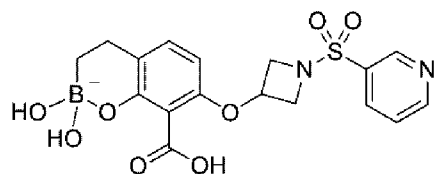
2-hydroxy-7-{[1-(pyridine-3-sulfonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 262]



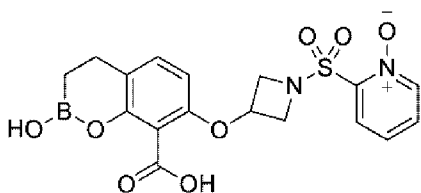
4,4-dihydroxy-8-{[1-(pyridine-3-sulfonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 263]



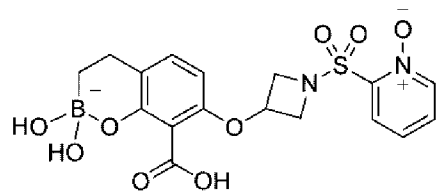
2-hydroxy-7-{[1-(1-oxo-1 λ^5 -pyridine-2-sulfonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 264]



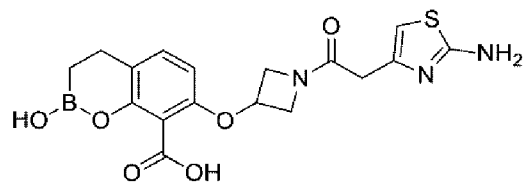
4,4-dihydroxy-8-{[1-(1-oxo-1 λ^5 -pyridine-2-sulfonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 265]



7-({1-[(2-amino-1,3-thiazol-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

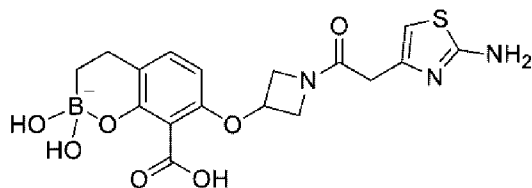
[Chemical Formula 266]



8-({1-[(2-amino-1,3-thiazol-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-

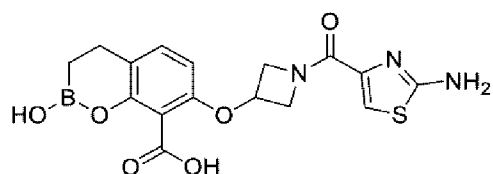
triene-7-carboxylic acid

[Chemical Formula 267]



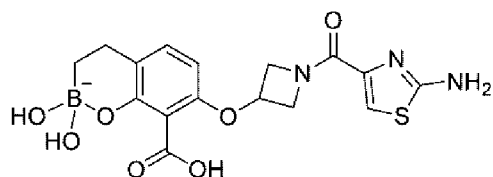
7-([1-(2-amino-1,3-thiazole-4-carbonyl)azetidin-3-yl]oxy)-
2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic
acid

[Chemical Formula 268]



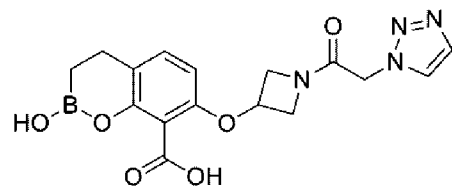
8-([1-(2-amino-1,3-thiazole-4-carbonyl)azetidin-3-yl]oxy)-
4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
triene-7-carboxylic acid

[Chemical Formula 269]



2-hydroxy-7-([1-[(1H-1,2,3-triazol-1-yl)acetyl]azetidin-3-
yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic
acid

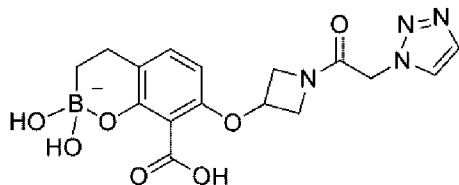
[Chemical Formula 270]



4,4-dihydroxy-8-([1-[(1H-1,2,3-triazol-1-
yl)acetyl]azetidin-3-yl]oxy)-5-oxa-4-

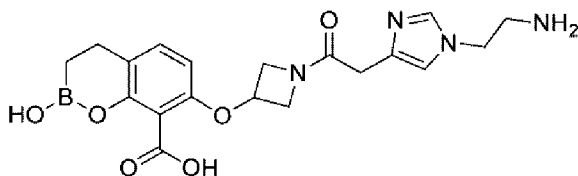
boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 271]



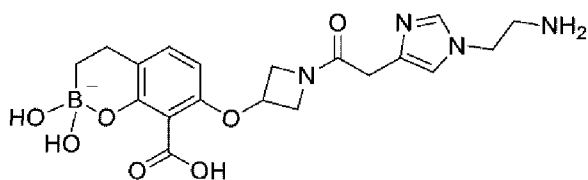
- 5 7-[(1-{[1-(2-aminoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 272]



- 10 8-[(1-{[1-(2-aminoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

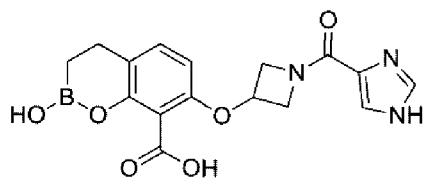
[Chemical Formula 273]



15

2-hydroxy-7-{[1-(1H-imidazole-4-carbonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

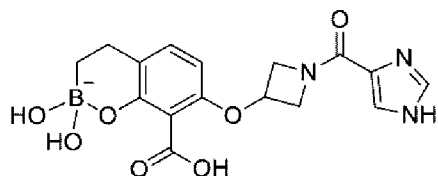
[Chemical Formula 274]



20

4,4-dihydroxy-8-{{[1-(1H-imidazole-4-carbonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

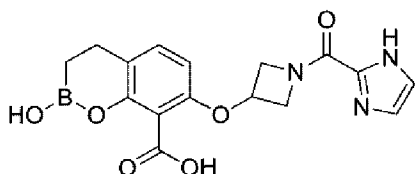
[Chemical Formula 275]



5

2-hydroxy-7-{{[1-(1H-imidazole-2-carbonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

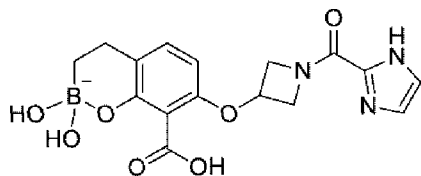
[Chemical Formula 276]



10

4,4-dihydroxy-8-{{[1-(1H-imidazole-2-carbonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

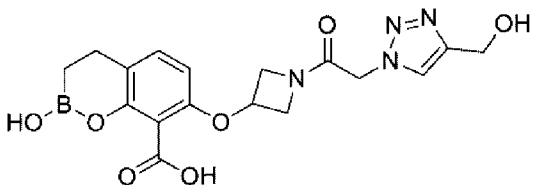
[Chemical Formula 277]



15

2-hydroxy-7-[(1-{{[4-(hydroxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl})oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

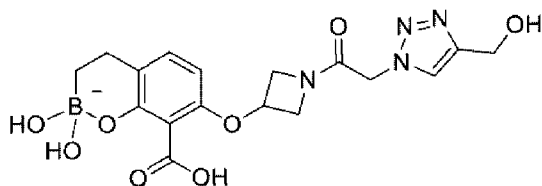
[Chemical Formula 278]



20

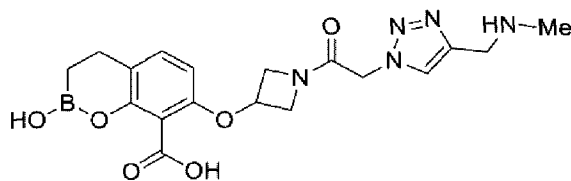
4,4-dihydroxy-8-[(1-{[4-(hydroxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

5 [Chemical Formula 279]



2-hydroxy-7-{[1-({4-[(methylamino)methyl]-1H-1,2,3-triazol-1-yl}acetyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

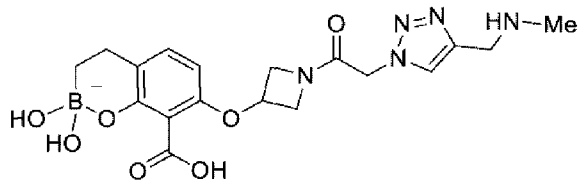
10 [Chemical Formula 280]



4,4-dihydroxy-8-{[1-({4-[(methylamino)methyl]-1H-1,2,3-triazol-1-yl}acetyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

15

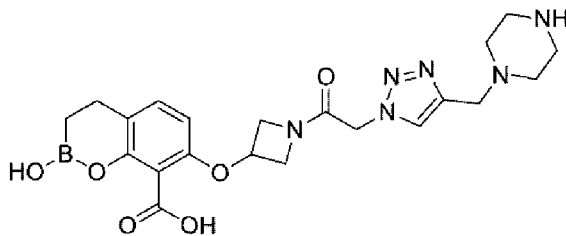
[Chemical Formula 281]



2-hydroxy-7-{[1-({4-[(piperazin-1-yl)methyl]-1H-1,2,3-triazol-1-yl}acetyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

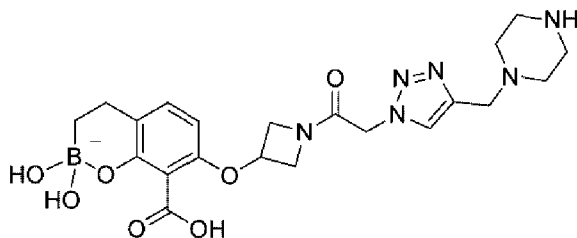
20

[Chemical Formula 282]



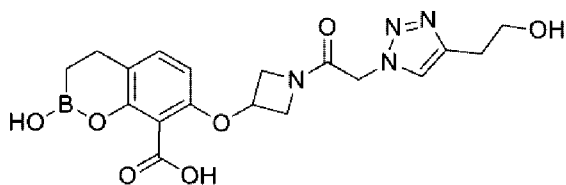
4,4-dihydroxy-8-([1-([4-[(piperazin-1-yl)methyl]-1H-1,2,3-triazol-1-yl]acetyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 283]



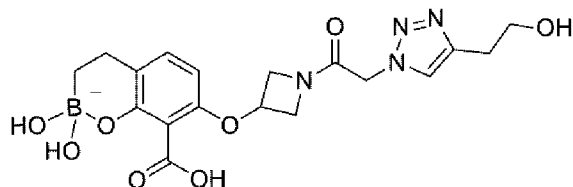
2-hydroxy-7-[(1-([4-(2-hydroxyethyl)-1H-1,2,3-triazol-1-yl]acetyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 284]



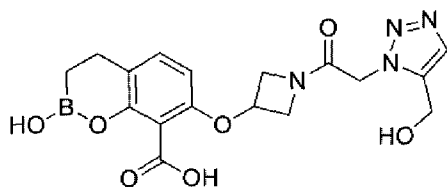
4,4-dihydroxy-8-[(1-([4-(2-hydroxyethyl)-1H-1,2,3-triazol-1-yl]acetyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 285]



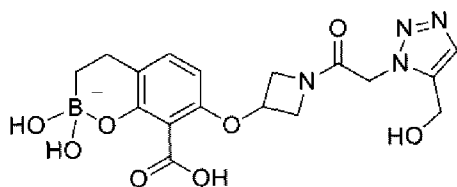
2-hydroxy-7-[(1-([5-(hydroxymethyl)-1H-1,2,3-triazol-1-yl]acetyl)azetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 286]



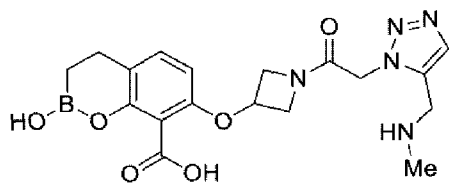
4,4-dihydroxy-8-[(1-([5-(hydroxymethyl)-1H-1,2,3-triazol-1-yl]acetyl)azetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 287]



2-hydroxy-7-([1-([5-[(methylamino)methyl]-1H-1,2,3-triazol-1-yl]acetyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

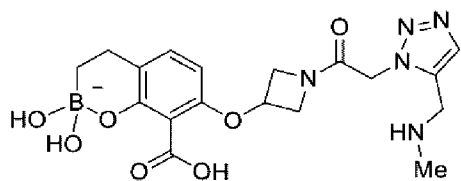
[Chemical Formula 288]



4,4-dihydroxy-8-([1-([5-[(methylamino)methyl]-1H-1,2,3-triazol-1-yl]acetyl)azetidin-3-yl]oxy)-5-oxa-4-

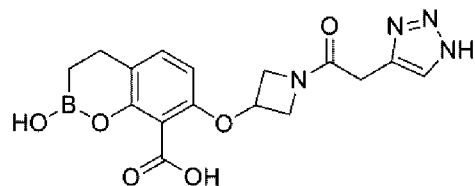
boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 289]



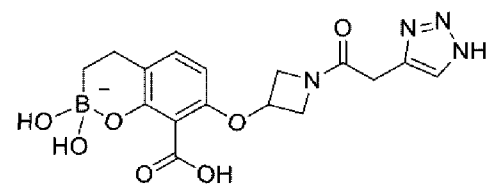
- 5 2-hydroxy-7-((1-((1H-1,2,3-triazol-4-yl)acetyl)azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 290]



- 10 4,4-dihydroxy-8-((1-((1H-1,2,3-triazol-4-yl)acetyl)azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

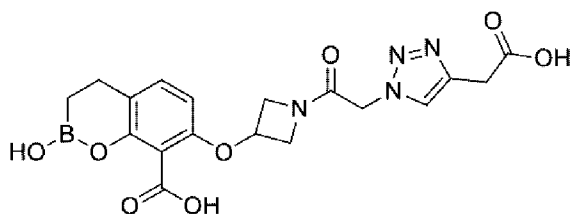
[Chemical Formula 291]



15

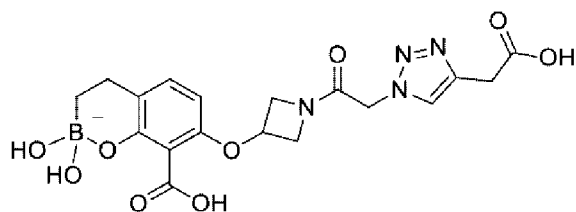
7-((1-([4-(carboxymethyl)-1H-1,2,3-triazol-1-yl]acetyl)azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 292]



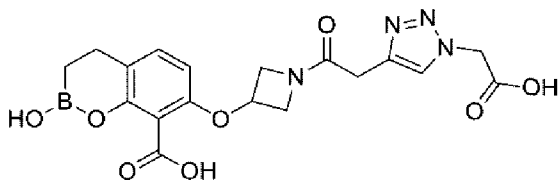
8-[(1-{[4-(carboxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 293]



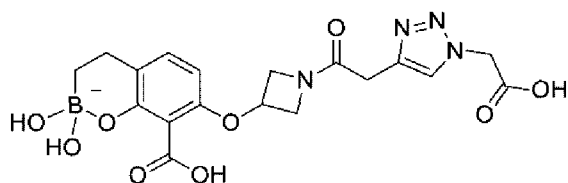
7-[(1-{[1-(carboxymethyl)-1H-1,2,3-triazol-4-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 294]



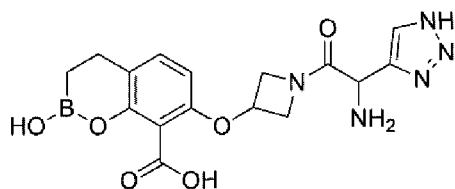
8-[(1-{[1-(carboxymethyl)-1H-1,2,3-triazol-4-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 295]



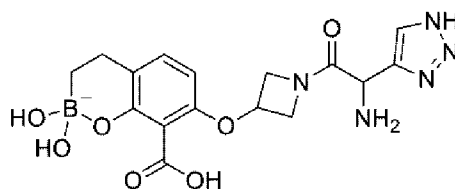
7-({1-[amino(1H-1,2,3-triazol-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 296]



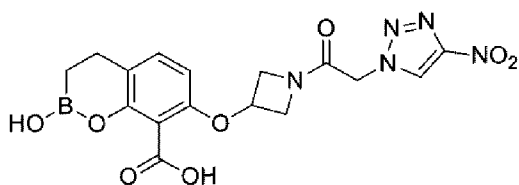
8-({1-[amino(1H-1,2,3-triazol-4-yl)acetyl]azetidin-3-yl}oxy-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 297]



2-hydroxy-7-({1-[(4-nitro-1H-1,2,3-triazol-1-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

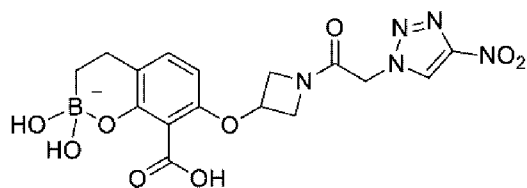
[Chemical Formula 298]



4,4-dihydroxy-8-({1-[(4-nitro-1H-1,2,3-triazol-1-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic

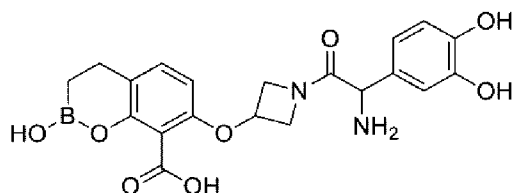
acid

[Chemical Formula 299]



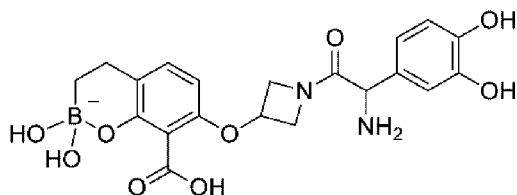
7-({1-[amino(3,4-dihydroxyphenyl)acetyl]azetidin-3-yl}oxy)-
2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic
acid

[Chemical Formula 300]



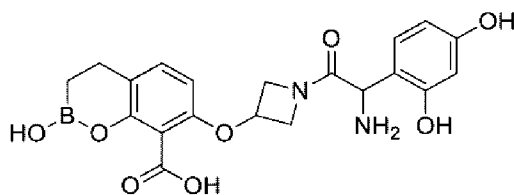
8-({1-[amino(2,4-dihydroxyphenyl)acetyl]azetidin-3-yl}oxy)-
4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
triene-7-carboxylic acid

[Chemical Formula 301]



7-({1-[amino(2,4-dihydroxyphenyl)acetyl]azetidin-3-yl}oxy)-
2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic
acid

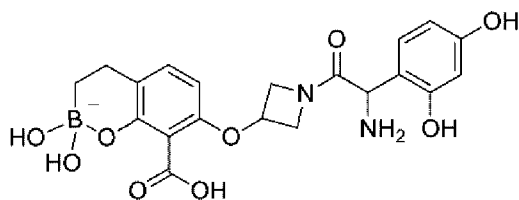
[Chemical Formula 302]



8-({1-[amino(2,4-dihydroxyphenyl)acetyl]azetidin-3-yl}oxy)-
4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-

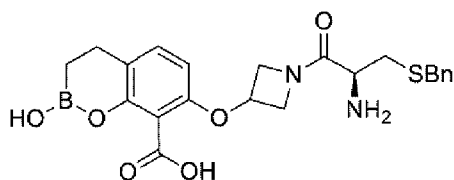
triene-7-carboxylic acid

[Chemical Formula 303]



7-([1-(S-benzyl-D-cysteinyloxy)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

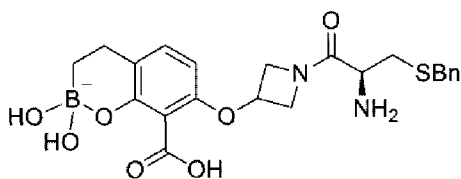
[Chemical Formula 304]



8-([1-(S-benzyl-D-cysteinyloxy)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-

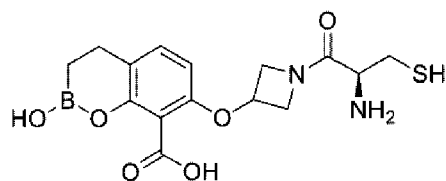
10 triene-7-carboxylic acid

[Chemical Formula 305]



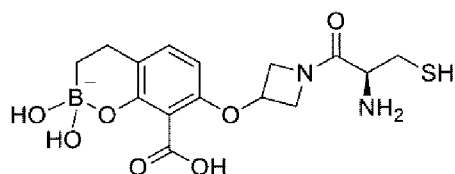
7-([1-(D-cysteinyloxy)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 306]



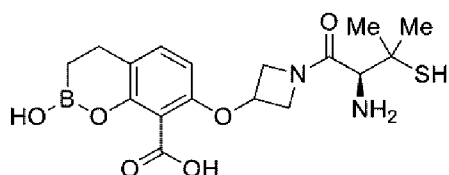
7-([1-(D-cysteinyloxy)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 307]



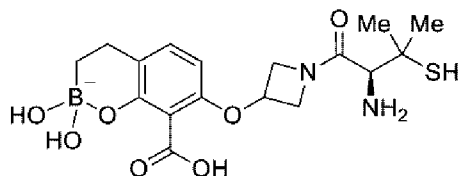
2-hydroxy-7-{[1-(3-sulfanyl-D-valyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 308]



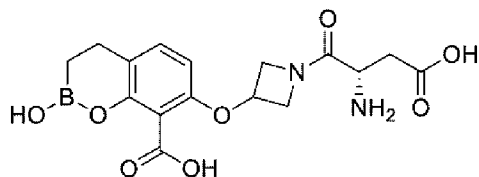
4,4-dihydroxy-8-{[1-(3-sulfanyl-D-valyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 309]



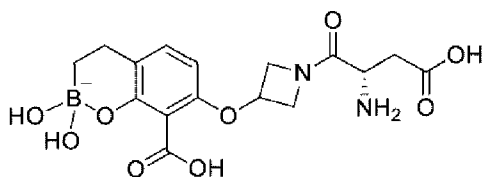
7-({1-[(2S)-2-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 310]



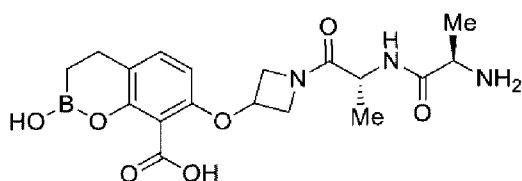
8-({1-[(2S)-2-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 311]



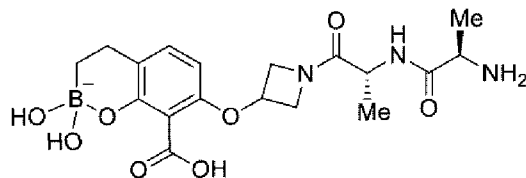
7-([1-(D-alanyl-D-alanyl)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 312]



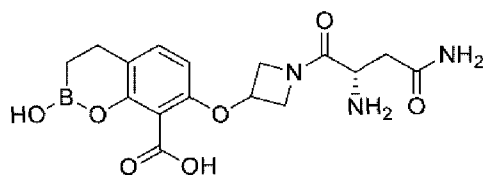
8-([1-(D-alanyl-D-alanyl)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 313]



7-([1-(L-asparaginylazetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

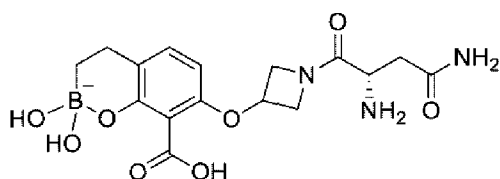
[Chemical Formula 314]



15

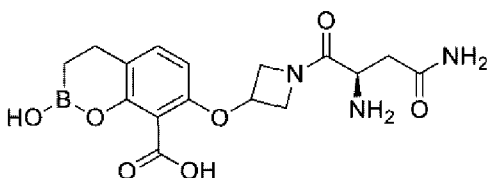
8-([1-(L-asparaginylazetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 315]



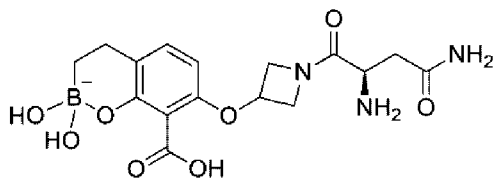
7-[(1-D-asparaginylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 316]



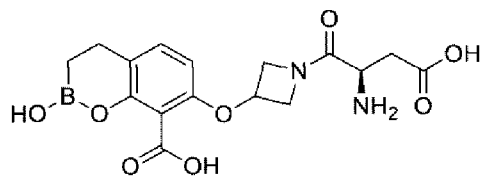
8-[(1-D-asparaginylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 317]



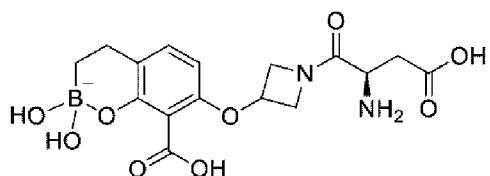
7-[(1-[(2R)-2-amino-3-carboxypropanoyl]azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 318]



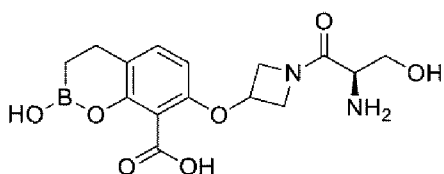
8-[(1-[(2R)-2-amino-3-carboxypropanoyl]azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 319]



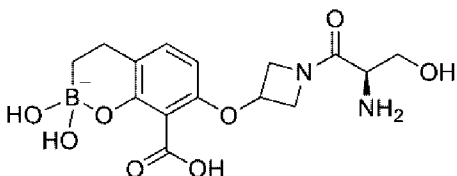
2-hydroxy-7-[(1-D-serylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 320]



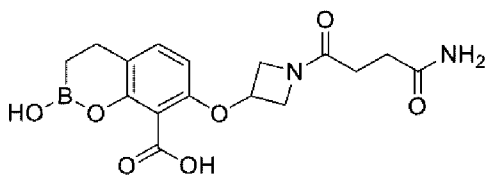
4,4-dihydroxy-8-[(1-D-serylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 321]



7-[[1-(4-amino-4-oxobutanoyl)azetidin-3-yl]oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

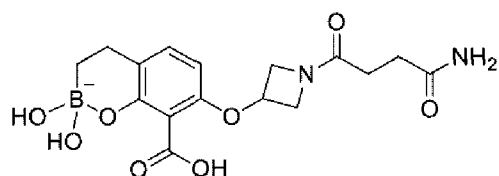
[Chemical Formula 322]



15

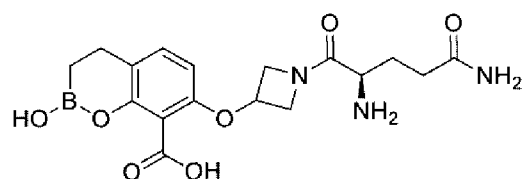
8-[[1-(4-amino-4-oxobutanoyl)azetidin-3-yl]oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 323]



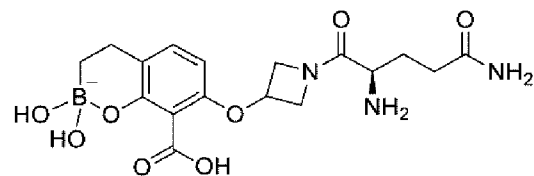
7-[(1-D-glutaminylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 324]



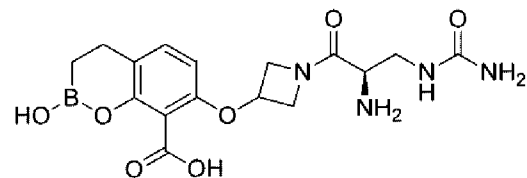
8-[(1-D-glutaminylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 325]



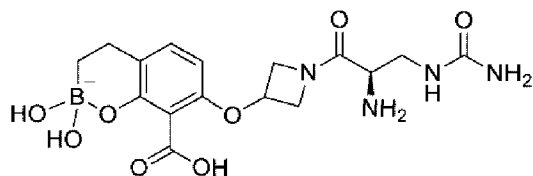
7-[(1-[3-(carbamoylamino)-D-alanyl]azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 326]



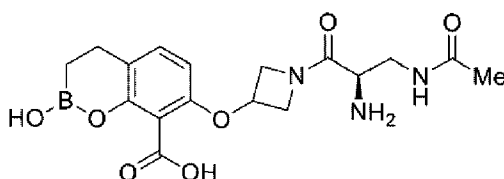
8-[(1-[3-(carbamoylamino)-D-alanyl]azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 327]



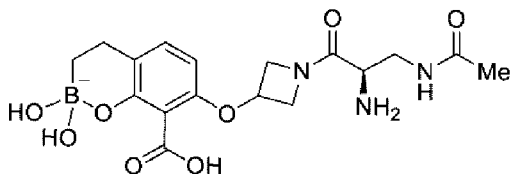
7-([1-(3-acetamido-D-alanyl)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 328]



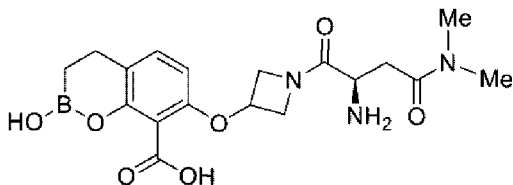
8-([1-(3-acetamido-D-alanyl)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 329]



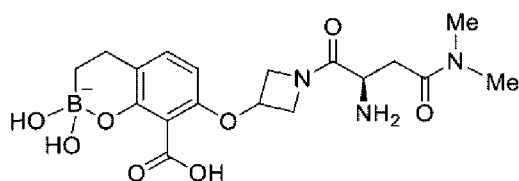
7-([1-(N,N-dimethyl-D-asparaginy)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 330]



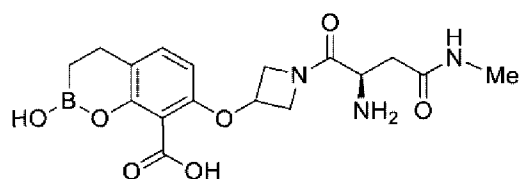
8-([1-(N,N-dimethyl-D-asparaginy)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 331]



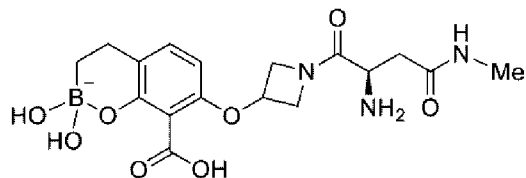
2-hydroxy-7-{[1-(N-methyl-D-asparaginy)azetidin-3-yl]oxy}-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 332]



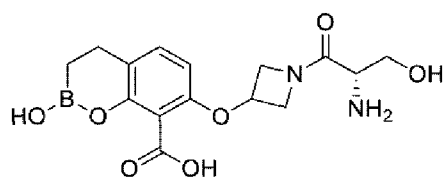
4,4-dihydroxy-8-{[1-(N-methyl-D-asparaginy)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 333]



2-hydroxy-7-[(1-L-serylazetidin-3-yl)oxy]-3,4-dihydro-2H-
1,2-benzoxaborinine-8-carboxylic acid

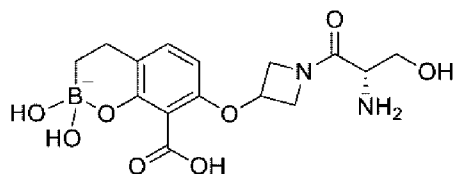
[Chemical Formula 334]



15

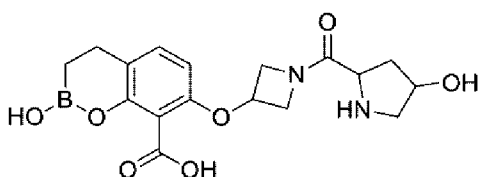
4,4-dihydroxy-8-[(1-L-serylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 335]



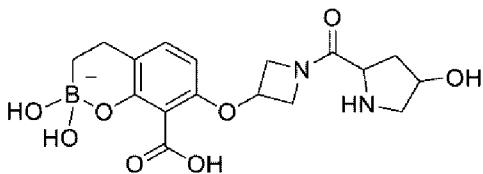
2-hydroxy-7-{[1-(4-hydroxypropyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 336]



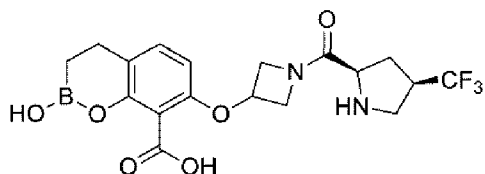
4,4-dihydroxy-8-{[1-(4-hydroxypropyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 337]



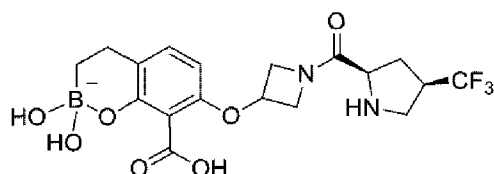
2-hydroxy-7-({1-[(4R)-4-(trifluoromethyl)-D-propyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 338]



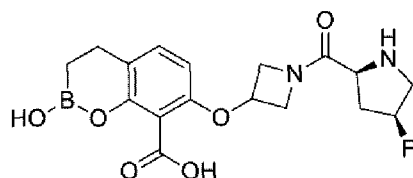
4,4-dihydroxy-8-({1-[(4R)-4-(trifluoromethyl)-D-propyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 339]



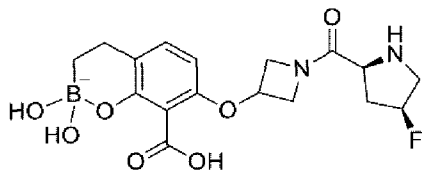
7-({1-[(4S)-4-fluoro-L-prolyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 340]



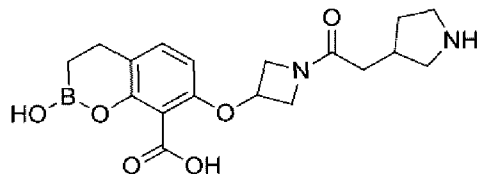
8-({1-[(4S)-4-fluoro-L-prolyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 341]



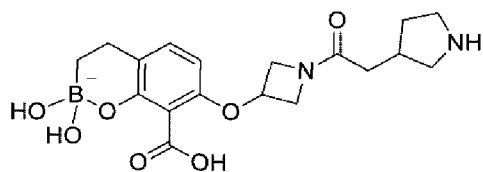
2-hydroxy-7-({1-[(pyrrolidin-3-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 342]



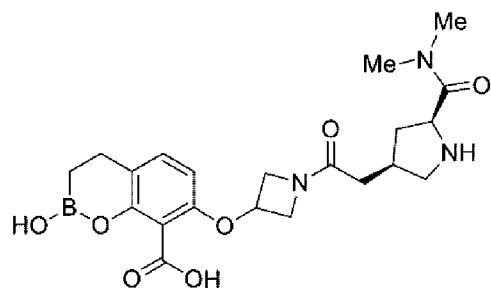
4,4-dihydroxy-8-({1-[(pyrrolidin-3-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 343]



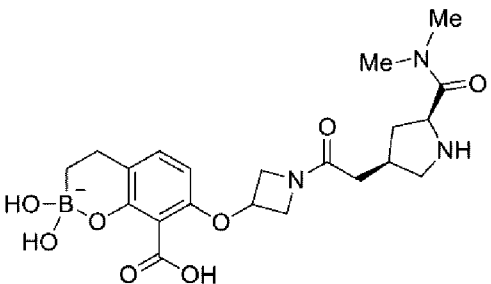
7-[(1-[(3R,5S)-5-(dimethylcarbamoyl)pyrrolidin-3-yl]acetyl)azetidin-3-yl]oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 344]



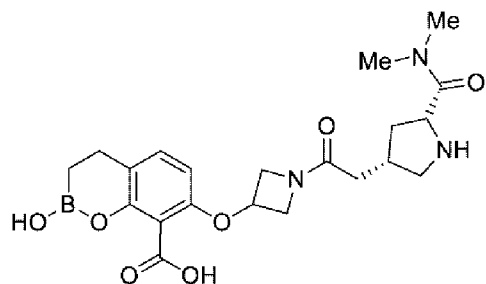
8-[(1-[(3R,5S)-5-(dimethylcarbamoyl)pyrrolidin-3-yl]acetyl)azetidin-3-yl]oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 345]



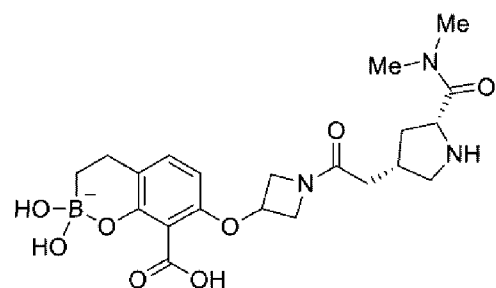
7-[(1-[(3S,5R)-5-(dimethylcarbamoyl)pyrrolidin-3-yl]acetyl)azetidin-3-yl]oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 346]



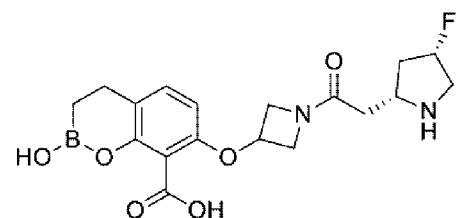
8-[(1-[(3S,5R)-5-(dimethylcarbamoyl)pyrrolidin-3-yl]acetyl]azetidin-3-yl]oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 347]



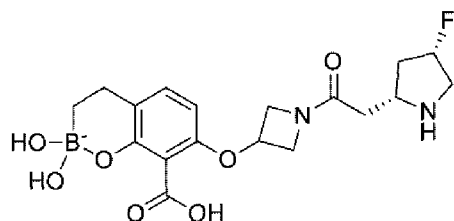
7-[(1-[(2R,4S)-4-fluoropyrrolidin-2-yl]acetyl]azetidin-3-yl]oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 348]



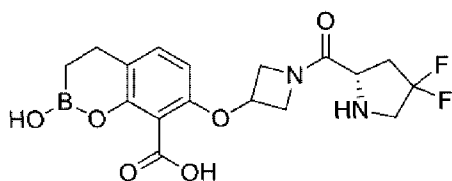
8-[(1-[(2R,4S)-4-fluoropyrrolidin-2-yl]acetyl]azetidin-3-yl]oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 349]



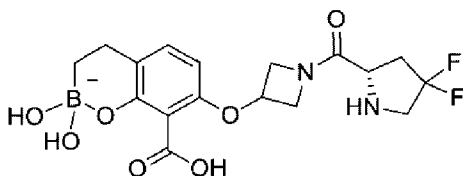
7-([1-(4,4-difluoro-L-prolyl)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 350]



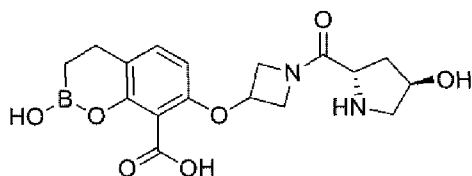
8-([1-(4,4-difluoro-L-prolyl)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 351]



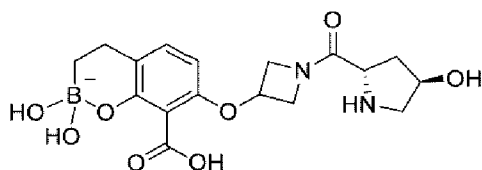
2-hydroxy-7-([1-[(4R)-4-hydroxy-L-prolyl]azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 352]



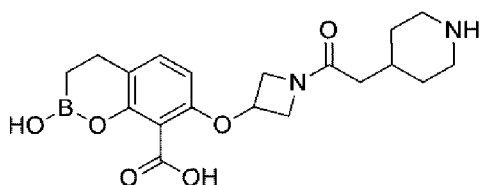
4,4-dihydroxy-8-([1-[(4R)-4-hydroxy-L-prolyl]azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 353]



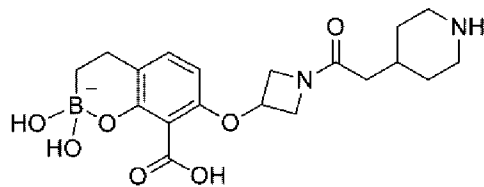
2-hydroxy-7-({1-[(piperidin-4-yl)acetyl]azetidin-3-yl}oxy)-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 354]



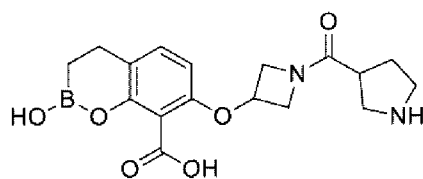
4,4-dihydroxy-8-({1-[(piperidin-4-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
triene-7-carboxylic acid

10 [Chemical Formula 355]



2-hydroxy-7-([1-(pyrrolidine-3-carbonyl)azetidin-3-yl]oxy)-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

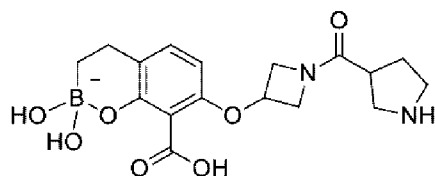
[Chemical Formula 356]



15

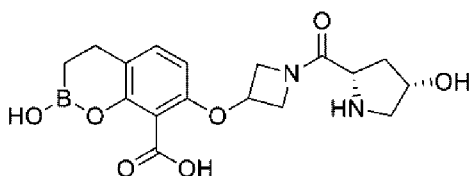
4,4-dihydroxy-8-([1-(pyrrolidine-3-carbonyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
triene-7-carboxylic acid

[Chemical Formula 357]



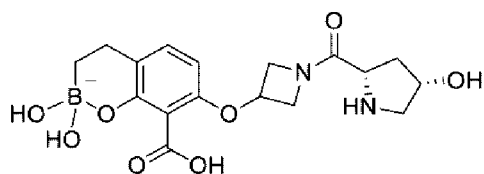
2-hydroxy-7-((1-[(4S)-4-hydroxy-L-propyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 358]



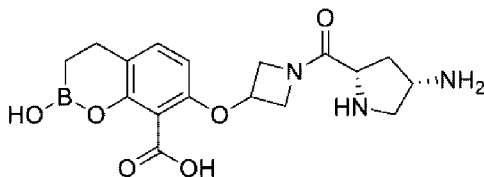
4,4-dihydroxy-8-((1-[(4S)-4-hydroxy-L-propyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 359]



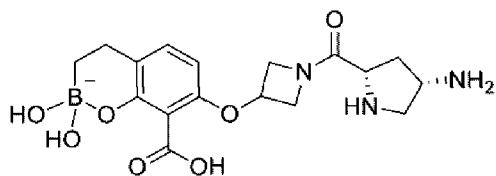
7-((1-[(4S)-4-amino-L-propyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 360]



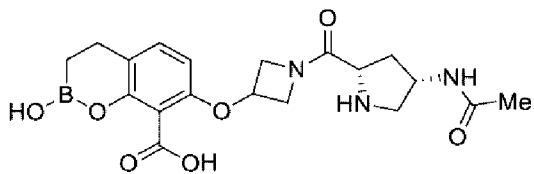
8-((1-[(4S)-4-amino-L-propyl]azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 361]



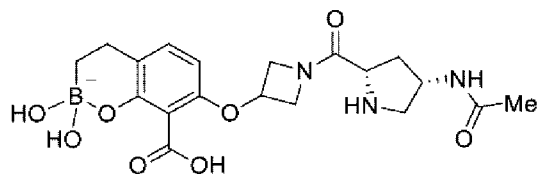
7-((1-((4S)-4-acetamido-L-prolyl)azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 362]



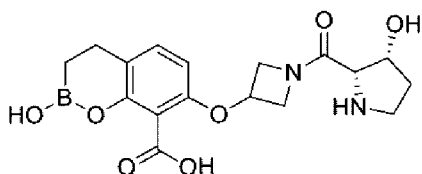
8-((1-((4S)-4-acetamido-L-prolyl)azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 363]



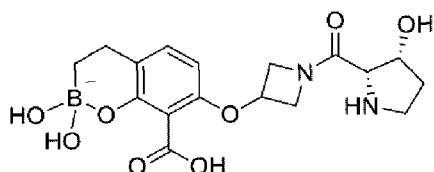
2-hydroxy-7-((1-((3R)-3-hydroxy-L-prolyl)azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 364]



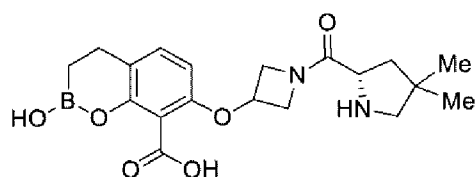
4,4-dihydroxy-8-((1-((3R)-3-hydroxy-L-prolyl)azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 365]



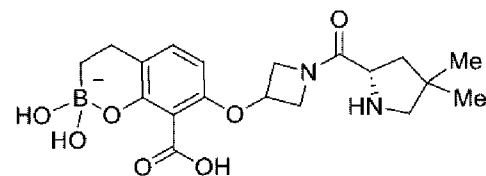
7-([1-(4,4-dimethyl-L-prolyl)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 366]



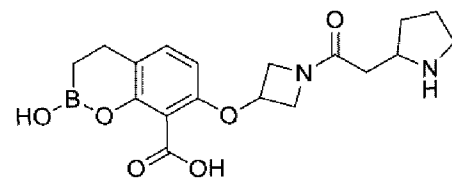
8-([1-(4,4-dimethyl-L-prolyl)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 367]



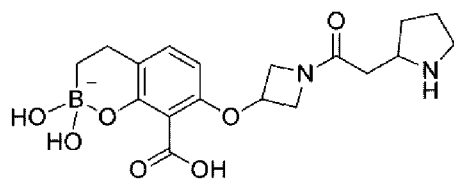
2-hydroxy-7-([1-[(pyrrolidin-2-yl)acetyl]azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 368]



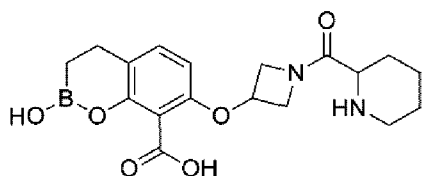
4,4-dihydroxy-8-([1-[(pyrrolidin-2-yl)acetyl]azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 369]



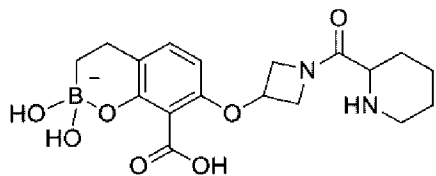
2-hydroxy-7-{[1-(piperidine-2-carbonyl)azetidin-3-yl]oxy}-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 370]



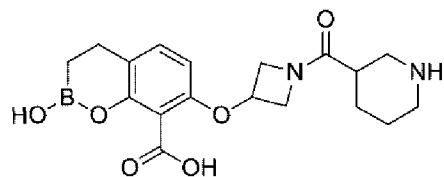
4,4-dihydroxy-8-{[1-(piperidine-2-carbonyl)azetidin-3-yl]oxy}-
5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
triene-7-carboxylic acid

10 [Chemical Formula 371]



2-hydroxy-7-{[1-(piperidine-3-carbonyl)azetidin-3-yl]oxy}-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

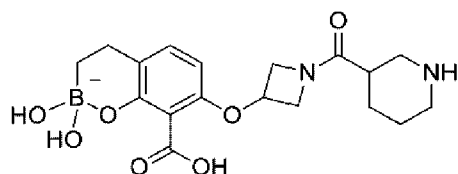
[Chemical Formula 372]



15

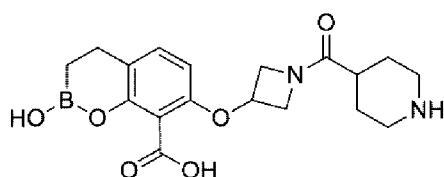
4,4-dihydroxy-8-{[1-(piperidine-3-carbonyl)azetidin-3-yl]oxy}-
5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
triene-7-carboxylic acid

[Chemical Formula 373]



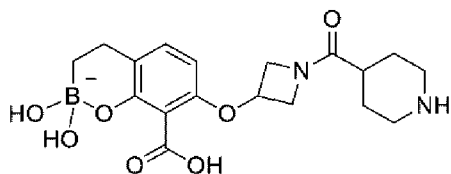
2-hydroxy-7-{[1-(piperidine-4-carbonyl)azetidin-3-yl]oxy}-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 374]



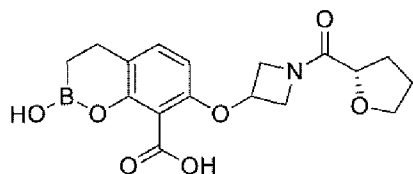
4,4-dihydroxy-8-{[1-(piperidine-4-carbonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 375]



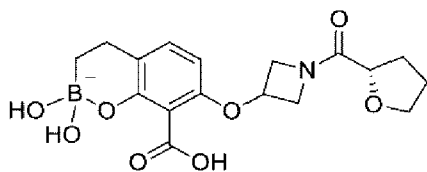
2-hydroxy-7-({1-[(2S)-oxolane-2-carbonyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 376]



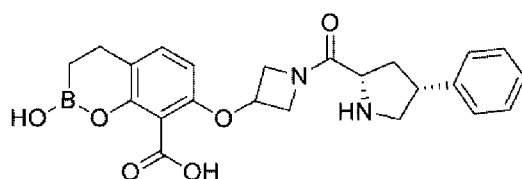
4,4-dihydroxy-8-({1-[(2S)-oxolane-2-carbonyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 377]



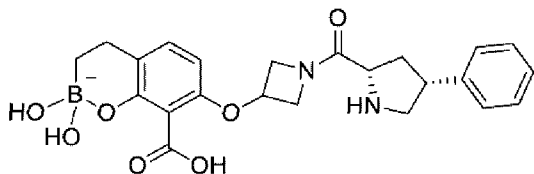
2-hydroxy-7-({1-[(4R)-4-phenyl-L-prolyl]azetidin-3-yl}oxy)-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 378]



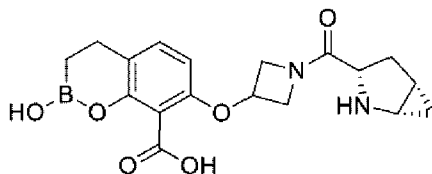
4,4-dihydroxy-8-({1-[(4R)-4-phenyl-L-prolyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 379]



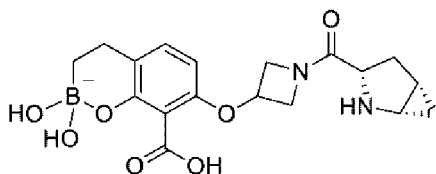
7-({1-[(1S,3S,5S)-2-azabicyclo[3.1.0]hexane-3-carbonyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 380]



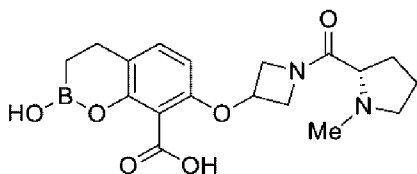
8-({1-[(1S,3S,5S)-2-azabicyclo[3.1.0]hexane-3-carbonyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic
20 acid

[Chemical Formula 381]



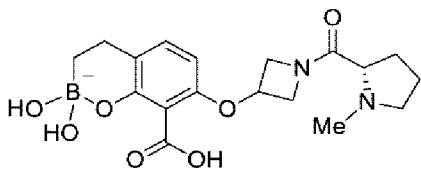
2-hydroxy-7-{[1-(1-methyl-L-prolyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 382]



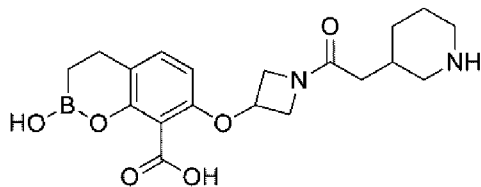
4,4-dihydroxy-8-{[1-(1-methyl-L-prolyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 383]



2-hydroxy-7-({1-[(piperidin-3-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

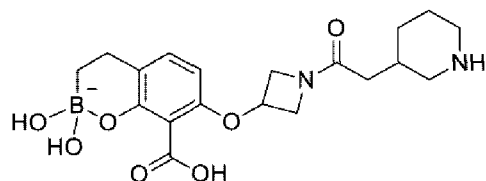
[Chemical Formula 384]



15

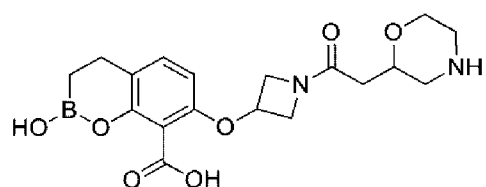
4,4-dihydroxy-8-({1-[(piperidin-3-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 385]



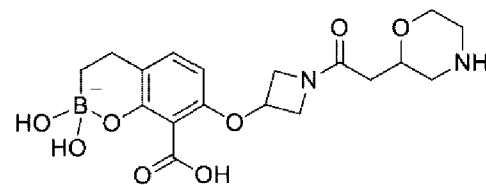
2-hydroxy-7-({1-[(morpholin-2-yl)acetyl]azetidin-3-yl}oxy)-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 386]



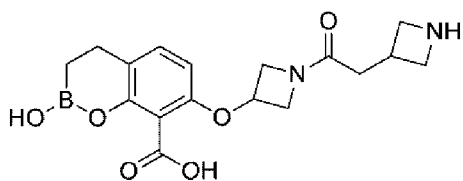
4,4-dihydroxy-8-({1-[(morpholin-2-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 387]



7-({1-[(azetidin-3-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

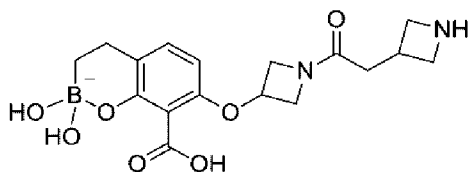
[Chemical Formula 388]



15

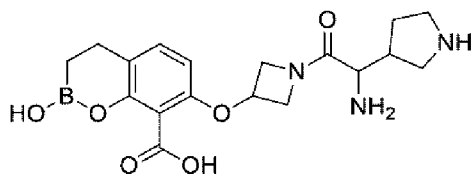
8-({1-[(azetidin-3-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 389]



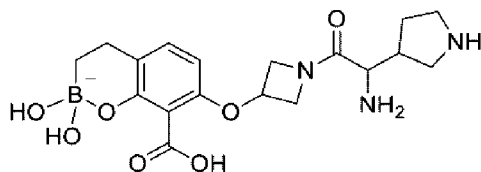
7-({1-[amino(pyrrolidin-3-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 390]



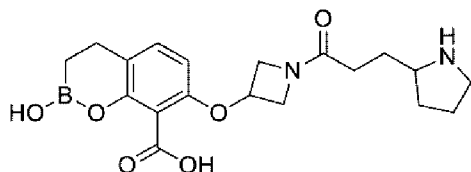
8-({1-[amino(pyrrolidin-3-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 391]



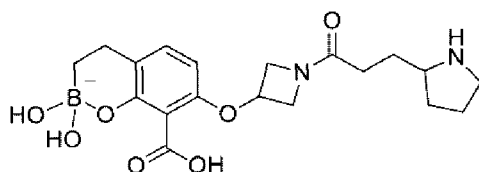
2-hydroxy-7-({1-[3-(pyrrolidin-2-yl)propanoyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 392]



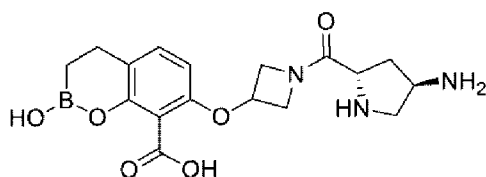
4,4-dihydroxy-8-({1-[3-(pyrrolidin-2-yl)propanoyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 393]



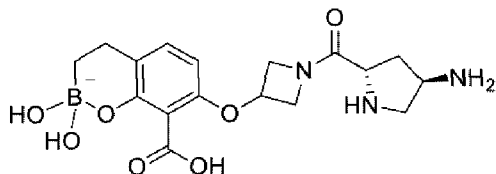
7-({1-[(4R)-4-amino-L-prolyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 394]



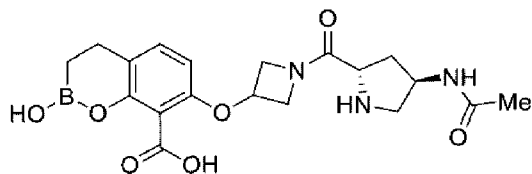
8-({1-[(4R)-4-amino-L-prolyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 395]



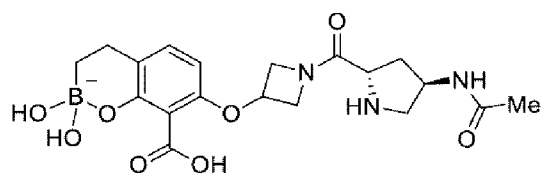
7-({1-[(4R)-4-acetamido-L-prolyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

15 [Chemical Formula 396]



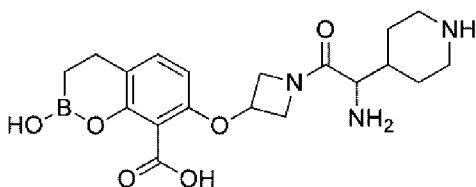
8-({1-[(4R)-4-acetamido-L-prolyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 397]



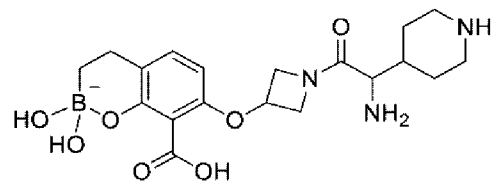
7-({1-[amino(piperidin-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 398]



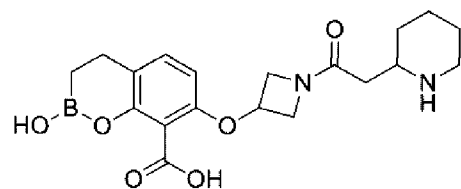
8-({1-[amino(piperidin-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 399]



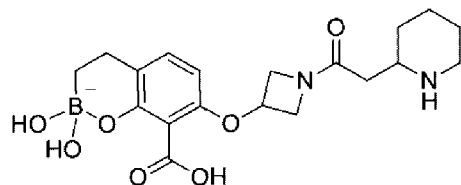
2-hydroxy-7-({1-[(piperidin-2-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 400]



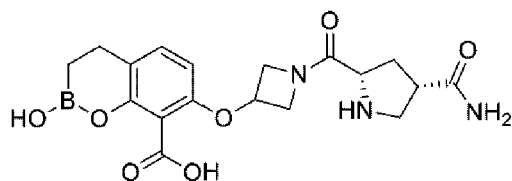
4,4-dihydroxy-8-({1-[(piperidin-2-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 401]



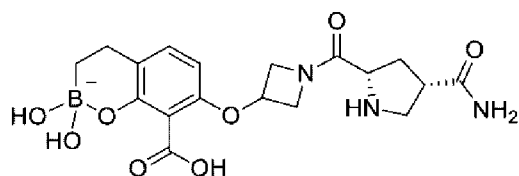
7-((1-((4S)-4-carbamoyl-L-prolyl)azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 402]



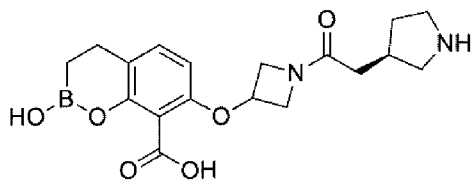
8-((1-((4S)-4-carbamoyl-L-prolyl)azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 403]



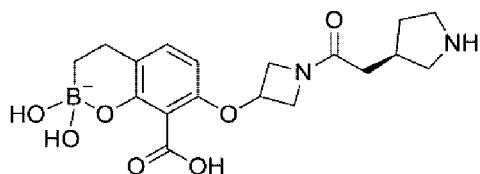
2-hydroxy-7-((1-((3R)-pyrrolidin-3-yl)acetyl)azetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborine-8-carboxylic acid

[Chemical Formula 404]



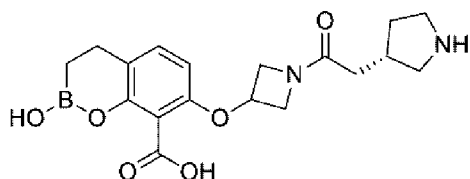
4,4-dihydroxy-8-((1-((3R)-pyrrolidin-3-yl)acetyl)azetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 405]



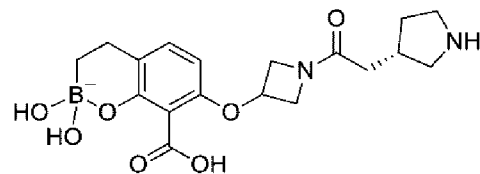
2-hydroxy-7-[(1-[(3S)-pyrrolidin-3-yl]acetyl)azetidin-3-yl]oxy]-3,4-dihydro-2H-1,2-benzoxaborine-8-carboxylic acid

5 [Chemical Formula 406]



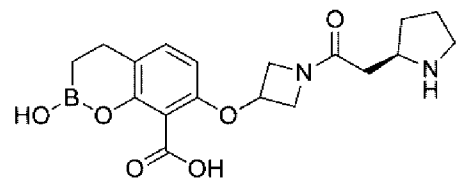
4,4-dihydroxy-8-[(1-[(3S)-pyrrolidin-3-yl]acetyl)azetidin-3-yl]oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 407]



2-hydroxy-7-[(1-[(2R)-pyrrolidin-2-yl]acetyl)azetidin-3-yl]oxy]-3,4-dihydro-2H-1,2-benzoxaborine-8-carboxylic acid

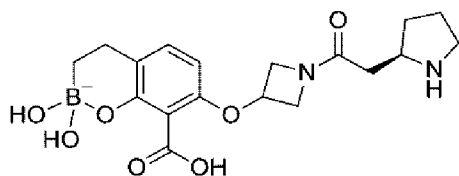
[Chemical Formula 408]



15

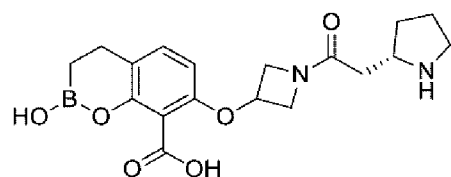
4,4-dihydroxy-8-[(1-[(2R)-pyrrolidin-2-yl]acetyl)azetidin-3-yl]oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 409]



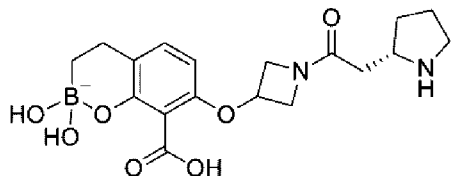
2-hydroxy-7-[(1-[(2S)-pyrrolidin-2-yl]acetyl]azetidin-3-yl]oxy-3,4-dihydro-2H-1,2-benzoxaborine-8-carboxylic acid

5 [Chemical Formula 410]



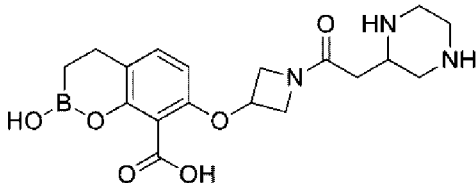
4,4-dihydroxy-8-[(1-[(2S)-pyrrolidin-2-yl]acetyl]azetidin-3-yl]oxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 411]



2-hydroxy-7-[(1-[(piperazin-2-yl)acetyl]azetidin-3-yl]oxy-3,4-dihydro-2H-1,2-benzoxaborine-8-carboxylic acid

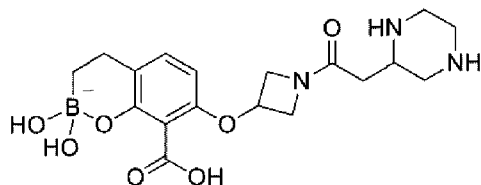
[Chemical Formula 412]



15

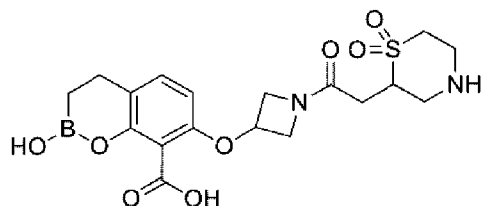
4,4-dihydroxy-8-[(1-[(piperazin-2-yl)acetyl]azetidin-3-yl]oxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 413]



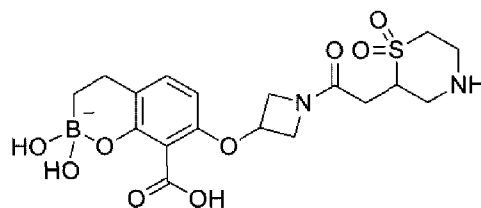
7-({1-[(1,1-dioxo-1λ⁶-thiomorpholin-2-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 414]



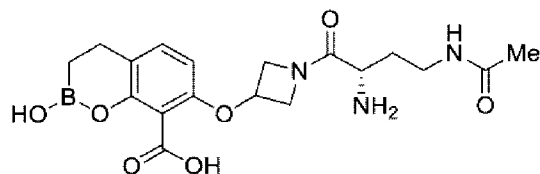
8-({1-[(1,1-dioxo-1λ⁶-thiomorpholin-2-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 415]



7-({1-[(2S)-4-acetamido-2-aminobutanoyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

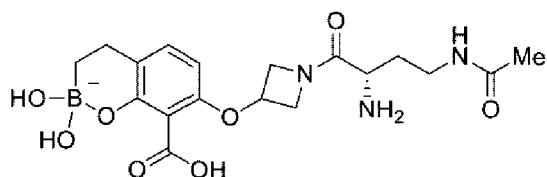
[Chemical Formula 416]



8-({1-[(2S)-4-acetamido-2-aminobutanoyl]azetidin-3-yl}oxy)-

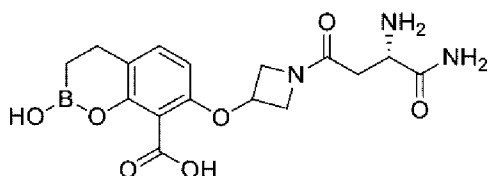
4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 417]



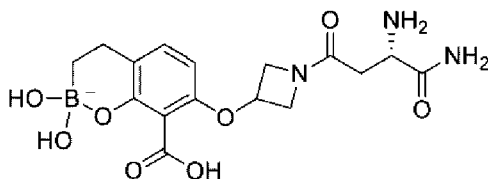
5 7-[[1-(L- α -asparaginy)l]azetidin-3-yl]oxy}-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 418]



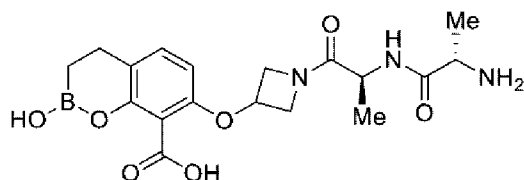
8-[[1-(L- α -asparaginy)l]azetidin-3-yl]oxy}-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 419]



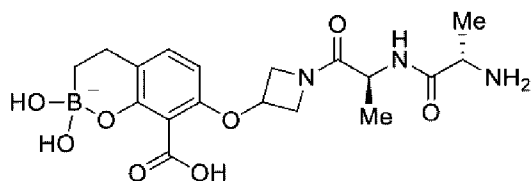
7-[[1-(L-alanyl-L-alanyl)azetidin-3-yl]oxy}-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 420]



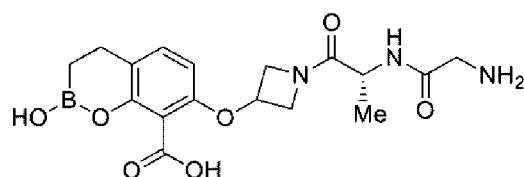
8-[[1-(L-alanyl-L-alanyl)azetidin-3-yl]oxy}-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 421]



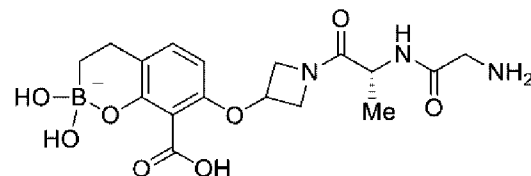
7-([1-(glycyl-D-alanyl)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 422]



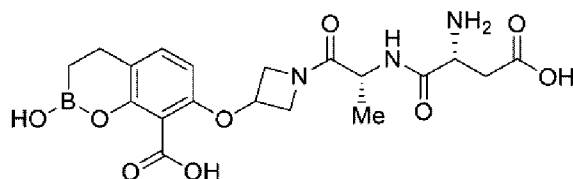
8-([1-(glycyl-D-alanyl)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 423]



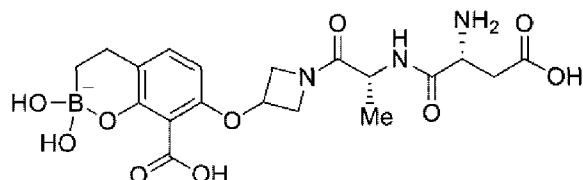
N-[(2R)-1-{3-[(8-carboxy-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-7-yl]oxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-α-asparagine

15 [Chemical Formula 424]



N-[(2R)-1-{3-[(7-carboxy-4,4-hydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-trien-8-yl]oxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-α-asparagine

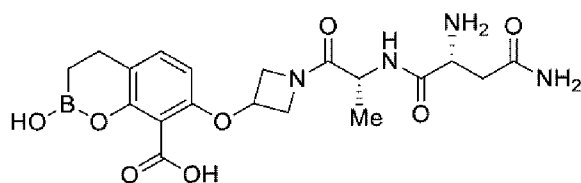
[Chemical Formula 425]



N¹-[(2R)-1-{3-[(8-carboxy-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinin-7-yl)oxy]azetidin-1-yl}-1-oxopropan-2-yl]-

5 D-aspartamide

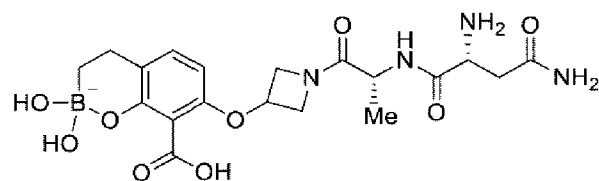
[Chemical Formula 426]



N¹-[(2R)-1-{3-[(7-carboxy-4,4-hydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-trien-8-

10 yl)oxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-aspartamide

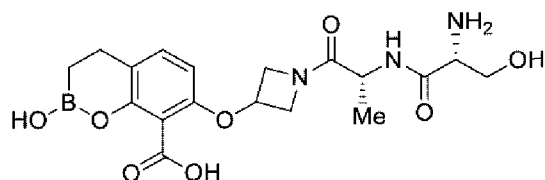
[Chemical Formula 427]



N-[(2R)-1-{3-[(8-carboxy-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinin-7-yl)oxy]azetidin-1-yl}-1-oxopropan-2-yl]-

15 D-serinamide

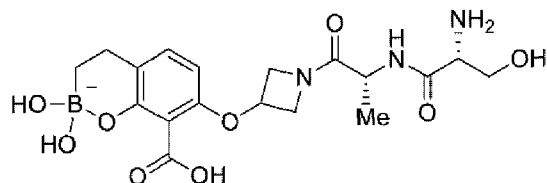
[Chemical Formula 428]



N-[(2R)-1-{3-[(7-carboxy-4,4-hydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-trien-8-

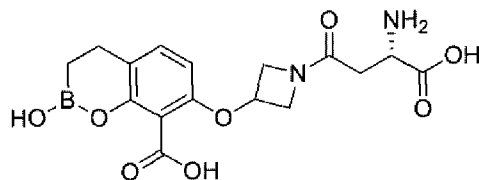
20 yl)oxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-serinamide

[Chemical Formula 429]



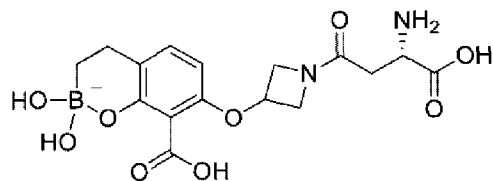
7-((1-((3S)-3-amino-3-carboxypropanoyl)azetidin-3-yl)oxy)-
2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic
5 acid

[Chemical Formula 430]



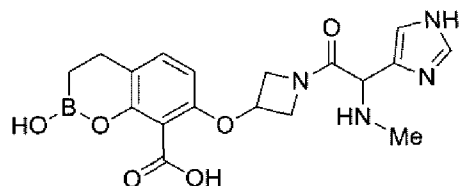
8-((1-((3S)-3-amino-3-carboxypropanoyl)azetidin-3-yl)oxy)-
4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
10 triene-7-carboxylic acid

[Chemical Formula 431]



2-hydroxy-7-((1-((1H-imidazol-4-
yl)(methylamino)acetyl)azetidin-3-yl)oxy)-3,4-dihydro-2H-
15 1,2-benzoxaborinine-8-carboxylic acid

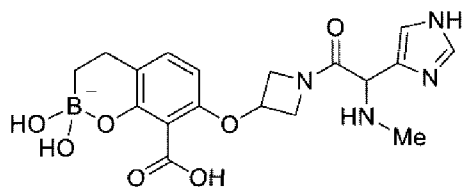
[Chemical Formula 432]



4,4-dihydroxy-8-((1-((1H-imidazol-4-
yl)(methylamino)acetyl)azetidin-3-yl)oxy)-5-oxa-4-
20 boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic

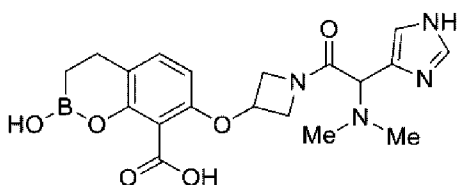
acid

[Chemical Formula 433]



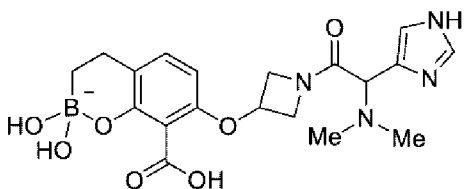
2-hydroxy-7-({1-[(1H-imidazol-4-yl)(methylamino)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 434]



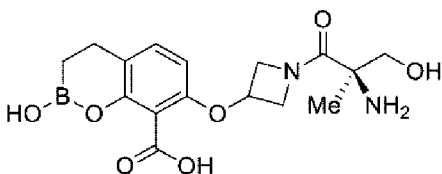
4,4-dihydroxy-8-({1-[(1H-imidazol-4-yl)(methylamino)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 435]



2-hydroxy-7-([1-(2-methyl-D-seryl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

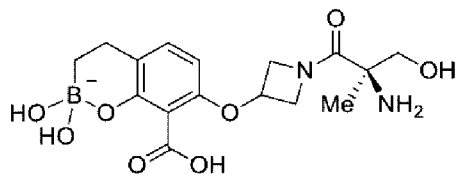
[Chemical Formula 436]



4,4-dihydroxy-8-([1-(2-methyl-D-seryl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-

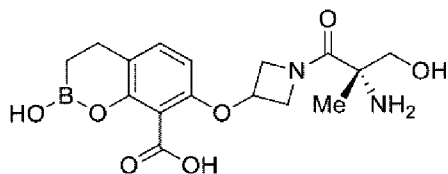
carboxylic acid

[Chemical Formula 437]



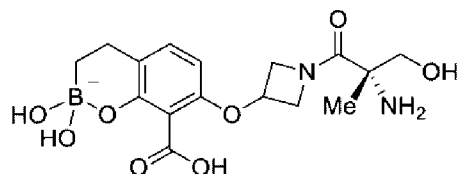
2-hydroxy-7-([1-(2-methyl-L-seryl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 438]



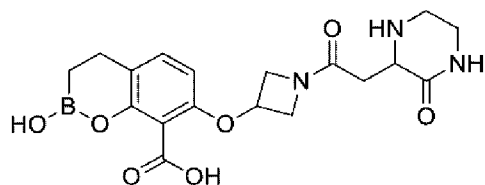
4,4-dihydroxy-8-([1-(2-methyl-L-seryl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 439]



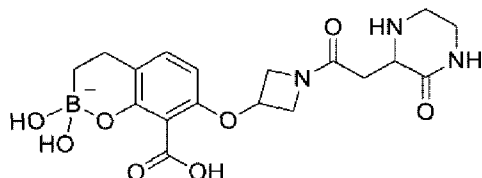
2-hydroxy-7-([1-[(3-oxopiperazin-2-yl)acetyl]azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 440]



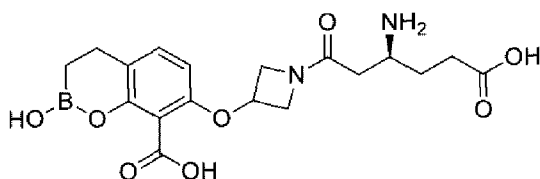
4,4-dihydroxy-8-([1-[(3-oxopiperazin-2-yl)acetyl]azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 441]



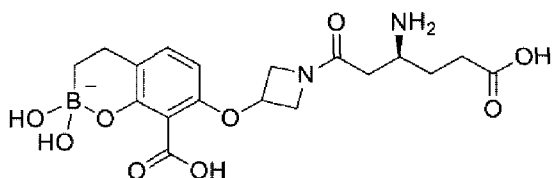
7-({1-[(3S)-3-amino-5-carboxypentanoyl]azetidin-3-yl}oxy)-
2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic
5 acid

[Chemical Formula 442]



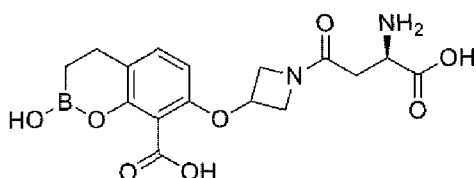
8-({1-[(3S)-3-amino-5-carboxypentanoyl]azetidin-3-yl}oxy)-
4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
10 triene-7-carboxylic acid

[Chemical Formula 443]



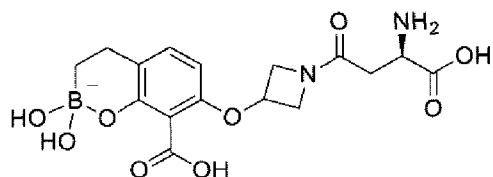
7-({1-[(3R)-3-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-
2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic
15 acid

[Chemical Formula 444]



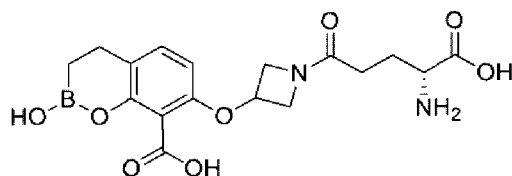
8-({1-[(3R)-3-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-
4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
20 triene-7-carboxylic acid

[Chemical Formula 445]



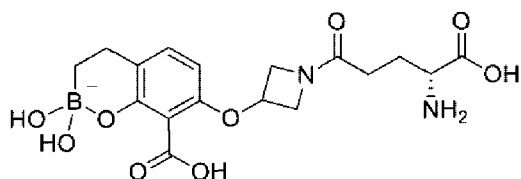
7-((1-[(4R)-4-amino-4-carboxybutanoyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 446]



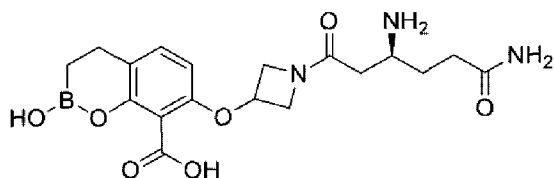
8-((1-[(3R)-3-amino-3-carboxypropanoyl]azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 447]



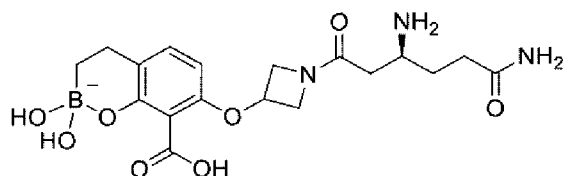
7-((1-[(3S)-3,6-diamino-6-oxohexanoyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 448]



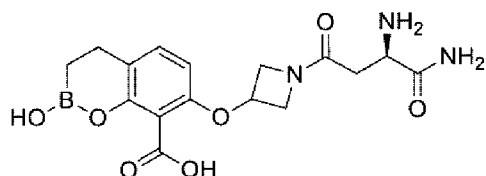
8-((1-[(3S)-3,6-diamino-6-oxohexanoyl]azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 449]



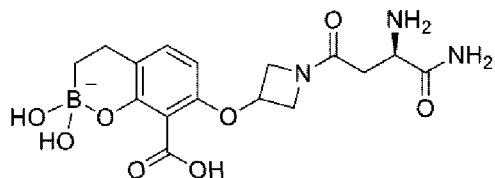
7-([1-(D-α-asparaginyl)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 450]



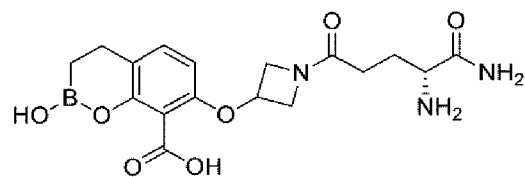
8-([1-(D-α-asparaginyl)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 451]



7-([1-(D-α-glutaminyl)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

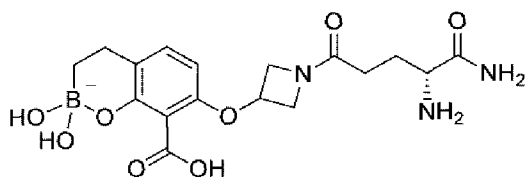
[Chemical Formula 452]



15

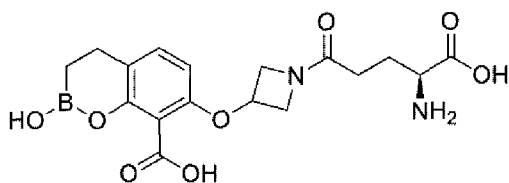
8-([1-(D-α-glutaminyl)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 453]



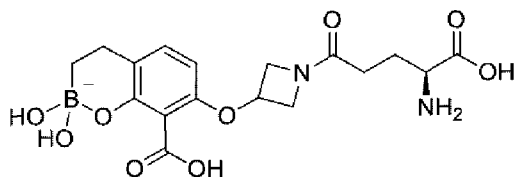
7-({1-[(4S)-4-amino-4-carboxybutanoyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 454]



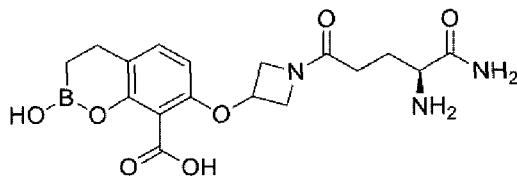
8-({1-[(4S)-4-amino-4-carboxybutanoyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 455]



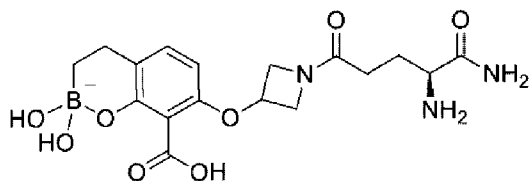
7-({1-[(L-α-glutaminy)]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 456]



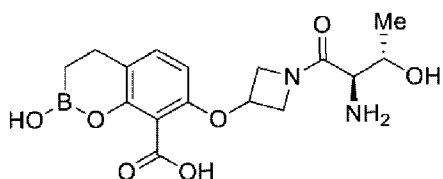
8-({1-[(L-α-glutaminy)]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 457]



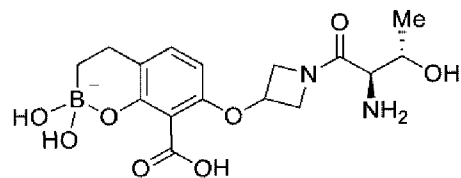
2-hydroxy-7-[(1-D-threonylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 458]



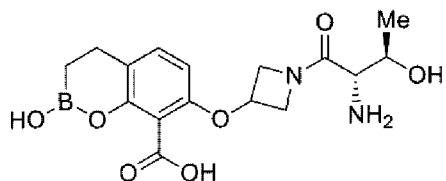
4,4-dihydroxy-8-[(1-D-threonylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 459]



2-hydroxy-7-[(1-L-threonylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 460]

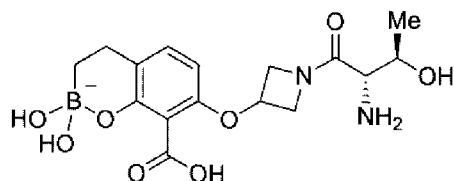


15

, or

4,4-dihydroxy-8-[(1-L-threonylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

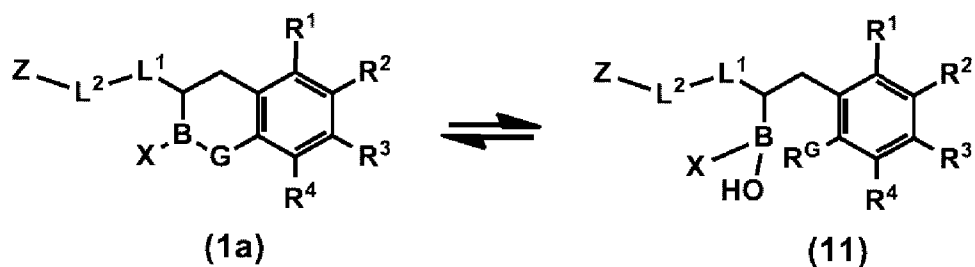
[Chemical Formula 461]



[Item 55]

A compound represented by formula (11):

5 [Chemical Formula 462]



or a pharmaceutically acceptable salt thereof,

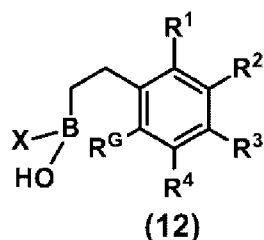
wherein R^G is a hydroxyl group, a thiol group, or $-NHR^{a1}$,

10 wherein R^{a1} , Z, L^1 , L^2 , X, R^1 , R^2 , R^3 , and R^4 are defined the same as the definition according to item 1, and formula (1a) is defined the same as item 1.

[Item 56]

The compound or the pharmaceutically acceptable salt thereof according to item 55, wherein the compound of
15 formula (11) is represented by formula (12):

[Chemical Formula 463]



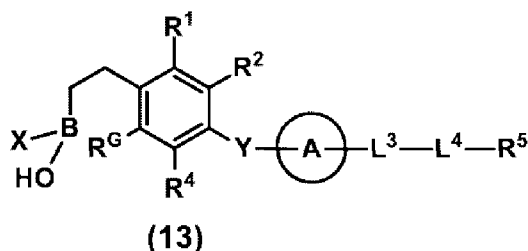
wherein X, R^1 , R^2 , R^3 , and R^4 are defined the same as the definition according to any one of the preceding items.

20 [Item 57]

The compound or the pharmaceutically acceptable salt thereof according to item 55 or 56, wherein the compound of

formula (12) is represented by formula (13):

[Chemical Formula 464]



wherein X, Y, ring A, L³, L⁴, R¹, R², R⁴, and R⁵ are defined
 5 the same as the definition according to any one of the
 preceding items.

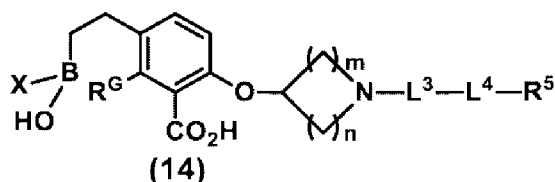
[Item 58]

The compound or the pharmaceutically acceptable salt
 thereof according to any one of items 55 to 57, wherein X
 10 and R^G are hydroxyl groups, R⁴ is a carboxyl group, and
 ring A is an optionally substituted 4- to 6-membered
 nitrogen-containing non-aryl heterocycle.

[Item 59]

The compound or the pharmaceutically acceptable salt
 15 thereof according to any one of items 55 to 58, wherein the
 compound of formula (13) is represented by formula (14):

[Chemical Formula 465]



wherein X, L³, L⁴, m, n, and R⁵ are defined the same as the
 20 definition according to any one of the preceding items.

[Item 60]

The compound or the pharmaceutically acceptable salt
 thereof according to any one of items 55 to 59, wherein R^G
 is a hydroxyl group or a thiol group.

25 [Item 61]

The compound or the pharmaceutically acceptable salt
 thereof according to any one of items 55 to 60, wherein R^G

is a hydroxyl group.

[Item 62]

The compound or the pharmaceutically acceptable salt thereof according to any one of items 55 to 61, wherein X
5 is a hydroxyl group or a C₁₋₆ alkoxy group.

[Item 63]

The compound or the pharmaceutically acceptable salt thereof according to any one of items 55 to 62, wherein X
is a hydroxyl group.

10 [Item 64]

The compound or the pharmaceutically acceptable salt thereof according to any one of items 55 to 63, wherein m
is 1 or 2, n is 1 or 2, and m + n is 2 or 3.

[Item 65]

15 The compound or the pharmaceutically acceptable salt thereof according to any one of items 55 to 64, wherein m
is 1, and n is 1.

[Item 66]

The compound or the pharmaceutically acceptable salt
20 thereof according to any one of items 55 to 65, wherein L³
is defined the same as the definition according to any one
of the preceding items.

[Item 67]

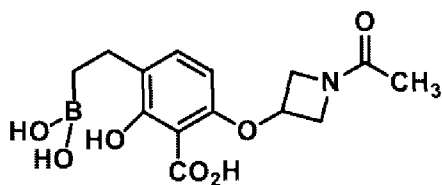
The compound or the pharmaceutically acceptable salt
25 thereof according to any one of items 55 to 66, wherein L⁴
and R⁵ are defined the same as the definitions according to
any one of the preceding items.

[Item 68]

The compound or the pharmaceutically acceptable salt
30 thereof according to item 55, selected from the group
consisting of the following compounds:

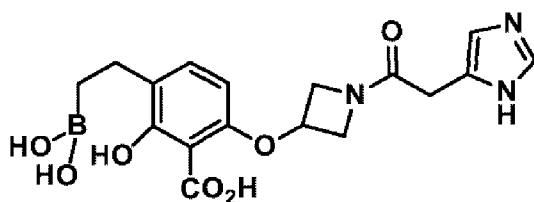
6-[(1-acetylazetidin-3-yl)oxy]-3-(2-boronoethyl)-2-
hydroxybenzoic acid

[Chemical Formula 466]

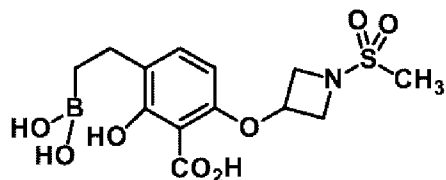


3-(2-boronoethyl)-2-hydroxy-6-({1-[(1H-imidazol-5-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

5 [Chemical Formula 467]

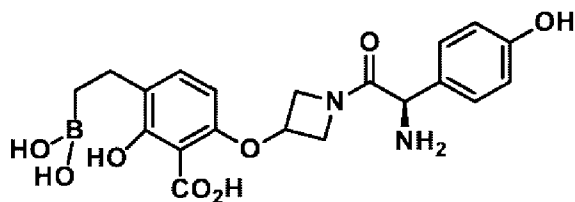


3-(2-boronoethyl)-2-hydroxy-6-{{1-[(methanesulfonyl)azetidin-3-yl]oxy}benzoic acid
[Chemical Formula 468]



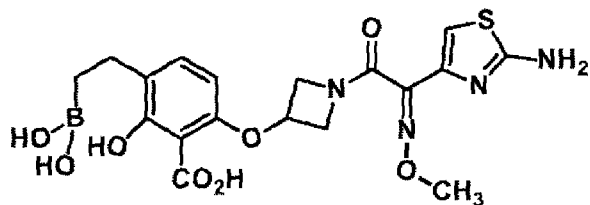
10

6-({1-[(2R)-2-amino-2-(4-hydroxyphenyl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid
[Chemical Formula 469]



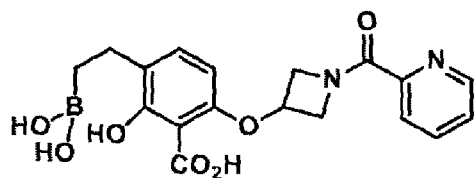
15 6-({1-[(2-amino-1,3-thiazol-4-yl)(methoxyimino)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 470]



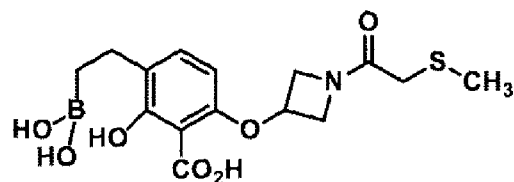
3-(2-boronoethyl)-2-hydroxy-6-{{[1-(pyridine-2-carbonyl)azetidin-3-yl]oxy}benzoic acid

5 [Chemical Formula 471]



3-(2-boronoethyl)-2-hydroxy-6-({[1-(methanesulfonyl)acetyl]azetidin-3-yl}oxy}benzoic acid

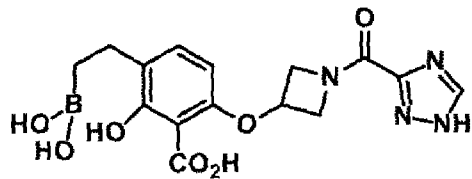
[Chemical Formula 472]



10

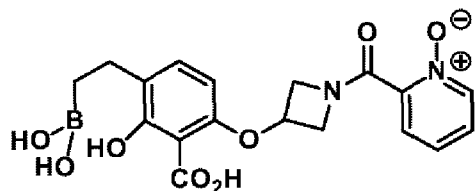
3-(2-boronoethyl)-2-hydroxy-6-{{[1-(1H-1,2,4-triazole-3-carbonyl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 473]



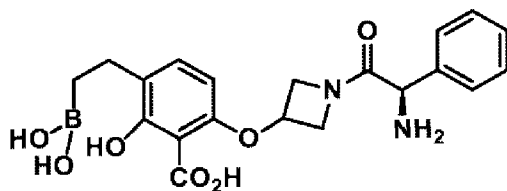
15 3-(2-boronoethyl)-2-hydroxy-6-{{[1-(1-oxido-2-pyridinylcarbonyl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 474]



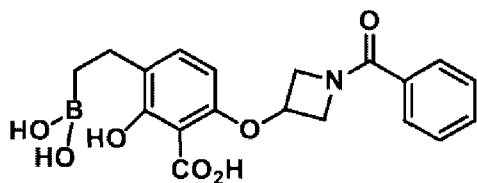
6-({1-[(2R)-2-amino-2-phenylacetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 475]



6-[(1-benzoylazetidin-3-yl)oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid

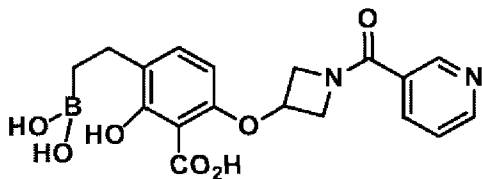
[Chemical Formula 476]



10

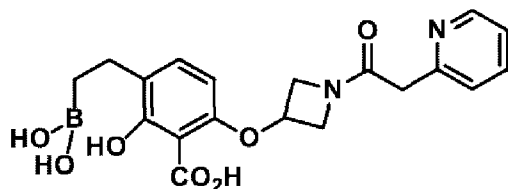
3-(2-boronoethyl)-2-hydroxy-6-({1-(pyridine-3-carbonyl)azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 477]



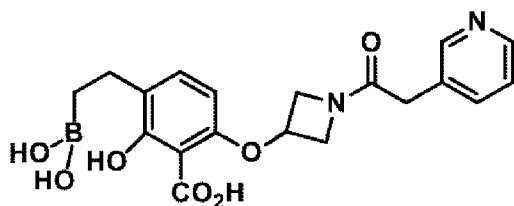
15 3-(2-boronoethyl)-2-hydroxy-6-({1-[(pyridin-2-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 478]



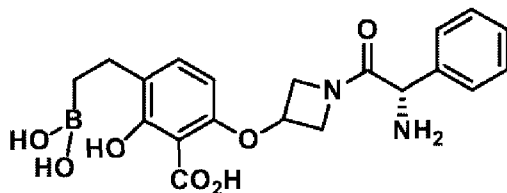
3-(2-boronoethyl)-2-hydroxy-6-((1-[(pyridin-3-yl)acetyl]azetidin-3-yl)oxy)benzoic acid

5 [Chemical Formula 479]



6-((1-[(2S)-2-amino-2-phenylacetyl]azetidin-3-yl)oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

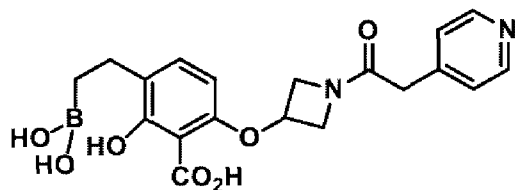
[Chemical Formula 480]



10

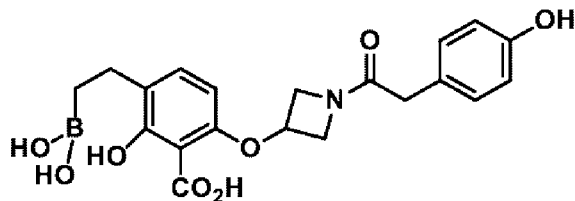
3-(2-boronoethyl)-2-hydroxy-6-((1-[(pyridin-4-yl)acetyl]azetidin-3-yl)oxy)benzoic acid

[Chemical Formula 481]



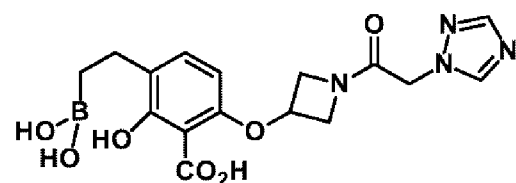
15 3-(2-boronoethyl)-2-hydroxy-6-((1-[(4-hydroxyphenyl)acetyl]azetidin-3-yl)oxy)benzoic acid

[Chemical Formula 482]



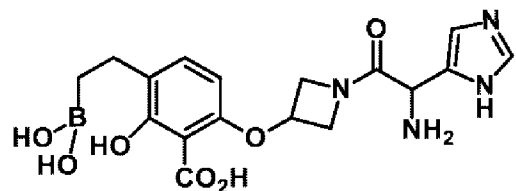
3-(2-boronoethyl)-2-hydroxy-6-({1-[(1H-1,2,4-triazol-1-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

5 [Chemical Formula 483]



6-({1-[amino(1H-imidazol-5-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

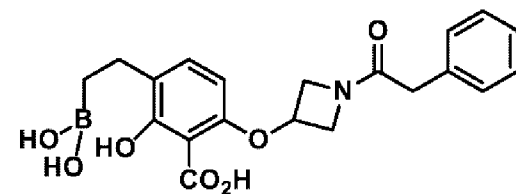
[Chemical Formula 484]



10

3-(2-boronoethyl)-2-hydroxy-6-([1-(phenylacetyl)azetidin-3-yl]oxy)benzoic acid

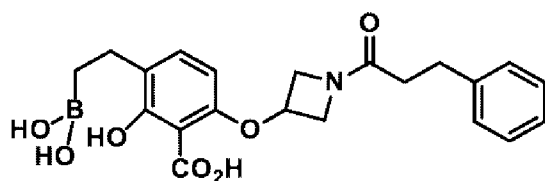
[Chemical Formula 485]



15

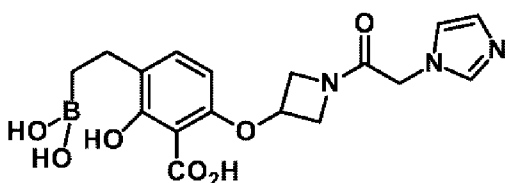
3-(2-boronoethyl)-2-hydroxy-6-([1-(3-phenylpropanoyl)azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 486]



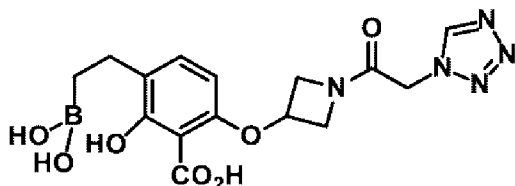
3-(2-boronoethyl)-2-hydroxy-6-((1-[(1H-imidazol-1-yl)acetyl]azetidin-3-yl)oxy)benzoic acid

5 [Chemical Formula 487]



3-(2-boronoethyl)-2-hydroxy-6-((1-[(1H-tetrazol-1-yl)acetyl]azetidin-3-yl)oxy)benzoic acid

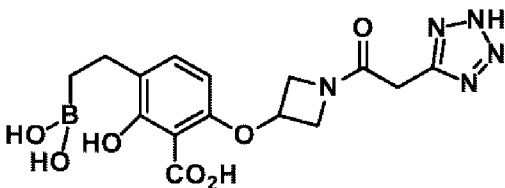
[Chemical Formula 488]



10

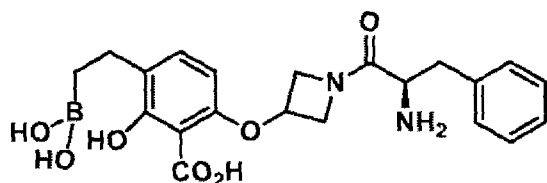
3-(2-boronoethyl)-2-hydroxy-6-((1-[(2H-tetrazol-5-yl)acetyl]azetidin-3-yl)oxy)benzoic acid

[Chemical Formula 489]



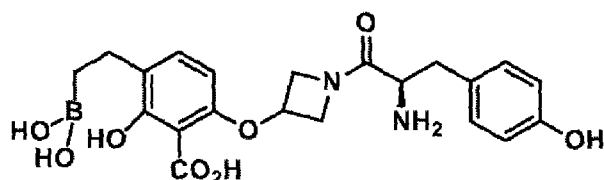
15 3-(2-boronoethyl)-2-hydroxy-6-[(1-D-phenylalanylazetidin-3-yl)oxy]benzoic acid

[Chemical Formula 490]



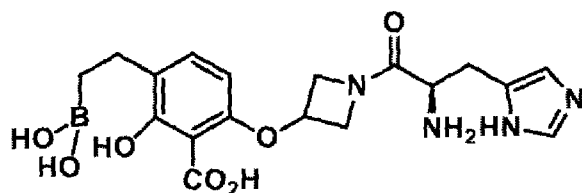
3-(2-boronoethyl)-2-hydroxy-6-[(1-D-tyrosylazetidin-3-yl)oxy]benzoic acid

5 [Chemical Formula 491]



3-(2-boronoethyl)-6-[(1-D-histidylazetidin-3-yl)oxy]-2-hydroxybenzoic acid

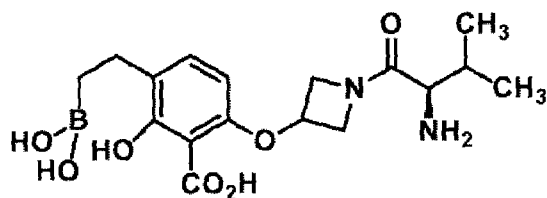
[Chemical Formula 492]



10

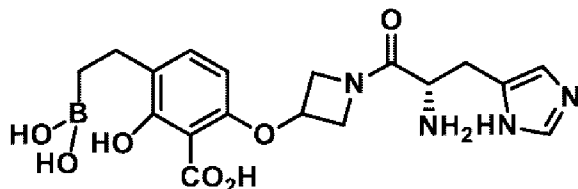
3-(2-boronoethyl)-2-hydroxy-6-[(1-D-valylazetidin-3-yl)oxy]benzoic acid

[Chemical Formula 493]



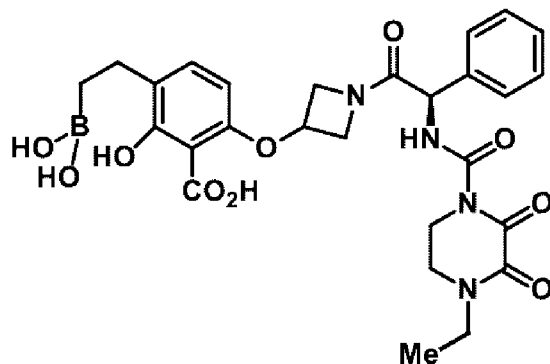
15 3-(2-boronoethyl)-6-[(1-L-histidylazetidin-3-yl)oxy]-2-hydroxybenzoic acid

[Chemical Formula 494]



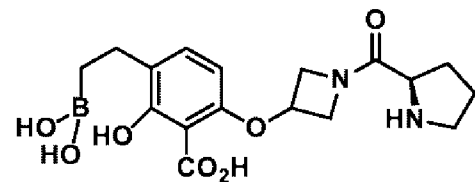
3-(2-boronoethyl)-6-[(1-{(2R)-2-[(4-ethyl-2,3-
dioxopiperazine-1-carbonyl)amino]-2-phenylacetyl}azetidin-
5 3-yl)oxy]-2-hydroxybenzoic acid

[Chemical Formula 495]



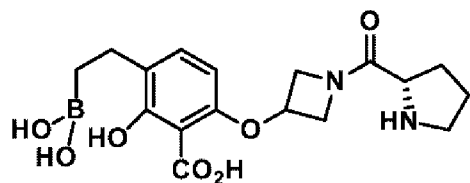
3-(2-boronoethyl)-2-hydroxy-6-[(1-D-prolylazetidin-3-
yl)oxy]benzoic acid

10 [Chemical Formula 496]



3-(2-boronoethyl)-2-hydroxy-6-[(1-L-prolylazetidin-3-
yl)oxy]benzoic acid

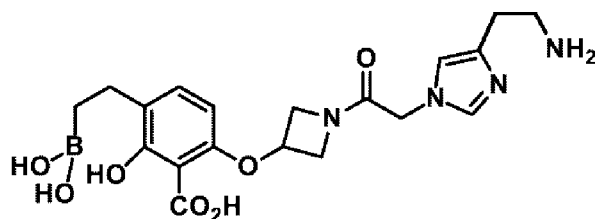
[Chemical Formula 497]



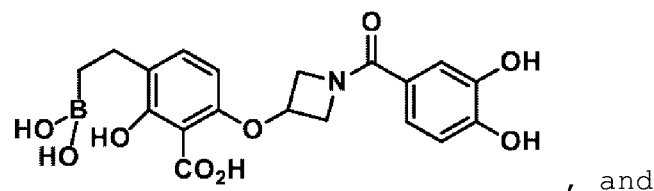
15

6-[(1-{[4-(2-aminoethyl)-1H-imidazol-1-yl]acetyl}azetidin-

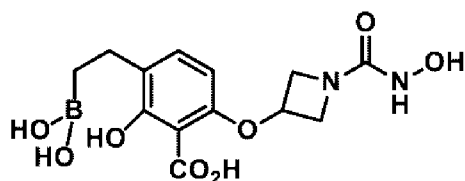
3-yl)oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid
[Chemical Formula 498]



3-(2-boronoethyl)-6-{[1-(3,4-dihydroxybenzoyl)azetidin-3-yl]oxy}-2-hydroxybenzoic acid
[Chemical Formula 499]



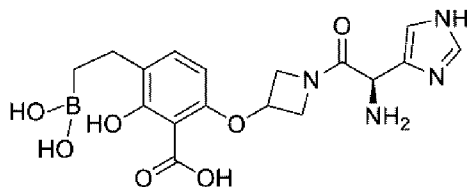
3-(2-boronoethyl)-2-hydroxy-6-{[1-(hydroxycarbamoyl)azetidin-3-yl]oxy}benzoic acid
[Chemical Formula 500]



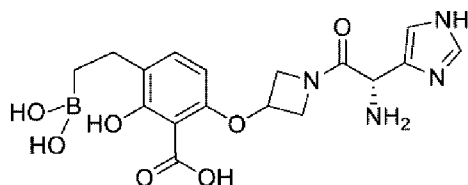
[Item 69]

The compound or the pharmaceutically acceptable salt thereof according to item 55, selected from the group consisting of the following compounds:

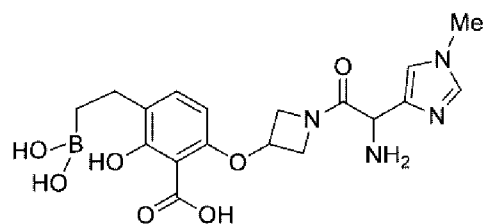
6-({1-[(2R)-2-amino-2-(1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid
[Chemical Formula 501]



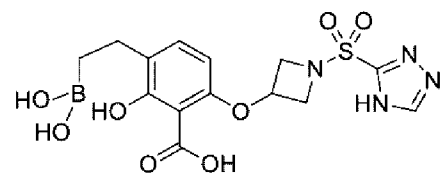
6-({1-[(2S)-2-amino-2-(1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid
[Chemical Formula 502]



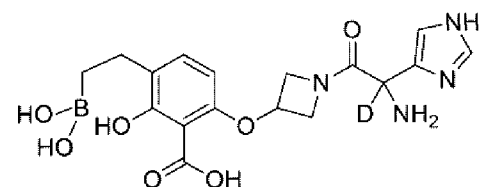
5 6-({1-[amino(1-methyl-1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid
[Chemical Formula 503]



10 3-(2-boronoethyl)-2-hydroxy-6-{{1-(4H-1,2,4-triazole-3-sulfonyl)azetidin-3-yl}oxy}benzoic acid
[Chemical Formula 504]

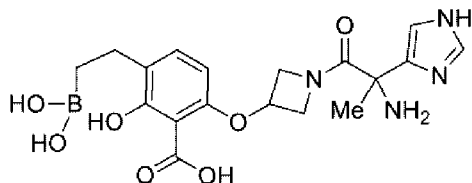


15 6-({1-[2-amino-2-(1H-imidazol-4-yl) (2H)ethanoyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid
[Chemical Formula 505]



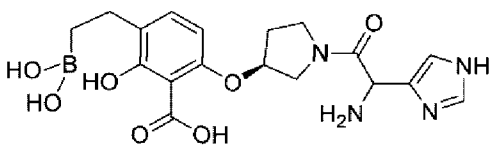
6-({1-[2-amino-2-(1H-imidazol-4-yl)propanoyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 506]



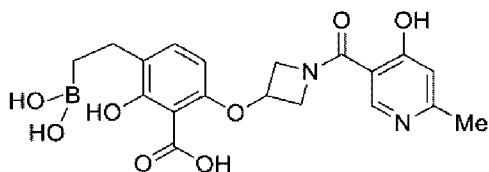
6-((3S)-1-((2-boronoethyl)oxy)-3-((2-amino-1H-imidazol-4-yl)acetyl)pyrrolidin-3-yl)oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 507]



3-(2-boronoethyl)-2-hydroxy-6-([1-(4-hydroxy-6-methylpyridine-3-carbonyl)azetidin-3-yl]oxy)benzoic acid

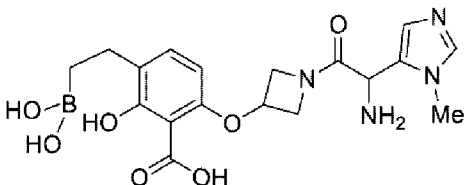
[Chemical Formula 508]



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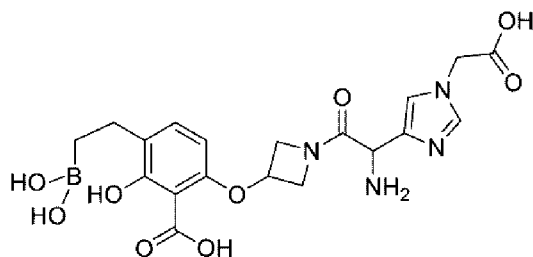
6-([1-((3S)-1-((2-boronoethyl)oxy)-3-((2-amino-1H-imidazol-5-yl)acetyl)azetidin-3-yl]oxy)-1-methyl-1H-imidazol-5-yl]acetyl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 509]



15 6-([1-((3S)-1-((2-boronoethyl)oxy)-3-((2-amino-1H-imidazol-5-yl)acetyl)azetidin-3-yl]oxy)-1-methyl-1H-imidazol-5-yl]acetyl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

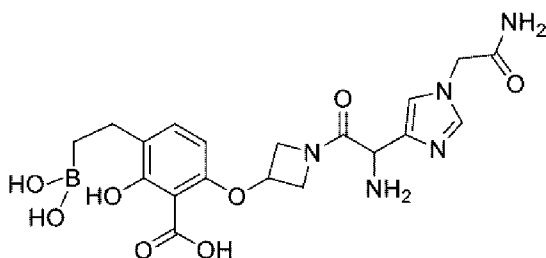
[Chemical Formula 510]



6-[(1-{[amino[1-(2-amino-2-oxoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-

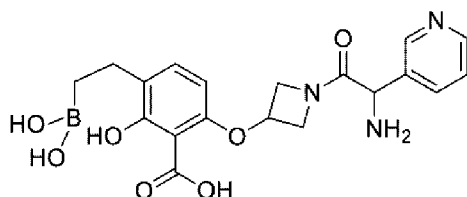
5 hydroxybenzoic acid

[Chemical Formula 511]



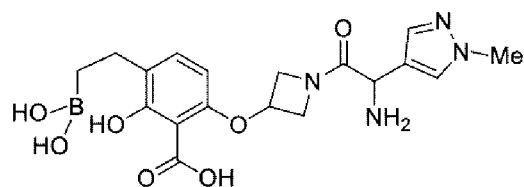
6-[(1-{[amino(pyridin-3-yl)acetyl]azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

10 [Chemical Formula 512]



6-[(1-{[amino(1-methyl-1H-pyrazol-4-yl)acetyl]azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

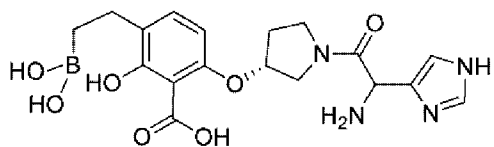
[Chemical Formula 513]



15

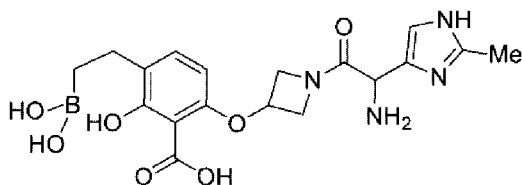
6-[(1-{[amino(1H-imidazol-4-yl)acetyl]pyrrolidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 514]



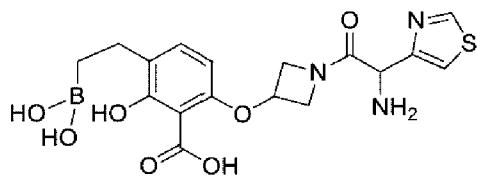
6-({1-[amino(2-methyl-1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 515]



6-({1-[amino(1,3-thiazol-4-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

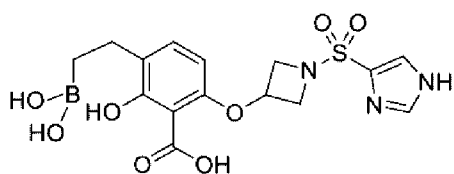
[Chemical Formula 516]



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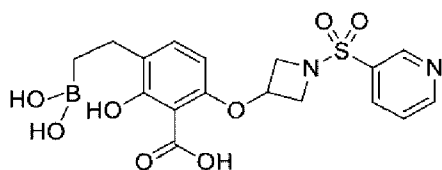
3-(2-boronoethyl)-2-hydroxy-6-{[1-(1H-imidazole-4-sulfonyl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 517]



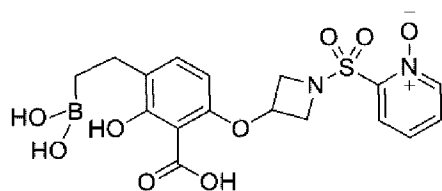
15 3-(2-boronoethyl)-2-hydroxy-6-{[1-(pyridine-3-sulfonyl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 518]



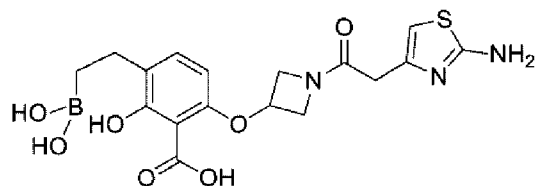
3-(2-boronoethyl)-2-hydroxy-6-([1-(1-oxo-1,5-pyridine-2-sulfonyl)azetidin-3-yl]oxy)benzoic acid

5 [Chemical Formula 519]



6-([1-(2-amino-1,3-thiazol-4-yl)acetyl]azetidin-3-yl)oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

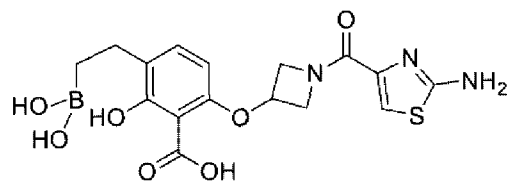
[Chemical Formula 520]



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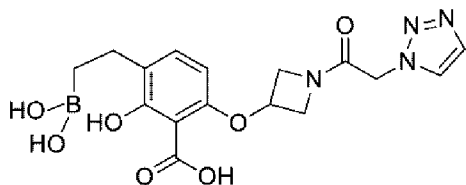
6-([1-(2-amino-1,3-thiazole-4-carbonyl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 521]



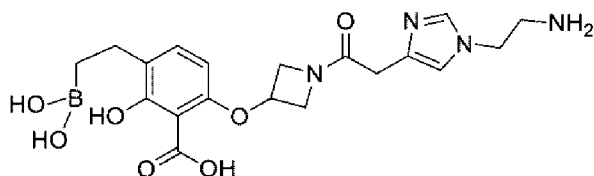
15 3-(2-boronoethyl)-2-hydroxy-6-([1-(1H-1,2,3-triazol-1-yl)acetyl]azetidin-3-yl)oxy)benzoic acid

[Chemical Formula 522]



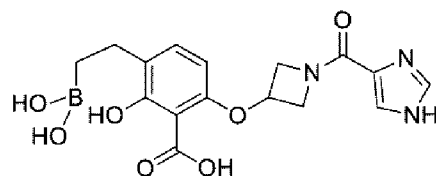
6-[(1-{[1-(2-aminoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 523]



3-(2-boronoethyl)-2-hydroxy-6-{[1-(1H-imidazole-4-carbonyl)azetidin-3-yl]oxy}benzoic acid

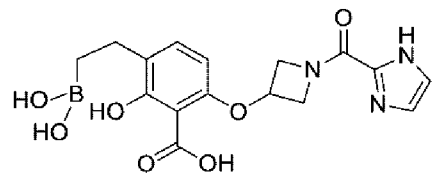
[Chemical Formula 524]



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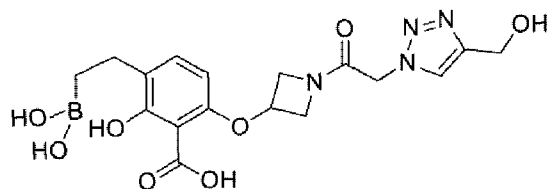
3-(2-boronoethyl)-2-hydroxy-6-{[1-(1H-imidazole-2-carbonyl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 525]

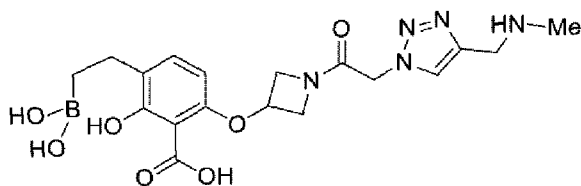


15 3-(2-boronoethyl)-2-hydroxy-6-[(1-{[4-(hydroxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]benzoic acid

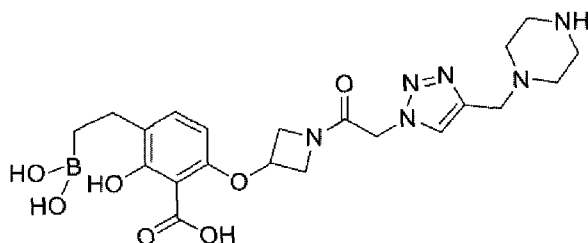
[Chemical Formula 526]



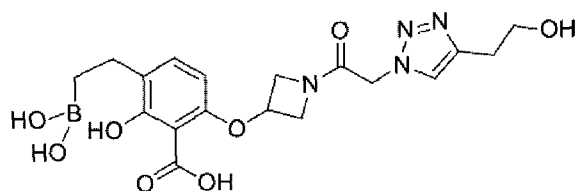
3-(2-boronoethyl)-2-hydroxy-6-{[1-({4-
[(methylamino)methyl]-1H-1,2,3-triazol-1-
yl}acetyl)azetidin-3-yl}oxy}benzoic acid
[Chemical Formula 527]



3-(2-boronoethyl)-2-hydroxy-6-{[1-({4-[(piperazin-1-
yl)methyl]-1H-1,2,3-triazol-1-yl}acetyl)azetidin-3-
yl}oxy}benzoic acid
[Chemical Formula 528]

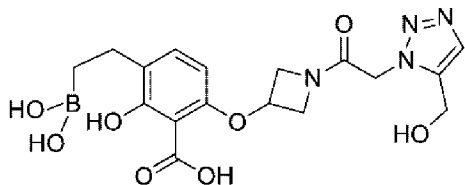


3-(2-boronoethyl)-2-hydroxy-6-[(1-{[4-(2-hydroxyethyl)-1H-
1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]benzoic acid
[Chemical Formula 529]



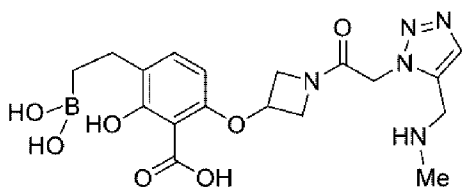
3-(2-boronoethyl)-2-hydroxy-6-[(1-{[5-(hydroxymethyl)-1H-
1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]benzoic acid

[Chemical Formula 530]



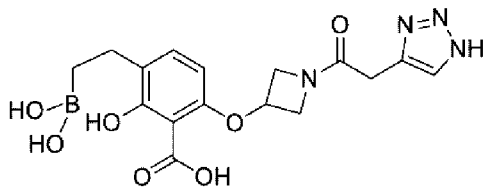
3-(2-boronoethyl)-2-hydroxy-6-({[1-({5-
[(methylamino)methyl]-1H-1,2,3-triazol-1-
5 yl}acetyl)azetidin-3-yl}oxy]benzoic acid

[Chemical Formula 531]



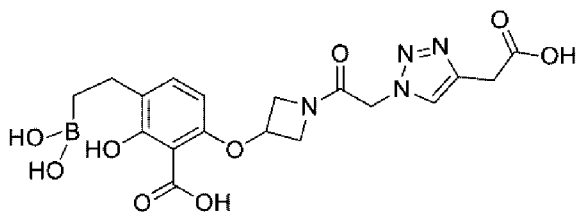
3-(2-boronoethyl)-2-hydroxy-6-({[1-({1H-1,2,3-triazol-4-
yl}acetyl)azetidin-3-yl}oxy]benzoic acid

10 [Chemical Formula 532]



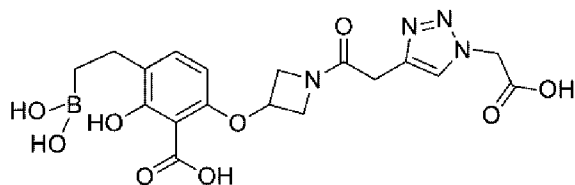
3-(2-boronoethyl)-6-([1-({[4-(carboxymethyl)-1H-1,2,3-
triazol-1-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxybenzoic
acid

15 [Chemical Formula 533]



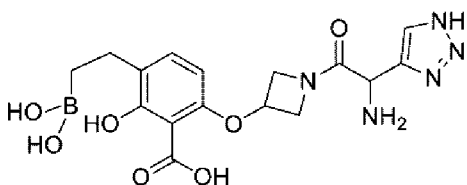
3-(2-boronoethyl)-6-([1-({[1-(carboxymethyl)-1H-1,2,3-
triazol-4-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxybenzoic
acid

[Chemical Formula 534]



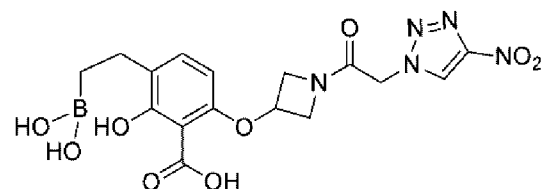
6-({1-[amino(1H-1,2,3-triazol-4-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 535]



3-(2-boronoethyl)-2-hydroxy-6-({1-[(4-nitro-1H-1,2,3-triazol-1-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

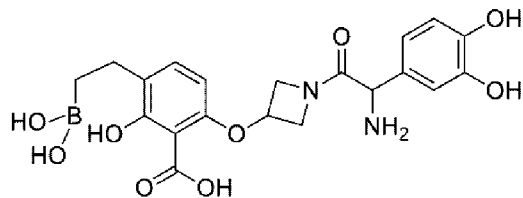
[Chemical Formula 536]



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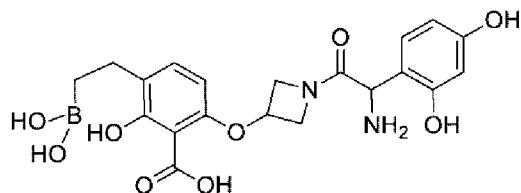
6-({1-[amino(3,4-dihydroxyphenyl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 537]



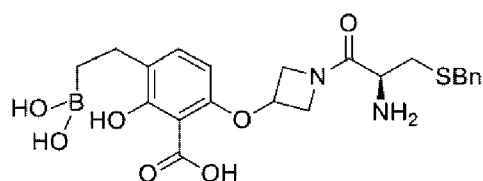
15 6-({1-[amino(2,4-dihydroxyphenyl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 538]



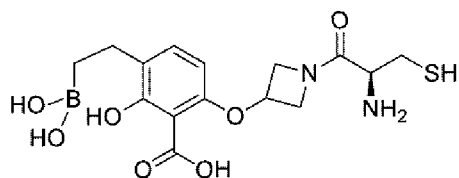
6-([1-(S-benzyl-D-cysteinyloxy)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 539]



3-(2-boronoethyl)-6-([1-D-cysteinyloxy]azetidin-3-yl)-2-hydroxybenzoic acid

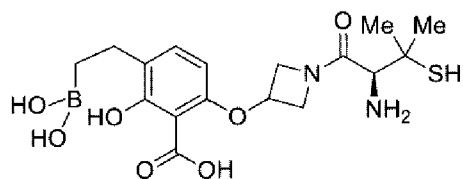
[Chemical Formula 540]



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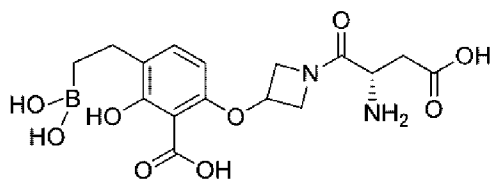
3-(2-boronoethyl)-2-hydroxy-6-([1-(3-sulfanyl-D-valyl)azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 541]



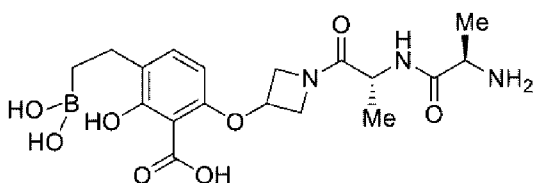
15 6-([1-[(2S)-2-amino-3-carboxypropanoyl]azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 542]



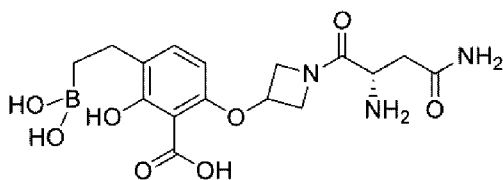
6-([1-(D-alanyl-D-alanyl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 543]



6-([1-L-asparaginylazetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

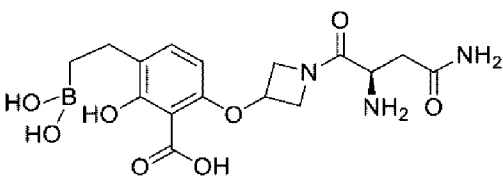
[Chemical Formula 544]



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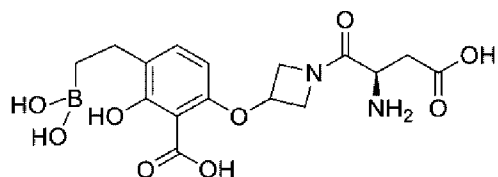
6-([1-D-asparaginylazetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 545]



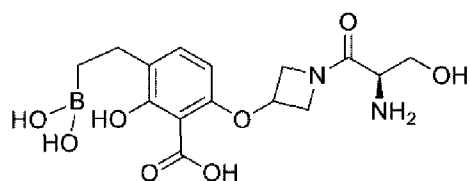
15 6-([1-((2R)-2-amino-3-carboxypropanoyl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 546]



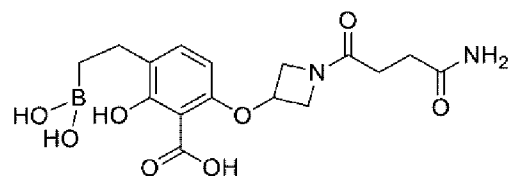
3-(2-boronoethyl)-2-hydroxy-6-[(1-D-serylazetidin-3-yl)oxy]benzoic acid

5 [Chemical Formula 547]



6-[[1-(4-amino-4-oxobutanoyl)azetidin-3-yl]oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid

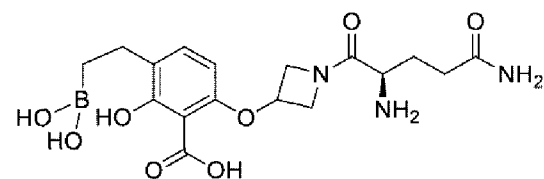
[Chemical Formula 548]



10

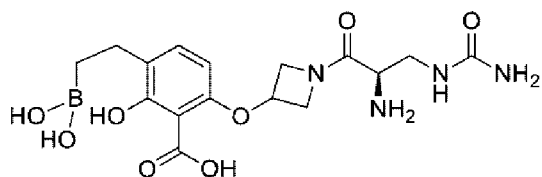
3-(2-boronoethyl)-6-[(1-D-glutaminylazetidin-3-yl)oxy]-2-hydroxybenzoic acid

[Chemical Formula 549]



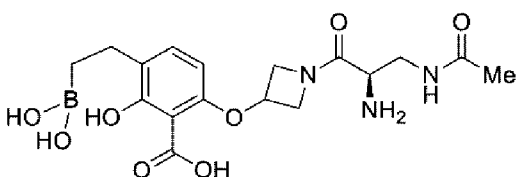
15 3-(2-boronoethyl)-6-({1-[3-(carbamoylamino)-D-alanyl]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

[Chemical Formula 550]



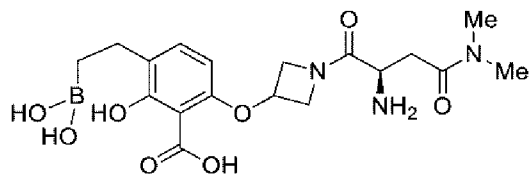
6-([1-(3-acetamido-D-alanyl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 551]



3-(2-boronoethyl)-6-([1-(N,N-dimethyl-D-asparaginy]azetidin-3-yl]oxy)-2-hydroxybenzoic acid

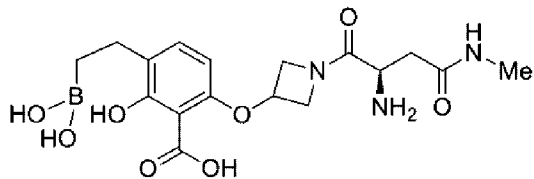
[Chemical Formula 552]



10

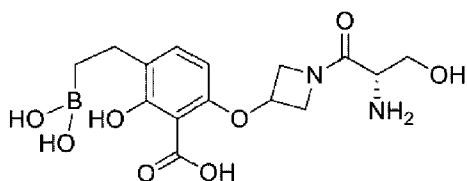
3-(2-boronoethyl)-2-hydroxy-6-([1-(N-methyl-D-asparaginy]azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 553]



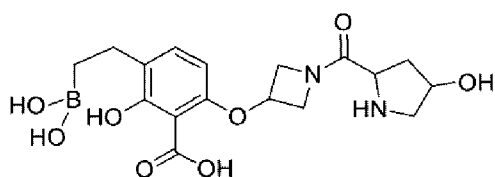
15 3-(2-boronoethyl)-2-hydroxy-6-[(1-L-serylazetidin-3-yl]oxy]benzoic acid

[Chemical Formula 554]

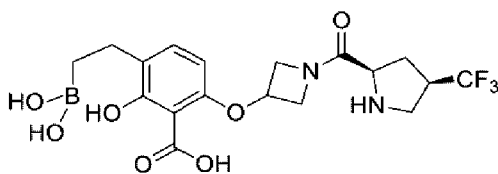


3-(2-boronoethyl)-2-hydroxy-6-([1-(4-hydroxypropyl)azetidin-3-yl]oxy)benzoic acid

5 [Chemical Formula 555]

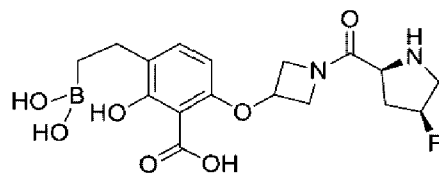


3-(2-boronoethyl)-2-hydroxy-6-([1-((4R)-4-(trifluoromethyl)-D-propyl)azetidin-3-yl]oxy)benzoic acid
[Chemical Formula 556]



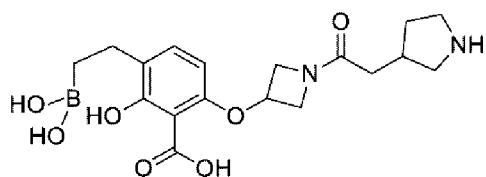
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3-(2-boronoethyl)-6-([1-((4S)-4-fluoro-L-propyl)azetidin-3-yl]oxy)-2-hydroxybenzoic acid
[Chemical Formula 557]



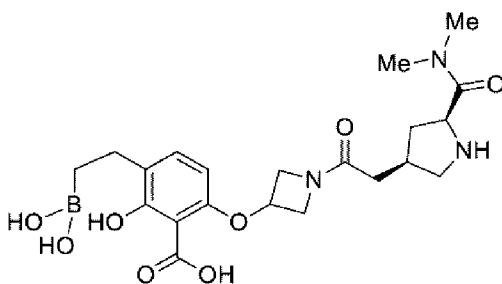
15 3-(2-boronoethyl)-2-hydroxy-6-([1-(pyrrolidin-3-yl)acetyl]azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 558]



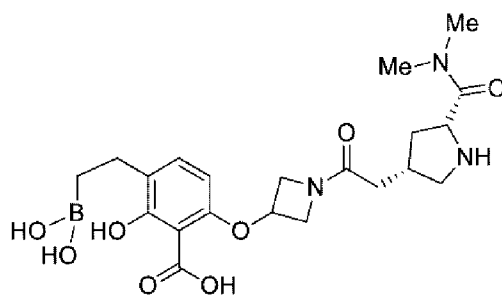
3-(2-boronoethyl)-6-[(1-[(3R,5S)-5-
(dimethylcarbamoyl)pyrrolidin-3-yl]acetyl}azetidin-3-
5 yl)oxy]-2-hydroxybenzoic acid

[Chemical Formula 559]



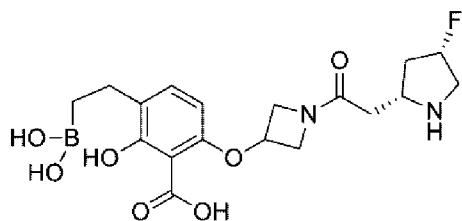
3-(2-boronoethyl)-6-[(1-[(3S,5R)-5-
(dimethylcarbamoyl)pyrrolidin-3-yl]acetyl}azetidin-3-
10 yl)oxy]-2-hydroxybenzoic acid

[Chemical Formula 560]



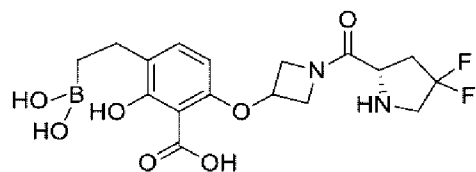
3-(2-boronoethyl)-6-[(1-[(2R,4S)-4-fluoropyrrolidin-2-
yl]acetyl}azetidin-3-yl)oxy]-2-hydroxybenzoic acid

[Chemical Formula 561]



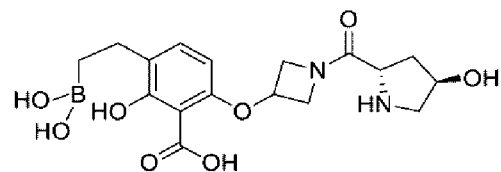
3-(2-boronoethyl)-6-([1-(4,4-difluoro-L-prolyl)azetidin-3-yl]oxy)-2-hydroxybenzoic acid

5 [Chemical Formula 562]



3-(2-boronoethyl)-2-hydroxy-6-([1-[(4R)-4-hydroxy-L-prolyl]azetidin-3-yl]oxy)benzoic acid

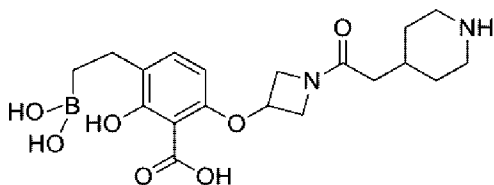
[Chemical Formula 563]



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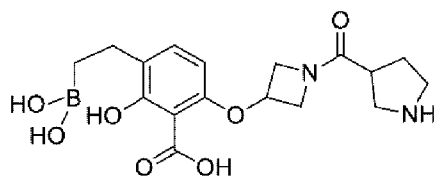
3-(2-boronoethyl)-2-hydroxy-6-([1-(piperidin-4-yl)acetyl]azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 564]



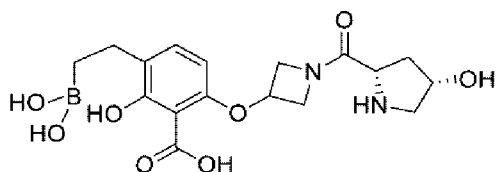
15 3-(2-boronoethyl)-2-hydroxy-6-([1-(pyrrolidine-3-carbonyl)azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 565]



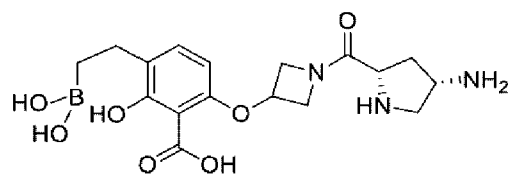
3-(2-boronoethyl)-2-hydroxy-6-({1-[(4S)-4-hydroxy-L-prolyl]azetidin-3-yl}oxy)benzoic acid

5 [Chemical Formula 566]



6-({1-[(4S)-4-amino-L-prolyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

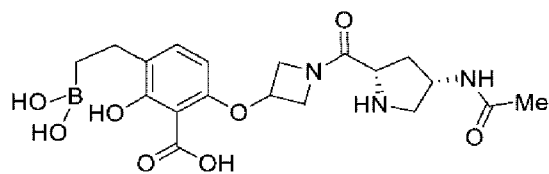
[Chemical Formula 567]



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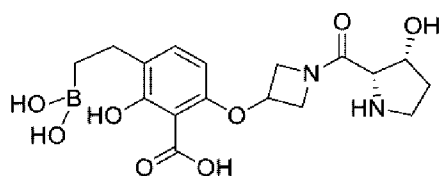
6-({1-[(4S)-4-acetamido-L-prolyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 568]



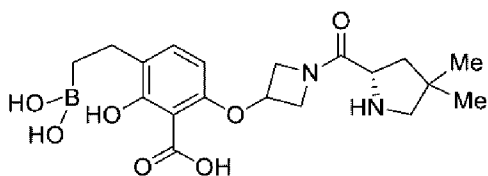
15 3-(2-boronoethyl)-2-hydroxy-6-({1-[(3R)-3-hydroxy-L-prolyl]azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 569]



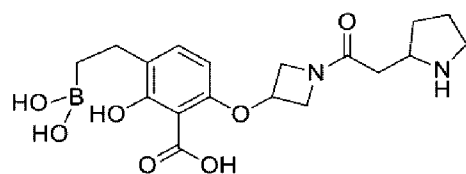
3-(2-boronoethyl)-6-{[1-(4,4-dimethyl-L-prolyl)azetidin-3-yl]oxy}-2-hydroxybenzoic acid

5 [Chemical Formula 570]



3-(2-boronoethyl)-2-hydroxy-6-({1-[(pyrrolidin-2-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

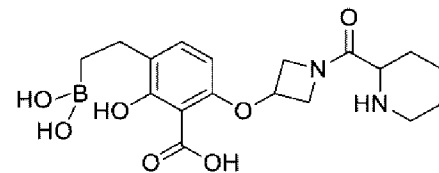
[Chemical Formula 571]



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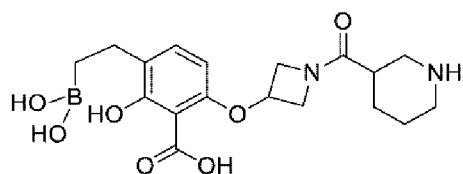
3-(2-boronoethyl)-2-hydroxy-6-({1-(piperidine-2-carbonyl)azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 572]



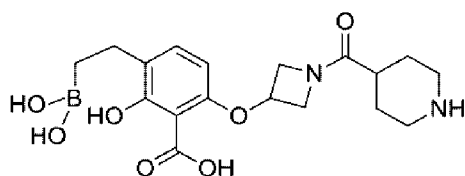
15 3-(2-boronoethyl)-2-hydroxy-6-({1-(piperidine-3-carbonyl)azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 573]



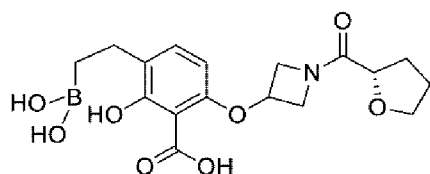
3-(2-boronoethyl)-2-hydroxy-6-([1-(piperidine-4-carbonyl)azetidin-3-yl]oxy)benzoic acid

5 [Chemical Formula 574]



3-(2-boronoethyl)-2-hydroxy-6-([1-[(2S)-oxolane-2-carbonyl]azetidin-3-yl]oxy)benzoic acid

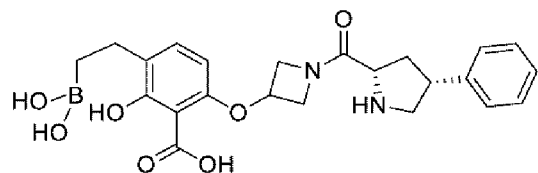
[Chemical Formula 575]



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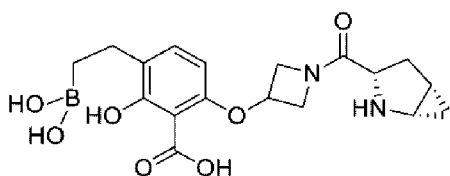
3-(2-boronoethyl)-2-hydroxy-6-([1-[(4R)-4-phenyl-L-prolyl]azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 576]



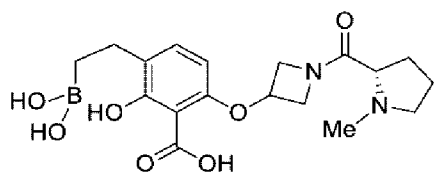
15 6-([1-[(1S,3S,5S)-2-azabicyclo[3.1.0]hexane-3-carbonyl]azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 577]



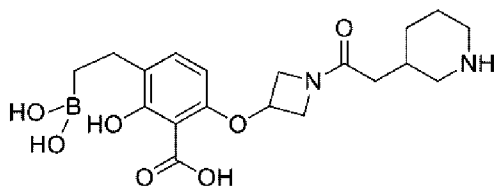
3-(2-boronoethyl)-2-hydroxy-6-([1-(1-methyl-L-prolyl)azetidin-3-yl]oxy)benzoic acid

5 [Chemical Formula 578]



3-(2-boronoethyl)-2-hydroxy-6-([1-(1-methyl-L-piperidin-3-yl)azetidin-3-yl]oxy)benzoic acid

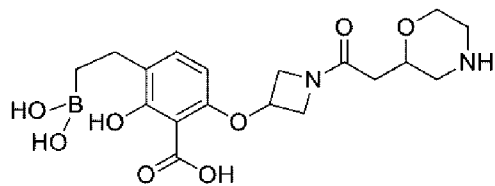
[Chemical Formula 579]



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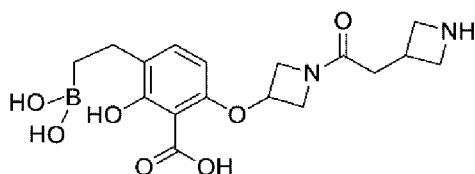
3-(2-boronoethyl)-2-hydroxy-6-([1-(1-methyl-L-morpholin-2-yl)azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 580]



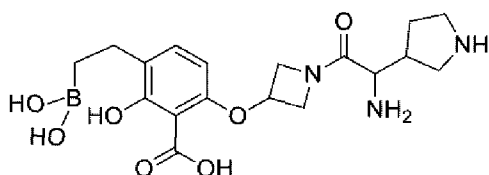
15 6-([1-(1-methyl-L-azetidin-3-yl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 581]



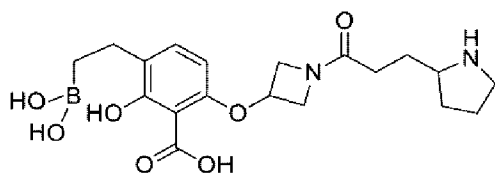
6-({1-[amino(pyrrolidin-3-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 582]



3-(2-boronoethyl)-2-hydroxy-6-({1-[3-(pyrrolidin-2-yl)propanoyl]azetidin-3-yl}oxy)benzoic acid

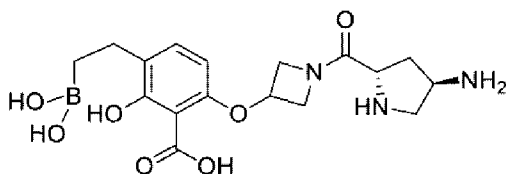
[Chemical Formula 583]



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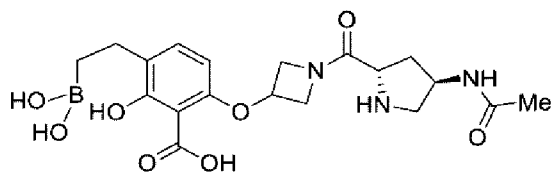
6-({1-[(4R)-4-amino-L-prolyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 584]



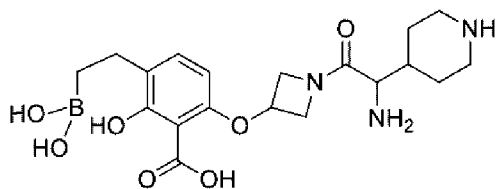
15 6-({1-[(4R)-4-acetamido-L-prolyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 585]



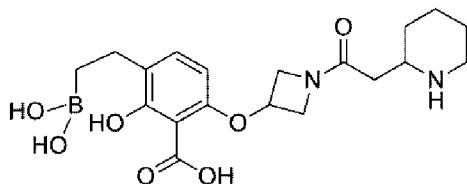
6-({1-[amino(piperidin-4-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 586]



3-(2-boronoethyl)-2-hydroxy-6-({1-[(piperidin-2-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

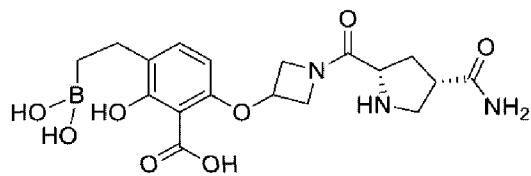
[Chemical Formula 587]



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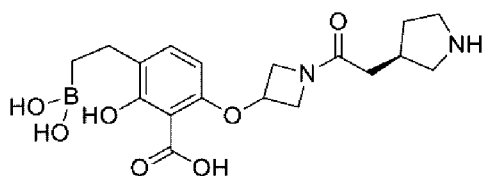
3-(2-boronoethyl)-6-({1-[(4S)-4-carbamoyl-L-prolyl]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

[Chemical Formula 588]



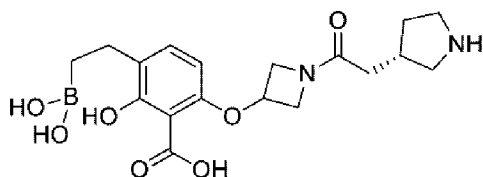
15 3-(2-boronoethyl)-2-hydroxy-6-[(1-{[(3R)-pyrrolidin-3-yl]acetyl}azetidin-3-yl)oxy]benzoic acid

[Chemical Formula 589]



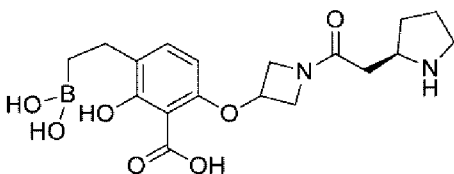
3-(2-boronoethyl)-2-hydroxy-6-[(1-[(3S)-pyrrolidin-3-yl]acetyl)azetidin-3-yl]oxy]benzoic acid

5 [Chemical Formula 590]



3-(2-boronoethyl)-2-hydroxy-6-[(1-[(2R)-pyrrolidin-2-yl]acetyl)azetidin-3-yl]oxy]benzoic acid

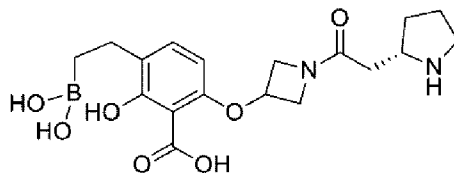
[Chemical Formula 591]



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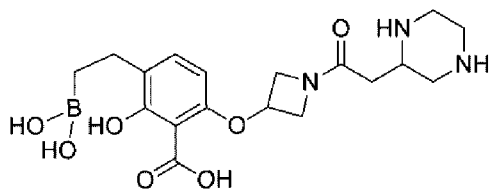
3-(2-boronoethyl)-2-hydroxy-6-[(1-[(2S)-pyrrolidin-2-yl]acetyl)azetidin-3-yl]oxy]benzoic acid

[Chemical Formula 592]



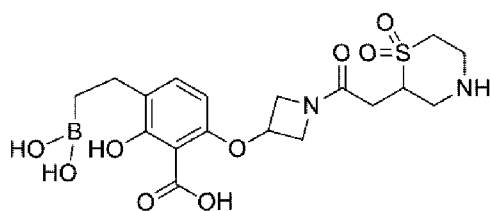
15 3-(2-boronoethyl)-2-hydroxy-6-[(1-[(piperazin-2-yl]acetyl)azetidin-3-yl]oxy]benzoic acid

[Chemical Formula 593]



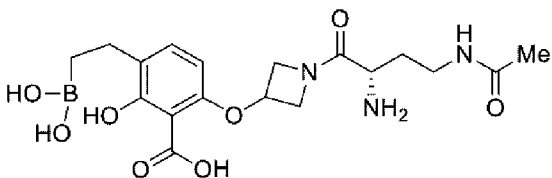
3-(2-boronoethyl)-6-({1-[(1,1-dioxo-1 λ^6 -thiomorpholin-2-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

5 [Chemical Formula 594]



6-({1-[(2S)-4-acetamido-2-aminobutanoyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

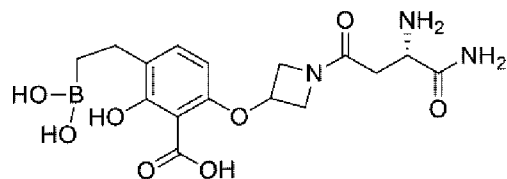
[Chemical Formula 595]



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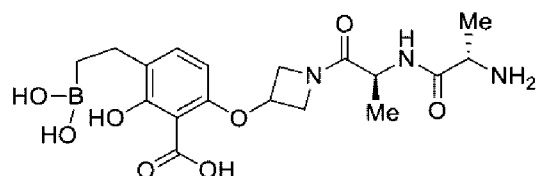
6-([1-(L- α -asparaginyl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 596]



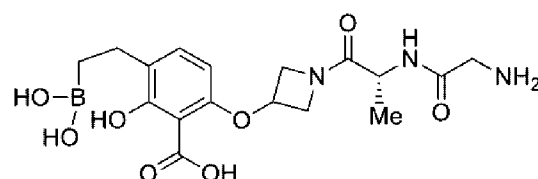
15 6-([1-(L-alanyl-L-alanyl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 597]



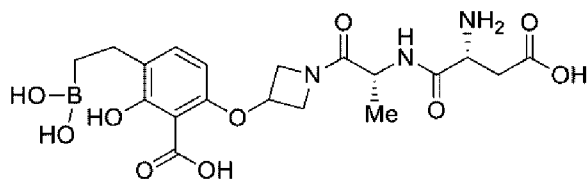
3-(2-boronoethyl)-6-{[1-(glycyl-D-alanyl)azetidin-3-yl]oxy}-2-hydroxybenzoic acid

5 [Chemical Formula 598]



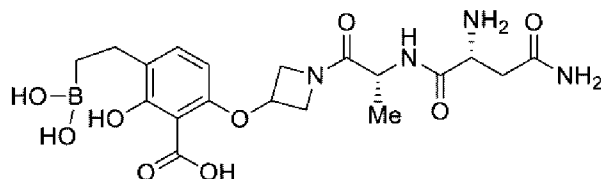
N-[(2R)-1-{3-[4-(2-boronoethyl)-2-carboxy-3-hydroxyphenoxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-α-asparagine

10 [Chemical Formula 599]



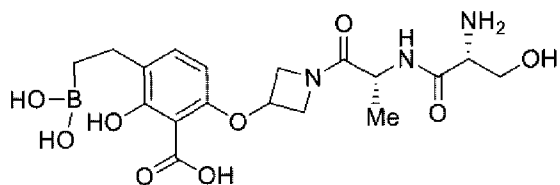
N¹-[(2R)-1-{3-[4-(2-boronoethyl)-2-carboxy-3-hydroxyphenoxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-aspartamide

15 [Chemical Formula 600]



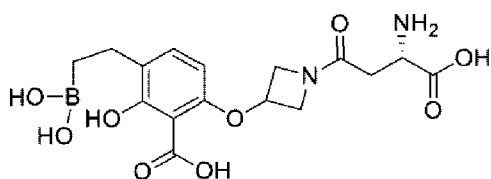
N-[(2R)-1-{3-[4-(2-boronoethyl)-2-carboxy-3-hydroxyphenoxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-serinamide

[Chemical Formula 601]



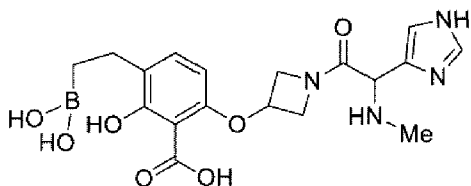
6-({1-[(3S)-3-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-
3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 602]



3-(2-boronoethyl)-2-hydroxy-6-({1-[(1H-imidazol-4-
yl)(methylamino)acetyl]azetidin-3-yl}oxy)benzoic acid

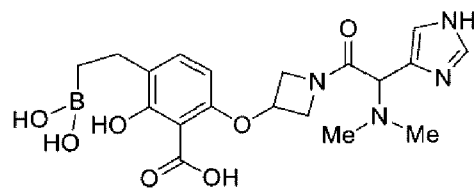
[Chemical Formula 603]



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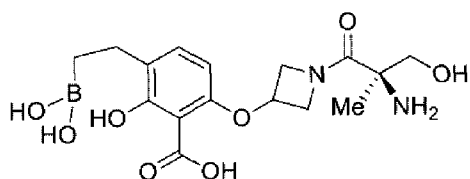
3-(2-boronoethyl)-6-({1-[(dimethylamino)(1H-imidazol-4-
yl)acetyl]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

[Chemical Formula 604]



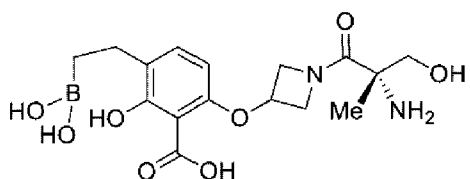
15 3-(2-boronoethyl)-2-hydroxy-6-([1-(2-methyl-D-
seryl)azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 605]



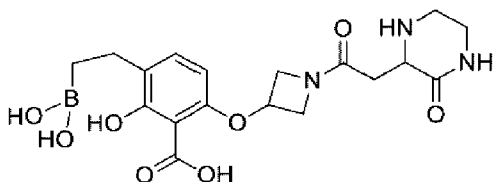
3-(2-boronoethyl)-2-hydroxy-6-([1-(2-methyl-L-seryl)azetidin-3-yl]oxy)benzoic acid

5 [Chemical Formula 606]



3-(2-boronoethyl)-2-hydroxy-6-([1-[(3-oxopiperazin-2-yl)acetyl]azetidin-3-yl]oxy)benzoic acid

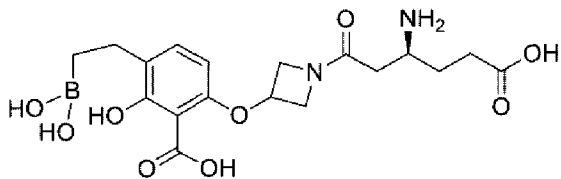
[Chemical Formula 607]



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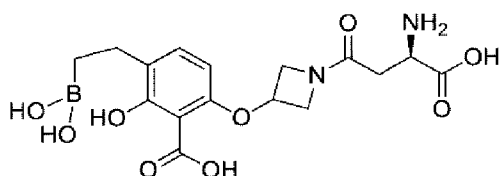
6-([1-[(3S)-3-amino-5-carboxypentanoyl]azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 608]



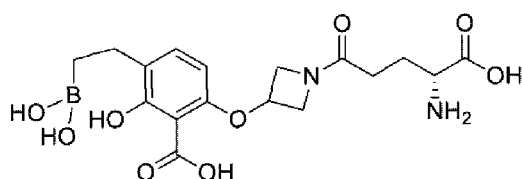
15 6-([1-[(3R)-3-amino-3-carboxypropanoyl]azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 609]



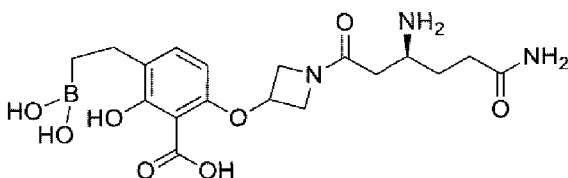
6-({1-[(4R)-4-amino-4-carboxybutanoyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 610]



3-(2-boronoethyl)-6-({1-[(3S)-3,6-diamino-6-oxohexanoyl]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

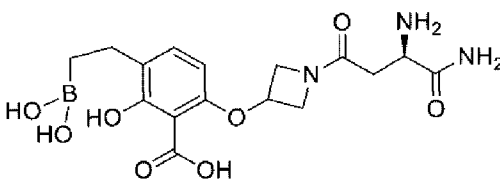
[Chemical Formula 611]



10

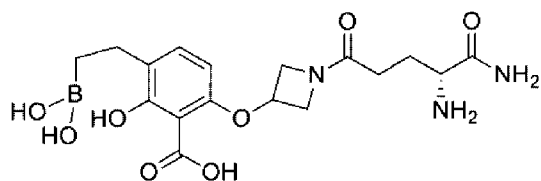
6-([1-(D-α-asparaginy)]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 612]



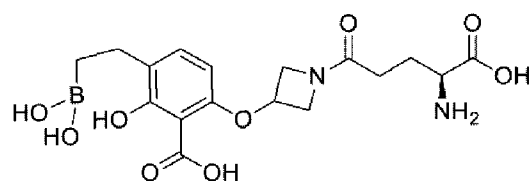
15 3-(2-boronoethyl)-6-([1-(D-α-glutaminy)]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

[Chemical Formula 613]



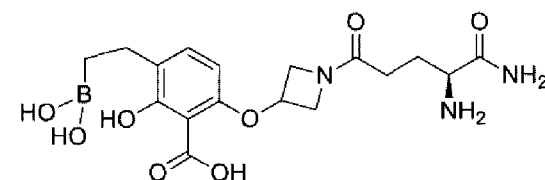
6-({1-[(4S)-4-amino-4-carboxybutanoyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 614]



3-(2-boronoethyl)-6-({1-[(L-α-glutaminy]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

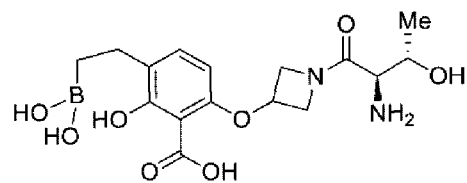
[Chemical Formula 615]



10

3-(2-boronoethyl)-2-hydroxy-6-[(1-D-threonylazetidin-3-yl)oxy]benzoic acid

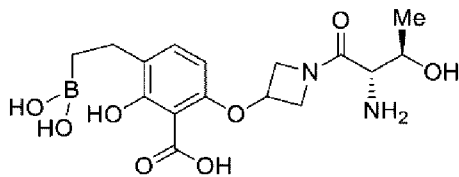
[Chemical Formula 616]



, and

15 3-(2-boronoethyl)-2-hydroxy-6-[(1-L-threonylazetidin-3-yl)oxy]benzoic acid

[Chemical Formula 617]



[Item 70]

A medicament comprising the compound or the
5 pharmaceutically acceptable salt thereof according to any
one of items 1 to 69.

[Item 71]

The medicament according to item 70, which is a
therapeutic drug or a prophylactic drug for a bacterial
10 infection.

[Item 72]

A β -lactamase inhibiting agent comprising the compound
or the pharmaceutically acceptable salt thereof according
to any one of items 1 to 69 as an active ingredient.

15 [Item 73]

A pharmaceutical composition comprising the compound or
the pharmaceutically acceptable salt thereof according to
any one of items 1 to 69 and a pharmaceutically acceptable
carrier.

20 [Item 74]

The pharmaceutical composition according to item 73,
further comprising an additional agent.

[Item 75]

The pharmaceutical composition according to item 74,
25 wherein the additional agent is selected from the group
consisting of an antibacterial agent, an antifungal agent,
an antiviral agent, an anti-inflammatory agent, and an
anti-allergic agent.

[Item 76]

30 The pharmaceutical composition according to item 74 or
75, wherein the additional agent is a β -lactam agent.

[Item 77]

The pharmaceutical composition according to item 75 or 76, wherein a β -lactam agent, which is the additional agent, is selected from the group consisting of amoxicillin, ampicillin (pivampicillin, hetacillin, bacampicillin, 5 metampicillin, and talampicillin), epicillin, carbenicillin (carindacillin), ticarcillin, temocillin, azlocillin, piperacillin, mezlocillin, mecillinam (pivmecillinam), sulbenicillin, benzylpenicillin (G), clometocillin, benzathine benzylpenicillin, procaine benzylpenicillin, 10 azidocillin, penamecillin, phenoxymethyl penicillin (V), propicillin, benzathine phenoxymethylpenicillin, phenethicillin, cloxacillin (dicloxacillin and flucloxacillin), oxacillin, methicillin, nafcillin, faropenem, biapenem, doripenem, ertapenem, imipenem, 15 meropenem, panipenem, tomopenem, razupenem, cefazolin, cefacetrile, cefadroxil, cephalixin, cefaloglycin, cefalonium, cefaloridine, cephalothin, cephapirin, cefatrizine, cefazedone, cefazaflur, cefradine, cefroxadine, ceftezole, cefaclor, cefamandole, cefminox, cefonicide, 20 ceforanide, cefotiam, cefprozil, cefbuperazone, cefuroxime, cefuzonam, ceftazidime, cefotetan, cefmetazole, loracarbef, cefixime, ceftazidime, ceftriaxone, cefcapene, cefdaloxime, cefdinir, cefditoren, cefetamet, cefmenoxime, cefodizime, cefoperazone, cefotaxime, cefpimizole, cefpiramide, 25 cefpodoxime, cefsulodin, cefteram, ceftibuten, ceftiolene, ceftizoxime, flomoxef, latamoxef, cefepime, ceftazopran, cefpirome, cefquinome, ceftobiprole, ceftaroline, CXA-101, RWJ-54428, MC-04546, ME1036, BAL30072, SYN2416, ceftiofur, cefquinome, cefovecin, aztreonam, tigemonam, carumonam, 30 RWJ-442831, RWJ-333441, and RWJ-333442.

[Item 78]

The pharmaceutical composition according to item 76 or 77, wherein the β -lactam agent is selected from ceftazidime, biapenem, doripenem, ertapenem, imipenem, meropenem, or 35 panipenem.

[Item 79]

The pharmaceutical composition according to item 76 or 77, wherein the β -lactam agent is selected from aztreonam, tigemonam, BAL30072, SYN2416, or carumonam.

[Item 80]

5 The pharmaceutical composition according to item 73, characterized in that an additional agent is concomitantly administered.

[Item 81]

10 The pharmaceutical composition according to item 80, wherein the additional agent is selected from an antibacterial agent, an antifungal agent, an antiviral agent, an anti-inflammatory agent, or an anti-allergic agent.

[Item 82]

15 The pharmaceutical composition according to item 80 or 81, wherein the additional agent is a β -lactam agent.

[Item 83]

The pharmaceutical composition according to item 81 or 82, wherein a β -lactam agent, which is the additional agent, is selected from the group consisting of amoxicillin, ampicillin (pivampicillin, hetacillin, bacampicillin, metampicillin, and talampicillin), epicillin, carbenicillin (carindacillin), ticarcillin, temocillin, azlocillin, piperacillin, mezlocillin, mecillinam (pivmecillinam), 20 sulbenicillin, benzylpenicillin (G), clometocillin, benzathine benzylpenicillin, procaine benzylpenicillin, azidocillin, penamecillin, phenoxymethyl penicillin (V), propicillin, benzathine phenoxymethylpenicillin, phenethicillin, cloxacillin (dicloxacillin and 30 flucloxacillin), oxacillin, methicillin, nafcillin, faropenem, biapenem, doripenem, ertapenem, imipenem, meropenem, panipenem, tomopenem, razupenem, cefazolin, cefacetrile, cefadroxil, cephalixin, cefaloglycin, cefalonium, cefaloridine, cephalothin, cephapirin, 35 cefatrizine, cefazedone, cefazaflur, cefradine, cefroxadine, ceftezole, cefaclor, cefamandole, cefminox, cefonicide,

ceforanide, cefotiam, cefprozil, cefbuperazone, cefuroxime, cefuzonam, cefoxitin, cefotetan, cefmetazole, loracarbef, cefixime, ceftazidime, ceftriaxone, cefcapene, cefdaloxime, cefdinir, cefditoren, cefetamet, cefmenoxime, cefodizime, 5 cefoperazone, cefotaxime, cefpimizole, cefpiramide, cefpodoxime, cefsulodin, ceftoram, ceftibuten, ceftiolene, ceftizoxime, flomoxef, latamoxef, cefepime, ceftazopran, cefpirome, cefquinome, ceftobiprole, ceftaroline, CXA-101, RWJ-54428, MC-04546, ME1036, BAL30072, SYN2416, ceftiofur, 10 cefquinome, ceftovecin, aztreonam, tigemonam, carumonam, RWJ-442831, RWJ-333441, and RWJ-333442.

[Item 84]

The pharmaceutical composition according to item 82 or 83, wherein the β -lactam agent is selected from the group 15 consisting of ceftazidime, biapenem, doripenem, ertapenem, imipenem, meropenem, and panipenem.

[Item 85]

The pharmaceutical composition according to item 82 or 83, wherein the β -lactam agent is selected from the group 20 consisting of aztreonam, tigemonam, BAL30072, SYN2416, and carumonam.

[Item 86]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items for 25 treating a bacterial infection.

[Item 87]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein the bacterial infection is a bacterial infection in 30 which a bacteria that can have a β -lactamase is involved.

[Item 88]

The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items, wherein the bacterial infection is sepsis, febrile 35 neutropenia, bacterial meningitis, bacterial endocarditis, otitis media, sinusitis, pneumonia, lung abscess, empyema,

secondary infection of a chronic respiratory disease, pharyngolaryngitis, tonsillitis, osteomyelitis, arthritis, peritonitis, intraperitoneal abscess, cholecystitis, cholangitis, liver abscess, a deep skin infection, lymphangitis/lymphadenitis, secondary infection of trauma, burn injury, surgical wound, or the like, a urinary tract infection, a genital infection, an eye infection, or an odontogenic infection.

[Item 89]

A medicament comprised of a combination of the compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items and at least one agent selected from the group consisting of therapeutic agents for sepsis, febrile neutropenia, bacterial meningitis, bacterial endocarditis, otitis media, sinusitis, pneumonia, lung abscess, empyema, secondary infection of a chronic respiratory disease, pharyngolaryngitis, tonsillitis, osteomyelitis, arthritis, peritonitis, intraperitoneal abscess, cholecystitis, cholangitis, liver abscess, a deep skin infection, lymphangitis/lymphadenitis, secondary infection of trauma, burn injury, surgical wound, or the like, a urinary tract infection, a genital infection, an eye infection, and an odontogenic infection.

[Item 90]

A pharmaceutical composition comprising a β -lactam agent, wherein the pharmaceutical composition is administered with the compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items.

[Item 91]

A method for treating a bacterial infection, characterized in that a therapeutically effective amount of the compound or the pharmaceutically acceptable salt thereof according to any one of the preceding items is administered to a patient in need thereof.

[Item 92]

The method according to any one of the preceding items, wherein the bacterial infection is a bacterial infection in which a bacteria that can have a β -lactamase is involved.

[Item 93]

5 The method according to any one of the preceding items, wherein the bacterial infection is sepsis, febrile neutropenia, bacterial meningitis, bacterial endocarditis, otitis media, sinusitis, pneumonia, lung abscess, empyema, secondary infection of a chronic respiratory disease,
10 pharyngolaryngitis, tonsillitis, osteomyelitis, arthritis, peritonitis, intraperitoneal abscess, cholecystitis, cholangitis, liver abscess, a deep skin infection, lymphangitis/lymphadenitis, secondary infection of trauma, burn injury, surgical wound, or the like, a urinary tract
15 infection, a genital infection, an eye infection, or an odontogenic infection.

[Item 94]

The method of any one of the preceding items, characterized in that an additional agent is concomitantly
20 administered.

[0011]

The present invention is intended so that one or more of the features described above can be provided not only as the explicitly disclosed combinations, but also as other
25 combinations thereof. Additional embodiments and advantages of the invention are recognized by those skilled in the art by reading and understanding the following detailed description as needed.

[Advantageous Effects of Invention]

30 [0012]

The compound of the invention has excellent inhibitory action against serine- β -lactamase with a serine residue at the center of enzymatic activity. A better embodiment of the compound of the invention is expected to have a broad
35 β -lactamase inhibitory action or metallo- β -lactamase inhibitory action with zinc (Zn^{2+}) at the center of

enzymatic activity against multiple types of β -lactamases. Therefore, the compound of the invention is useful alone or in concomitant use with a β -lactam agent as a therapeutic agent and/or prophylactic agent for a bacterial infection in which a bacteria that can have a β -lactamase is involved, i.e., sepsis, febrile neutropenia, bacterial meningitis, bacterial endocarditis, otitis media, sinusitis, pneumonia, lung abscess, empyema, secondary infection of a chronic respiratory disease, pharyngolaryngitis, tonsillitis, osteomyelitis, arthritis, peritonitis, intraperitoneal abscess, cholecystitis, cholangitis, liver abscess, a deep skin infection, lymphangitis/lymphadenitis, secondary infection of trauma, burn injury, surgical wound, or the like, a urinary tract infection, a genital infection, an eye infection, or an odontogenic infection.

[Description of Embodiments]

[0013]

The present invention is described hereinafter in more detail.

Throughout the entire specification, a singular expression should be understood as encompassing the concept thereof in the plural form, unless specifically noted otherwise. Thus, singular articles (e.g., "a", "an", "the", and the like in the case of English) should also be understood as encompassing the concept thereof in the plural form, unless specifically noted otherwise. The terms used herein should also be understood as being used in the meaning that is commonly used in the art, unless specifically noted otherwise. Thus, unless defined otherwise, all terminologies and scientific technical terms that are used herein have the same meaning as the general understanding of those skilled in the art to which the present invention pertains. In case of a contradiction, the present specification (including the definitions) takes precedence.

The terms and the general technologies that are used

herein are first described.

[0014]

Unless specifically noted otherwise, the term "group" refers to a monovalent group. Examples of groups that are not a monovalent group include alkylene groups (divalent). The term "group" may also be omitted in the following descriptions of substituents or the like.

[0015]

Unless specifically limited, the number of substituents when defined as "optionally substituted" or "substituted" is not particularly limited herein, as long as a substitution is possible. The number of substituents is one or multiple substituents. Moreover, unless indicated otherwise, the description for each substituent is also applicable when the substituent is a part of or a substituent of another group.

[0016]

A substituent in "optionally substituted" is selected from substituent group α that consists of the following. The substitution is optionally substituted with 1 to 5 of the same or different substituents. While not particularly limited by the type of substituent, if an atom to which the substituent attaches is an oxygen atom, a nitrogen atom, or a sulfur atom, the substituent is limited to the following substituents that attaches to a carbon atom.

Substituent group α includes

- 1) a halogen atom
- 2) a hydroxyl group
- 3) a carboxyl group
- 4) a cyano group
- 5) a sulfanyl group,
- 6) a nitro group,
- 7) a C₁₋₆ alkyl group
- 8) a C₂₋₆ alkenyl group
- 9) a C₂₋₆ alkynyl group
- 10) a C₁₋₆ alkoxy group

- 11) a C₁₋₆ alkylthio group
- 12) a C₁₋₆ alkylcarbonyl group
- 13) a C₁₋₆ alkylsulfonyl group
- (wherein each substituent from 7) to 13) is optionally
- 5 substituent with 1 to 5 of the same or different sub
- substituents selected from substituent group β)
- 14) a C₃₋₁₀ alicyclic group
- 15) a C₃₋₁₀ alicyclic oxy group
- 16) a C₆₋₁₀ aryloxy group
- 10 17) a 5- or 6-membered heteroaryloxy group
- 18) a 4- to 10-membered non-aryl heterocyclyl oxy group
- 19) a C₃₋₁₀ alicyclic thio group
- 20) a C₆₋₁₀ arylthio group
- 21) a 5- or 6-membered heteroarylthio group
- 15 22) a 4- to 10-membered non-aryl heterocyclyl thio group
- 23) C₆₋₁₀ aryl
- 24) 5- or 6-membered heteroaryl
- 25) a 4- to 10-membered non-aryl heterocycle
- 26) a C₃₋₁₀ alicyclic carbonyl group
- 20 27) a C₆₋₁₀ arylcarbonyl group
- 28) a 5- or 6-membered heteroarylcarbonyl group
- 29) a 4- to 10-membered non-aryl heterocyclyl carbonyl
- group
- 30) a 4- to 10-membered non-aryl heterocyclyl carbonylamino
- 25 group
- 31) a C₃₋₁₀ alicyclic sulfonyl group
- 32) a C₆₋₁₀ arylsulfonyl group
- 33) a 5- or 6-membered heteroarylsulfonyl group
- 34) a 4- to 10-membered non-aryl heterocyclyl sulfonyl
- 30 group
- (wherein each substituent from 14) to 34) is optionally
- substituted with 1 to 5 of substituent group β or 1) a C₁₋₆
- alkyl group)
- 35) -NR^{10a}R^{11a}
- 35 36) -SO₂-R^{10b}
- 37) -SO₂-NR^{10b}R^{11b}

- 38) $\text{-NR}^{10\text{c}}\text{-C(=O)R}^{11\text{c}}$
 39) $\text{-NR}^{10\text{d}}\text{-C(=O)OR}^{11\text{d}}$
 40) $\text{-NR}^{12\text{a}}\text{-C(=O)NR}^{10\text{e}}\text{R}^{11\text{e}}$
 41) $\text{-NR}^{10\text{f}}\text{-C(=S)R}^{11\text{f}}$
 5 42) $\text{-NR}^{10\text{g}}\text{-C(=S)OR}^{11\text{g}}$,
 43) $\text{-NR}^{12\text{b}}\text{-C(=S)NR}^{10\text{h}}\text{R}^{11\text{h}}$
 44) $\text{-NR}^{10\text{i}}\text{-SO}_2\text{-R}^{11\text{i}}$
 45) $\text{-NR}^{12\text{c}}\text{-SO}_2\text{-NR}^{10\text{j}}\text{R}^{11\text{j}}$
 46) $\text{-C(=O)OR}^{10\text{k}}$
 10 47) $\text{-C(=O)NR}^{10\text{l}}\text{R}^{11\text{k}}$
 48) $\text{-C(=O)NR}^{10\text{m}}\text{OR}^{11\text{l}}$
 49) $\text{-C(=O)NR}^{12\text{d}}\text{-NR}^{10\text{n}}\text{R}^{11\text{m}}$
 50) $\text{-C(=S)OR}^{10\text{o}}$
 51) $\text{-C(=S)NR}^{10\text{p}}\text{R}^{11\text{n}}$
 15 52) $\text{-C(=S)NR}^{10\text{q}}\text{OR}^{11\text{o}}$
 53) $\text{-C(=S)NR}^{12\text{e}}\text{-NR}^{10\text{r}}\text{R}^{11\text{p}}$
 54) $\text{-C(=NR}^{13\text{a}}\text{)R}^{10\text{s}}$
 55) $\text{-C(=NR}^{13\text{b}}\text{)CHO}$
 56) $\text{-C(=NR}^{13\text{c}}\text{)NR}^{10\text{t}}\text{R}^{11\text{q}}$
 20 57) $\text{-C(=NR}^{13\text{d}}\text{)NR}^{12\text{f}}\text{-NR}^{10\text{u}}\text{R}^{11\text{r}}$
 58) $\text{-NR}^{17\text{c}}\text{-C(=NR}^{13\text{k}}\text{)R}^{17\text{d}}$
 59) $\text{-NR}^{12\text{g}}\text{-C(=NR}^{13\text{e}}\text{)-NR}^{10\text{v}}\text{R}^{11\text{s}}$
 60) $\text{-NR}^{14}\text{-C(=NR}^{13\text{f}}\text{)-NR}^{12\text{h}}\text{-NR}^{10\text{w}}\text{R}^{11\text{t}}$
 61) $\text{-OC(=O)R}^{10\text{x}}$
 25 62) $\text{-OC(=O)OR}^{10\text{y}}$
 63) $\text{-OC(=O)NR}^{10\text{z1}}\text{R}^{11\text{u}}$
 64) $\text{-NR}^{12\text{i}}\text{-NR}^{10\text{z2}}\text{R}^{11\text{v}}$
 65) $\text{-NR}^{10\text{z3}}\text{OR}^{11\text{w}}$
 66) $\text{-C(=N-OR}^{13\text{a}}\text{)R}^{10\text{s}}$
 30 67) $\text{-C(=N-OR}^{13\text{b}}\text{)CHO}$
 68) $\text{-C(=N-OR}^{13\text{c}}\text{)NR}^{10\text{t}}\text{R}^{11\text{q}}$
 69) $\text{-C(=N-OR}^{13\text{d}}\text{)NR}^{12\text{f}}\text{-NR}^{10\text{u}}\text{R}^{11\text{r}}$
 70) $\text{-C(=O)NR}^{12\text{j}}\text{-S(=O)}_2\text{-R}^{10\text{a1}}$ and
 71) $\text{-C(=O)NR}^{12\text{k}}\text{-S(=O)}_2\text{-NR}^{10\text{a2}}\text{R}^{11\text{x}}$,
 35 substituent group β is a group consisting of
 1) a halogen atom,

- 2) a hydroxyl group,
 - 3) a carboxyl group,
 - 4) a cyano group,
 - 5) a C₃₋₁₀ alicyclic group,
 - 5 6) a C₁₋₆ alkoxy group,
 - 7) a C₃₋₁₀ alicyclic oxy group,
 - 8) a C₁₋₆ alkylthio group,
 - 9) a 5- or 6-membered heteroarylthio group,
 - 10) C₆₋₁₀ aryl,
 - 10 11) 5- or 6-membered heteroaryl,
 - 12) a 4- to 10-membered non-aryl heterocycle,
 - 13) a C₁₋₆ alkylcarbonyl group,
 - 14) a C₃₋₁₀ alicyclic carbonyl group,
 - 15) a C₆₋₁₀ arylcarbonyl group,
 - 15 16) a 5- or 6-membered heteroarylcarbonyl group,
 - 17) a 4- to 10-membered non-aryl heterocyclyl carbonyl group,
 - 18) -NR^{15a}R^{16a},
 - 19) -SO₂-NR^{15b}R^{16b},
 - 20 20) -NR^{15c}-C(=O)R^{16c}
 - 21) -NR^{17a}-C(=O)NR^{15d}R^{16d},
 - 22) -C(=O)NR^{15e}R^{16e},
 - 23) -C(=NR^{13g})R^{15f},
 - 24) -C(=NR^{13h})NR^{15g}R^{16f}
 - 25 25) -NR^{16g}-C(=NR¹³ⁱ)R^{15h}
 - 26) -NR^{17b}-C(=NR^{13j})-NR¹⁵ⁱR^{16h}
 - 27) -C(=N-OR^{13g})R^{15f}, and
 - 28) -C(=N-OR^{13h})NR^{15g}R^{16f}
- (wherein each substituent from 5) to 17) in substituent
- 30 group β is optionally substituted with 1 to 5 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a cyano group, a carboxyl group, and -NR^{18a}R^{18b}),
- R^{13a}, R^{13b}, R^{13c}, R^{13d}, R^{13e}, R^{13f}, R^{13g}, R^{13h}, R¹³ⁱ, R^{13j}, and
- 35 R^{13k} are the same or different, each independently a hydrogen atom, a hydroxyl group, a C₁₋₆ alkyl group, or a

C₁₋₆ alkoxy group,

R^{10a}, R^{10b}, R^{10c}, R^{10d}, R^{10e}, R^{10f}, R^{10g}, R^{10h}, R¹⁰ⁱ, R^{10j}, R^{10k},
 R^{10l}, R^{10m}, R¹⁰ⁿ, R^{10o}, R^{10p}, R^{10q}, R^{10r}, R^{10s}, R^{10t}, R^{10u}, R^{10v}, R^{10w},
 R^{10x}, R^{10y}, R^{10a1}, R^{10a2}, R^{10z1}, R^{10z2}, R^{10z3}, R^{11a}, R^{11b}, R^{11c}, R^{11d},
 5 R^{11e}, R^{11f}, R^{11g}, R^{11h}, R¹¹ⁱ, R^{11j}, R^{11k}, R^{11l}, R^{11m}, R¹¹ⁿ, R^{11o}, R^{11p},
 R^{11q}, R^{11r}, R^{11s}, R^{11t}, R^{11u}, R^{11v}, R^{11w}, R^{11x}, R^{12a}, R^{12b}, R^{12c}, R^{12d},
 R^{12e}, R^{12f}, R^{12g}, R^{12h}, R¹²ⁱ, R^{12j}, R^{12k}, R¹⁴, R^{15a}, R^{15b}, R^{15c}, R^{15d},
 R^{15e}, R^{15f}, R^{15g}, R^{15h}, R¹⁵ⁱ, R^{16a}, R^{16b}, R^{16c}, R^{16d}, R^{16e}, R^{16f}, R^{16g},
 R^{16h}, R^{17a}, R^{17b}, R^{17c}, and R^{17d} are the same or different, each
 10 independently a hydrogen atom, a 5- or 6-membered non-aryl
 heterocycle, or a C₁₋₆ alkyl group (wherein the 5- or 6-
 membered non-aryl heterocycle and the C₁₋₆ alkyl group are
 optionally substituted with 1 to 3 of the same or different
 substituents, each independently selected from the group
 15 consisting of a hydroxyl group, a cyano group, a C₁₋₆ alkoxy
 group, -NR^{18a}R^{18b}, a carboxyl group, and -C(=O)NR^{18c}R^{18d}), and
 R^{18a}, R^{18b}, R^{18c}, and R^{18d} are the same or different, each
 independently a hydrogen atom or a C₁₋₆ alkyl group.

[0017]

20 Preferred examples of substituents in "optionally
 substituted" include the following substituents.

Preferred substituent group α includes

- 1) a halogen atom
- 2) a hydroxyl group
- 25 3) a carboxyl group
- 4) a cyano group
- 5) a C₁₋₆ alkyl group
- 6) a C₁₋₆ alkoxy group
- 7) a C₁₋₆ alkylthio group
- 30 8) a C₁₋₆ alkylcarbonyl group
- (wherein each substituent from 5) to 8) is optionally
 substituted with 1 to 5 of the same or different
 substituents selected from substituent group β)
- 9) a C₃₋₁₀ alicyclic group
- 35 10) a C₃₋₁₀ alicyclic oxy group
- 11) a C₆₋₁₀ aryloxy group

- 12) a 5- or 6-membered heteroaryloxy group
- 13) a 4- to 10-membered non-aryl heterocyclyl oxy group
- 14) a C₃₋₁₀ alicyclic thio group
- 15) a C₆₋₁₀ arylthio group
- 5 16) a 5- or 6-membered heteroarylthio group
- 17) a 4- to 10-membered non-aryl heterocyclyl thio group
- 18) C₆₋₁₀ aryl
- 19) 5- or 6-membered heteroaryl
- 20) a 4- to 10-membered non-aryl heterocycle
- 10 21) a C₃₋₁₀ alicyclic carbonyl group
- 22) a C₆₋₁₀ arylcarbonyl group
- 23) a 5- or 6-membered heteroarylcarbonyl group
- 24) a 4- to 10-membered non-aryl heterocyclyl carbonyl group
- 15 (wherein each substituent from 9) to 24) is optionally substituted with 1 to 5 of substituent group β or 1) a C₁₋₆ alkyl group)
- 25) -NR^{10a}R^{11a}
- 26) -SO₂-NR^{10b}R^{11b}
- 20 27) -NR^{10c}-C(=O)R^{11c}
- 28) -NR^{12a}-C(=O)NR^{10d}R^{11d}
- 29) -NR^{10e}-SO₂-R^{11e}
- 30) -NR^{12b}-SO₂-NR^{10f}R^{11f}
- 31) -C(=O)NR^{10g}R^{11g}
- 25 32) -C(=NR^{13a})R^{10h}
- 33) -C(=NR^{13b})NR¹⁰ⁱR^{11h}
- 34) -NR^{11f}-C(=NR^{13c})R^{10g}
- 35) -NR^{12c}-C(=NR^{13d})-NR^{10j}R¹¹ⁱ
- 36) -C(=N-OR^{13a})R^{10h}, and
- 30 37) -C(=N-OR^{13b})NR¹⁰ⁱR^{11h},
- substituent group β is preferably selected from the group consisting of
- 1) a halogen atom
- 2) a hydroxyl group
- 35 3) a cyano group
- 4) a C₃₋₁₀ alicyclic group

- 5) a C₁₋₆ alkoxy group
- 6) a C₁₋₆ alkylthio group
- 7) a 5- or 6-membered heteroarylthio group
- 8) 5- or 6-membered heteroaryl
- 5 9) a 4- to 10-membered non-aryl heterocycle
- 10) a C₁₋₆ alkylcarbonyl group
- 11) a C₃₋₁₀ alicyclic carbonyl group
- 12) a C₆₋₁₀ arylcarbonyl group
- 13) a 5- or 6-membered heteroarylcarbonyl group
- 10 14) a 4- to 10-membered non-aryl heterocyclyl carbonyl group
- 15) -NR^{15a}R^{16a}
- 16) -NR^{15b}-C(=O)R^{16b}
- 17) -NR^{17a}-C(=O)NR^{15c}R^{16c}
- 15 18) -C(=O)NR^{15d}R^{16d}
- 19) -C(=NR^{13e})R^{15e}
- 20) -C(=NR^{13f})NR^{15f}R^{16e}
- 21) -NR^{16f}-C(=NR^{13g})R^{15g}
- 22) -NR^{17b}-C(=NR^{13h})-NR^{15h}R^{16g}
- 20 23) -C(=N-OR^{13e})R^{15e} and
- 24) -C(=N-OR^{13f})NR^{15f}R^{16e}

(wherein each substituent from 4) to 14) in substituent group β is optionally substituted with 1 to 5 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a cyano group, a carboxyl group, and -NR^{18a}R^{18b}),

R^{13a}, R^{13b}, R^{13c}, R^{13d}, R^{13e}, R^{13f}, R^{13g}, and R^{13h} are the same or different, each independently a hydrogen atom, a hydroxyl group, a C₁₋₆ alkyl group, or a C₁₋₆ alkoxy group,

30 R^{10a}, R^{10b}, R^{10c}, R^{10d}, R^{10e}, R^{10f}, R^{10g}, R^{10h}, R¹⁰ⁱ, R^{10j}, R^{11a}, R^{11b}, R^{11c}, R^{11d}, R^{11e}, R^{11f}, R^{11g}, R^{11h}, R¹¹ⁱ, R^{12a}, R^{12b}, R^{12c}, R^{15a}, R^{15b}, R^{15c}, R^{15d}, R^{15e}, R^{15f}, R^{15g}, R^{15h}, R^{16a}, R^{16b}, R^{16c}, R^{16d}, R^{16e}, R^{16f}, R^{16g}, R^{17a}, and R^{17b} are the same or different, each independently a hydrogen atom or a C₁₋₆ alkyl group (wherein

35 the group is optionally substituted with 1 to 3 of the same or different substituents selected from a hydroxyl group, a

cyano group, C₁₋₆ alkoxy group, and -NR^{18a}R^{18b}), and

R^{18a} and R^{18b} are the same or different, each independently a hydrogen atom or a C₁₋₆ alkyl group.

[0018]

5 More preferred examples of substituents in "optionally substituted" include the following substituents.

More preferred substituent group α includes

- 1) a halogen atom
- 2) a hydroxyl group
- 10 3) a cyano group
- 4) a C₁₋₆ alkyl group
- 5) a C₁₋₆ alkoxy group
- 6) a C₁₋₆ alkylthio group
- 7) a C₁₋₆ alkylcarbonyl group
- 15 (wherein each substituent from 4) to 7) is optionally substituted with 1 to 5 of the same or different substituents selected from substituent group β)
- 8) a 5- or 6-membered heteroaryloxy group
- 9) a 4- to 10-membered non-aryl heterocyclyl oxy group
- 20 10) a 5- or 6-membered heteroarylthio group
- 11) a 4- to 10-membered non-aryl heterocyclyl thio group
- 12) C₆₋₁₀ aryl
- 13) 5- or 6-membered heteroaryl
- 14) a 4- to 10-membered non-aryl heterocycle
- 25 (wherein each substituent from 4) to 14) is optionally substituted with 1 to 5 of substituent group β or 1) a C₁₋₆ alkyl group)
- 15) -NR^{10a}R^{11a}
- 16) -NR^{11b}-C(=O)R^{10b}
- 30 17) -NR^{12a}-C(=O)NR^{10c}R^{11c}
- 18) -C(=O)NR^{10d}R^{11d}
- 19) -C(=NR^{13a})R^{10e}
- 20) -C(=NR^{13b})NR^{10f}R^{11e}
- 21) -NR^{11f}-C(=NR^{13c})R^{10g}
- 35 22) -NR^{12b}-C(=NR^{13d})-NR^{10h}R^{11g}
- 23) -C(=N-OR^{13a})R^{10e} and

24) $-C(=N-OR^{13b})NR^{10f}R^{11e}$,
 substituent group β is more preferably

- 1) a halogen atom,
 - 2) a hydroxyl group,
 - 5 3) a cyano group,
 - 4) $-NR^{15a}R^{16a}$,
 - 5) $-NR^{15b}-C(=O)R^{16b}$,
 - 6) $-NR^{17a}-C(=O)NR^{15c}R^{16c}$,
 - 7) $-C(=O)NR^{15d}R^{16d}$,
 - 10 8) $-C(=NR^{13e})R^{15e}$,
 - 9) $-C(=NR^{13f})NR^{15f}R^{16e}$,
 - 10) $-NR^{16f}-C(=NR^{13g})R^{15g}$,
 - 11) $-NR^{17b}-C(=NR^{13h})-NR^{15h}R^{16g}$
 - 12) $-C(=N-OR^{13e})R^{15e}$, or
 - 15 13) $-C(=N-OR^{13f})NR^{15f}R^{16e}$,
- R^{13a} , R^{13b} , R^{13c} , R^{13d} , R^{13e} , R^{13f} , R^{13g} , and R^{13h} are the same or different, each independently a hydrogen atom, a hydroxyl group, a C_{1-6} alkyl group, or a C_{1-6} alkoxy group,
- R^{10a} , R^{10b} , R^{10c} , R^{10d} , R^{10e} , R^{10f} , R^{10g} , R^{10h} , R^{11a} , R^{11b} , R^{11c} ,
 20 R^{11d} , R^{11e} , R^{11f} , R^{11g} , R^{12a} , R^{12b} , R^{15a} , R^{15b} , R^{15c} , R^{15d} , R^{15e} , R^{15f} ,
 R^{15g} , R^{15h} , R^{16a} , R^{16b} , R^{16c} , R^{16d} , R^{16e} , R^{16f} , R^{16g} , R^{17a} , and R^{17b}
 are the same or different, each independently a hydrogen atom or a C_{1-6} alkyl group (wherein the group is optionally substituted with 1 to 3 of the same or different
 25 substituents selected from a hydroxyl group, a cyano group, a C_{1-6} alkoxy group, and $-NR^{18a}R^{18b}$), and
- R^{18a} and R^{18b} are the same or different, each independently a hydrogen atom or a C_{1-6} alkyl group.

[0019]

30 "C₁₋₆" means that the number of carbon atoms is 1 to 6.
 The same applies to other numbers. For example, "C₁₋₄" means that the number of carbon atoms is 1 to 4.

[0020]

A "heteroatom" refers to an oxygen atom, a nitrogen
 35 atom, a sulfur atom, or the like.

[0021]

A "halogen atom" refers to a fluorine atom, chlorine atom, bromine atom, or iodine atom, preferably a fluorine atom or chlorine atom, and still more preferably a fluorine atom. A "halogen atom" is also referred to as "halogen".

5 [0022]

"C₁₋₆ alkyl group" refers to a linear or branched saturated hydrocarbon group with 1 to 6 carbon atoms. "C₁₋₆ alkyl group" is preferably a "C₁₋₄ alkyl group", more preferably a "C₁₋₃ alkyl group", and still more preferably a
 10 "C₁₋₂ alkyl group". Specific examples of "C₁₋₆ alkyl group" include, but are not limited to, methyl, ethyl, propyl, butyl, isopropyl, isobutyl, tert-butyl, sec-butyl, isopentyl, neopentyl, tert-pentyl, 1,2-dimethylpropyl, and the like.

15 [0023]

"C₂₋₆ alkenyl group" refers to a linear or branched unsaturated hydrocarbon group with 2 to 6 carbon atoms, comprising one or more carbon-carbon double bonds. "C₂₋₆ alkenyl group" is preferably a "C₂₋₄ alkenyl group".
 20 Specific examples of "C₂₋₆ alkenyl group" include, but are not limited to, a vinyl group, 1-propylenyl group, 2-propylenyl group, 1-butenyl group, 2-butenyl group, 3-butenyl group, 2-methyl-1-propylenyl group, 2-methyl-2-propylenyl group, and the like.

25 [0024]

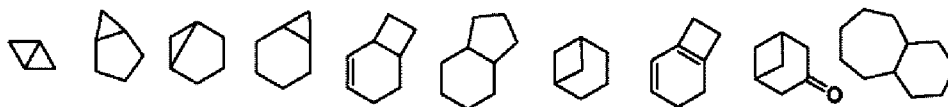
"C₂₋₆ alkynyl group" refers to a linear or branched unsaturated aliphatic hydrocarbon group comprising one or more carbon-carbon triple bonds. "C₂₋₆ alkynyl group" is preferably a "C₂₋₄ alkynyl group". Specific examples thereof
 30 include, but are not limited to, an ethynyl group, 1-propynyl group, 2-propynyl group, 1-butyne group, 1-methyl-2-propynyl group, 3-butyne group, 1-pentyne group, 1-hexynyl group, and the like.

[0025]

35 "C₃₋₂₀ alicyclic group" refers to a monocyclic or bicyclic non-aromatic hydrocarbon ring with 3 to 20 carbon

atoms, including those with a partially unsaturated bond, those with a partially crosslinked structure, those that have a partially spiro form, and those having 1 or 2 carbonyl structures. "Alicyclic group" encompasses
 5 cycloalkyl groups, cycloalkenyl groups, and cycloalkynyl groups. "C₃₋₂₀ alicyclic group" is preferably a "C₃₋₁₀ alicyclic group", and more preferably a "C₃₋₆ alicyclic group". Specific examples of "C₃₋₂₀ alicyclic group" include, but are not limited to, a cyclopropyl group, cyclobutyl
 10 group, cyclopentyl group, cyclohexyl group, cycloheptyl group, cyclooctyl group, cyclohexadynyl group, cycloheptadynyl group, cyclooctadynyl group, adamantyl, norbornyl, and the like.

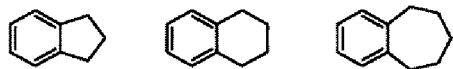
Specific examples of "C₃₋₂₀ alicyclic group" with a
 15 partially crosslinked structure include, but are not limited to, those with a structure shown below and the like.
 [Chemical Formula 618]



[0026]

20 "C₃₋₂₀ alicyclic group" also encompasses compounds fused to an aromatic ring. Specific examples thereof include the groups represented by the following and the like.

[Chemical Formula 619]



25 [0027]

"C₃₋₁₀ alicyclic group" refers to the "C₃₋₂₀ alicyclic group" described above wherein the "C₃₋₁₀ alicyclic group" is a monovalent group.

[0028]

30 "C₆₋₁₀ aryl" refers to a monocyclic or bicyclic aromatic hydrocarbon ring with 6 to 10 carbon atoms. Specific examples thereof include a phenyl group, 1-naphthyl group, 2-naphthyl group, and the like. Preferred C₆₋₁₀ aryl

includes C₆ aryl and C₁₀ aryl.

[0029]

"5- or 6-membered heteroaryl" refers to a monocyclic aromatic heterocycle consisting of 5 to 6 atoms, comprising 1 to 4 of the same or different heteroatoms selected from the group consisting of an oxygen atom, a nitrogen atom, and a sulfur atom.

[0030]

"5- to 10-membered heteroaryl" refers to a monocyclic or bicyclic aromatic heterocycle consisting of 5 to 10 atoms, comprising 1 to 4 of the same or different heteroatoms selected from the group consisting of an oxygen atom, a nitrogen atom, and a sulfur atom.

[0031]

"9- or 10-membered heteroaryl" refers to a bicyclic aromatic heterocycle consisting of 9 to 10 atoms, comprising 1 to 4 of the same or different heteroatoms selected from the group consisting of an oxygen atom, a nitrogen atom, and a sulfur atom.

[0032]

"5- or 6-membered nitrogen-containing heteroaryl" refers to a monocyclic aromatic heterocycle consisting of 5 to 6 atoms, comprising 0 to 3 of the same or different heteroatoms selected from the group consisting of an oxygen atom, a nitrogen atom, and a sulfur atom, in addition to 1 nitrogen atom.

[0033]

Specific examples of "6-membered heteroaryl" include, but are not limited to, pyridine, pyridazine, pyrimidine, pyrazine, and the like.

[0034]

Specific examples of "5-membered heteroaryl" include, but are not limited to, thiophene, pyrrole, thiazole, isothiazole, pyrazole, imidazole, furan, oxazole, isoxazole, oxadiazole, thiadiazole, triazole, tetrazole, and the like. 5-membered heteroaryl is preferably triazole, tetrazole, or

thiadiazole, and more preferably thiadiazole.

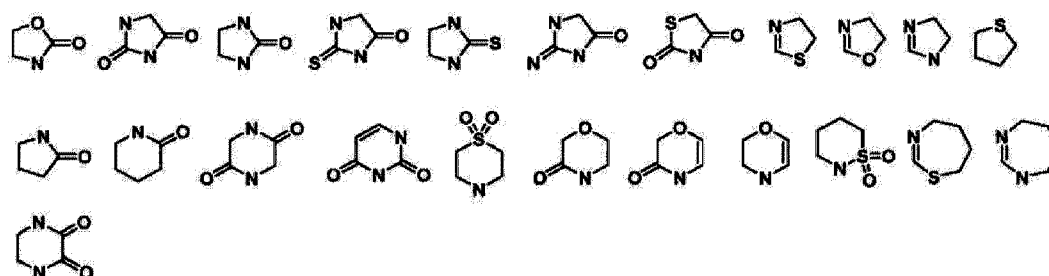
[0035]

Specific examples of "5- or 6-membered heteroaryl" include the specific examples for "5-membered heteroaryl" and "6-membered heteroaryl" described above.

[0036]

"4- to 20-membered non-aryl heterocycle" refers to a monocyclic or bicyclic non-aromatic heterocycle comprised of 4 to 20 atoms, comprising 1 to 2 of the same or different heteroatoms selected from the group consisting of an oxygen atom, a nitrogen atom, and a sulfur atom, including those with a partially unsaturated bond, those with a partially crosslinked structure, and those that have a partially spiro form. A non-aryl heterocycle may form a fused ring with aryl or heteroaryl. When fused to, for example, C₆₋₁₀ aryl or 5- or 6-membered heteroaryl, such a heterocycle is still encompassed by a heterocycle. Such a heterocycle may comprise 1 or 2 carbonyl, thiocarbonyl, sulfinyl, or sulfonyl to make up the non-aryl heterocycle. For example, lactam, thiolactam, lactone, thiolactone, cyclic imide, cyclic carbamate, cyclic thiocarbamate, and other cyclic groups are also encompassed by said non-aryl heterocycle. In this regard, oxygen atoms of carbonyl, sulfinyl, and sulfonyl and sulfur atoms of thiocarbonyl are not included in the number of 4 to 20 members (size of ring) or the number of heteroatoms constituting the ring. Specific examples of "4- to 20-membered non-aryl heterocycle" include, but are not limited to, azetidine, pyrrolidine, piperidine, piperazine, morpholine, homopiperidine, oxetane, tetrahydrofuran, tetrahydropyran, and the like, those with a structure shown below, and the like.

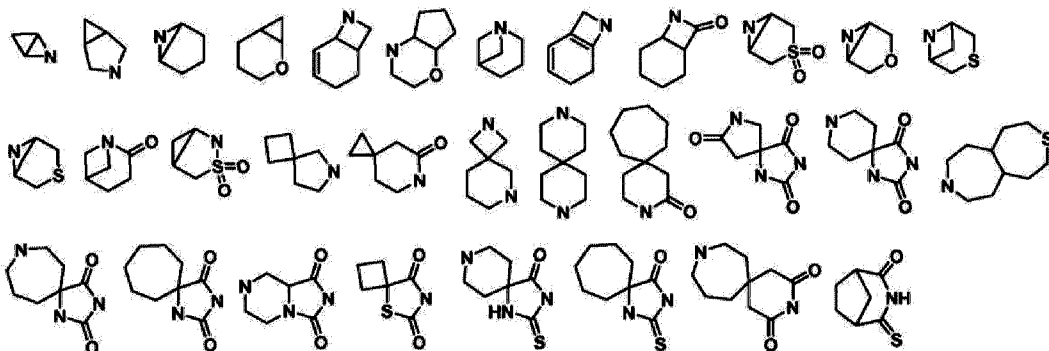
[Chemical Formula 620]



[0037]

Specific examples of "4- to 20-membered non-aryl
 5 heterocycle" with partial crosslinking or spiro structure include, but are not limited to, those with a structure shown below and the like.

[Chemical Formula 621]



10 [0038]

"4- to 20-membered nitrogen-containing non-aryl
 heterocycle" refers to a monocyclic or bicyclic non-
 aromatic heterocycle comprised of 4 to 20 atoms, comprising
 0 or 1 of the same or different heteroatoms selected from
 15 the group consisting of an oxygen atom, a nitrogen atom,
 and a sulfur atom, in addition to 1 nitrogen atom,
 including those with a partially unsaturated bond, those
 with a partially crosslinked structure, and those that have
 a partially spiro form.

20 [0039]

"4- to 10-membered non-aryl heterocycle" refers to the
 "4- to 20-membered non-aryl heterocycle" described above
 wherein "4- to 10-membered non-aryl heterocycle" is a

monovalent group.

[0040]

"4- to 10-membered nitrogen-containing non-aryl heterocycle" refers to the "4- to 20-membered nitrogen-containing non-aryl heterocycle" wherein the "4- to 10-membered nitrogen-containing non-aryl heterocycle" is a monovalent group.

[0041]

"5- to 7-membered non-aryl heterocycle" refers to the "4- to 20-membered non-aryl heterocycle" described above wherein "5- to 7-membered non-aryl heterocycle" is a monovalent group.

[0042]

"4- to 7-membered non-aryl heterocycle" refers to the "4- to 20-membered non-aryl heterocycle" described above wherein "4- to 7-membered non-aryl heterocycle" is a monovalent group.

[0043]

Specific examples of "4-membered non-aryl heterocycle" include, but are not limited to, azetidine, oxetane, thietane, and the like.

[0044]

Specific examples of "4-membered non-aryl heterocycle" with a partially unsaturated bond include, but are not limited to, those with a structure shown below and the like.

[Chemical Formula 622]



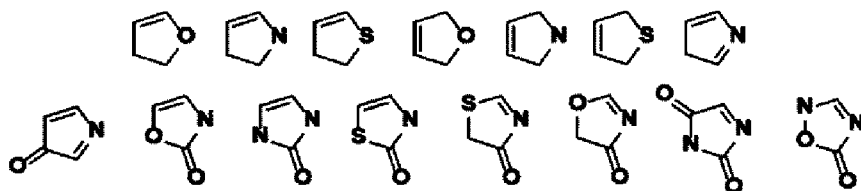
[0045]

Specific examples of "5-membered non-aryl heterocycle" include, but are not limited to, pyrrolidine, pyrrolidone, oxazolidinone, tetrahydrofuran, tetrahydrothiophene, and the like.

[0046]

Specific examples of "5-membered non-aryl heterocycle" with a partially unsaturated bond include, but are not

limited to, those with a structure shown below and the like.
[Chemical Formula 623]



[0047]

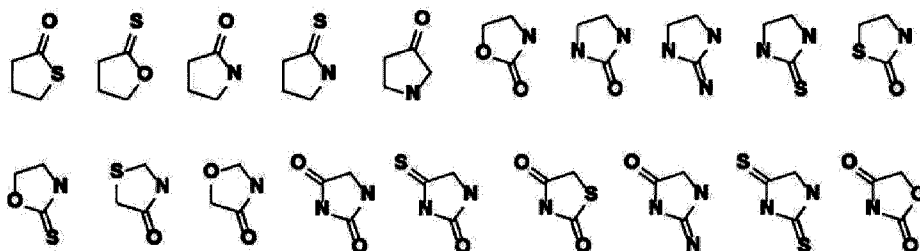
- 5 Specific examples of "5-membered non-aryl heterocycle" with a partially crosslinked structure include, but are not limited to, those with a structure shown below and the like.
[Chemical Formula 624]



10 [0048]

Specific examples of "5-membered non-aryl heterocycle" comprising carbonyl, thiocarbonyl, or the like include, but are not limited to, those with a structure shown below and the like.

15 [Chemical Formula 625]



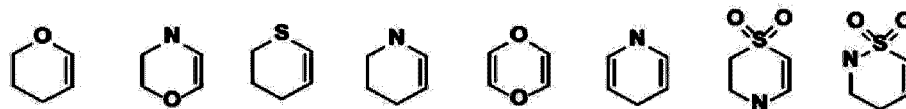
[0049]

- Specific examples of "6-membered non-aryl heterocycle" include, but are not limited to, piperidine, piperazine, morpholine, tetrahydropyran, tetrahydrothiopyran, and the like.

[0050]

- Specific examples of "6-membered non-aryl heterocycle" with a partially unsaturated bond include, but are not limited to, those with a structure shown below and the like.

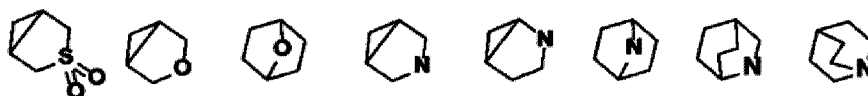
[Chemical Formula 626]



[0051]

Specific examples of "6-membered non-aryl heterocycle" with a partially crosslinked structure include, but are not limited to, those with a structure shown below and the like.

[Chemical Formula 627]



[0052]

"C₁₋₆ alkoxy group" refers to a "C₁₋₆ alkyloxy group", and the C₁₋₆ alkyl moiety is defined the same as the C₁₋₆ alkyl group described above. "C₁₋₆ alkoxy group" is preferably a "C₁₋₄ alkoxy group", more preferably a "C₁₋₃ alkoxy group", and still more preferably a "C₁₋₂ alkoxy group". Specific examples of "C₁₋₆ alkoxy group" include, but are not limited to, a methoxy group, ethoxy group, propoxy group, butoxy group, isopropoxy group, isobutoxy group, tert-butoxy group, sec-butoxy group, isopentyloxy group, neopentyloxy group, tert-pentyloxy group, 1,2-dimethylpropoxy group, and the like.

[0053]

"C₃₋₁₀ alicyclic oxy group" refers to a (C₃₋₁₀ alicyclic group)-O-group, and the C₃₋₁₀ alicyclic moiety is defined the same as a C₃₋₁₀ alicyclic group. "C₃₋₆ alicyclic oxy group" refers to a (C₃₋₆ alicyclic group)-O-group, and the C₃₋₆ alicyclic moiety is defined the same as a C₃₋₆ alicyclic group. "C₃₋₆ alicyclic oxy group" is preferably a "C₃₋₅ alicyclic oxy group". Specific examples of "C₃₋₆ alicyclic oxy group" include, but are not limited to, a cyclopropyloxy group, cyclobutyloxy group, cyclopentyloxy group, cyclohexyloxy group, and the like.

[0054]

The C₆₋₁₀ aryl moiety of a "C₆₋₁₀ aryloxy group" is defined the same as the C₆₋₁₀ aryl described above. "C₆₋₁₀ aryloxy group" is preferably a "C₆ or C₁₀ aryloxy group". Specific examples of "C₆₋₁₀ aryloxy group" include, but are not limited to, a phenoxy group, 1-naphthyloxy group, 2-naphthyloxy group, and the like.

[0055]

The 5- or 6-membered heteroaryl moiety of "5- or 6-membered heteroaryloxy group" is defined the same as the "5-membered heteroaryl" or "6-membered heteroaryl" described above. Specific examples of "5- or 6-membered heteroaryloxy group" include, but are not limited to, a pyrazoyloxy group, triazoyloxy group, thiazoyloxy group, thiadiazoyloxy group, pyridyloxy group, pyridazoyloxy group, and the like.

[0056]

The 4- to 10-membered non-aryl heterocycle moiety of "4- to 10-membered non-aryl heterocyclyl oxy group" is defined the same as the "4- to 10-membered non-aryl heterocycle" described above. "4- to 10-membered non-aryl heterocyclyl oxy group" is preferably a "4- to 6-membered non-aryl heterocyclyl oxy group". Specific examples of "4- to 10-membered non-aryl heterocyclyl oxy group" include, but are not limited to, a tetrahydrofuranyloxy group, tetrahydropyranyloxy group, azetidinyloxy group, pyrrolidinyloxy group, piperidinyloxy group, and the like.

[0057]

The C₁₋₆ alkyl moiety of "C₁₋₆ alkylthio group" is defined the same as the C₁₋₆ alkyl described above. "C₁₋₆ alkylthio group" is preferably a "C₁₋₄ alkylthio group", and more preferably a "C₁₋₃ alkylthio group". Specific examples of "C₁₋₆ alkylthio group" include, but are not limited to, a methylthio group, ethylthio group, propylthio group, butylthio group, isopropylthio group, isobutylthio group, tert-butylthio group, sec-butylthio group, isopentylthio group, neopentylthio group, tert-pentylthio group, 1,2-

dimethylpropylthio group, and the like.

[0058]

"C₃₋₁₀ alicyclic thio group" refers to a (C₃₋₁₀ alicyclic group)-S-group, and the C₃₋₁₀ alicyclic moiety is defined the same as the C₃₋₁₀ alicyclic group described above. "C₃₋₁₀ alicyclic thio group" is preferably a "C₃₋₆ alicyclic thio group". Specific examples of "C₃₋₆ alicyclic thio group" include, but are not limited to, a cyclopropylthio group, cyclobutylthio group, cyclopentylthio group, cyclohexylthio group, and the like.

[0059]

The C₆₋₁₀ aryl moiety of "C₆₋₁₀ arylthio group" is defined the same as the C₆₋₁₀ aryl described above. "C₆₋₁₀ arylthio group" is preferably a "C₆ or C₁₀ arylthio group". Specific examples of "C₆₋₁₀ aryloxy group" include, but are not limited to, a phenylthio group, 1-naphthylthio group, 2-naphthylthio group, and the like.

[0060]

The 5- or 6-membered heteroaryl moiety of "5- or 6-membered heteroarylthio group" is defined the same as the "5-membered heteroaryl" or "6-membered heteroaryl" described above. Specific examples of "5- or 6-membered heteroarylthio group" include, but are not limited to, a pyrazoylthio group, triazoylthio group, thiazoylthio group, thiadiazoylthio group, pyridylthio group, pyridazoylthio group, and the like.

[0061]

The 4- to 10-membered non-aryl heterocycle moiety of "4- to 10-membered non-aryl heterocyclyl thio group" is defined the same as the "4- to 10-membered non-aryl heterocycle" described above. "4- to 10-membered non-aryl heterocyclyl thio group" is preferably a "4- to 6-membered non-aryl heterocyclyl thio group". Specific examples of "4- to 10-membered non-aryl heterocyclyl thio group" include, but are not limited to, a tetrahydropyranylthio group, piperidinythio group, and the like.

[0062]

"C₁₋₆ alkylcarbonyl group" refers to a carbonyl group substituted with the "C₁₋₆ alkyl group" described above.

"C₁₋₆ alkylcarbonyl group" is preferably a "C₁₋₄ alkylcarbonyl group". Specific examples of "C₁₋₆ alkylcarbonyl group" include, but are not limited to, an acetyl group, propionyl group, butyryl group, and the like.
[0063]

"C₃₋₁₀ alicyclic carbonyl group" refers to a carbonyl group substituted with the "C₃₋₁₀ alicyclic group" described above. "C₃₋₁₀ alicyclic carbonyl group" is preferably a "C₃₋₆ alicyclic carbonyl group". Specific examples of "C₃₋₁₀ alicyclic carbonyl group" include, but are not limited to, a cyclopropylcarbonyl group, cyclopentylcarbonyl group, and the like.

[0064]

"C₆₋₁₀ arylcarbonyl group" refers to a carbonyl group substituted with the "C₆₋₁₀ aryl" described above. "C₆₋₁₀ arylcarbonyl group" is preferably a "C₆ or C₁₀ arylcarbonyl group". Specific examples of "C₆₋₁₀ arylcarbonyl group" include, but are not limited to, a benzoyl group, 1-naphthylcarbonyl group, 2-naphthylcarbonyl group, and the like.

[0065]

"5- or 6-membered heteroarylcarbonyl group" refers to a carbonyl group substituted with the "5- or 6-membered heteroaryl" described above. Specific examples of "5- or 6-membered heteroarylcarbonyl group" include, but are not limited to, a pyrazoylcarbonyl group, triazoylcarbonyl group, thiazoylcarbonyl group, thiadiazoylcarbonyl group, pyridylcarbonyl group, pyridazoylcarbonyl group, and the like.

[0066]

"4- to 10-membered non-aryl heterocyclyl carbonyl group" refers to a carbonyl group substituted with the "4- to 10-membered non-aryl heterocycle" described above. "4-

to 10-membered non-aryl heterocyclyl carbonyl group" is preferably a "4- to 6-membered non-aryl heterocyclyl carbonyl group". Specific examples of "4- to 10-membered non-aryl heterocyclyl carbonyl group" include, but are not limited to, an azetidiny carbonyl group, pyrrolidinyl carbonyl group, piperidinyl carbonyl group, morpholinyl carbonyl group, and the like.

[0067]

"C₁₋₆ alkylsulfonyl group" refers to a sulfonyl group substituted with the "C₁₋₆ alkyl group" described above. "C₁₋₆ alkylsulfonyl group" is preferably a "C₁₋₄ alkylsulfonyl group". Specific examples of "C₁₋₆ alkylsulfonyl group" include, but are not limited to, a methylsulfonyl group, propionylsulfonyl group, butyrylsulfonyl group, and the like.

[0068]

"C₃₋₁₀ alicyclic sulfonyl group" refers to a sulfonyl group substituted with the "C₃₋₁₀ alicyclic group" described above. "C₃₋₁₀ alicyclic sulfonyl group" is preferably a "C₃₋₆ alicyclic sulfonyl group". Specific examples of "C₃₋₁₀ alicyclic sulfonyl group" include, but are not limited to, a cyclopropylsulfonyl group, cyclobutylsulfonyl group, cyclopentylsulfonyl group, cyclohexylsulfonyl group, and the like.

[0069]

"C₆₋₁₀ arylsulfonyl group" refers to a sulfonyl group substituted with the "C₆₋₁₀ aryl" described above. "C₆₋₁₀ arylsulfonyl group" is preferably a "C₆ or C₁₀ arylsulfonyl group". Specific examples of "C₆₋₁₀ arylsulfonyl group" include, but are not limited to, a phenylsulfonyl group, 1-naphthylsulfonyl group, 2-naphthylsulfonyl group, and the like.

[0070]

"5- or 6-membered heteroaryl sulfonyl group" refers to a sulfonyl group substituted with the "5- or 6-membered heteroaryl" described above. Specific examples of "5- or 6-

membered heteroarylsulfonyl group" include a pyrazoylsulfonyl group, triazoylsulfonyl group, thiazoylsulfonyl group, thiadiazoylsulfonyl group, pyridylsulfonyl group, pyridazoylsulfonyl group, and the like.

[0071]

"C₁₋₆ alkylene group" refers to a substituent that is a divalent group due to removing two hydrogen atoms from saturated hydrocarbon with 1 to 6 carbon atoms. "C₁₋₃ alkylene group" and "C₂₋₄ alkylene group" refer to substituents that are divalent groups due to removing two hydrogen atoms from saturated hydrocarbon with 1 to 3 carbon atoms and 2 to 4 carbon atoms, respectively.

[0072]

"C₃₋₁₀ cycloalkylene group" refers to a substituent that is a divalent group due to removing two hydrogen atoms from saturated cyclic hydrocarbon with 3 to 10 carbon atoms. "C₃₋₆ cycloalkylene group" and "C₄₋₆ cycloalkylene group" refer to substituents that are divalent groups due to removing two hydrogen atoms from saturated cyclic hydrocarbon with 3 to 6 carbon atoms and 4 to 6 carbon atoms, respectively.

[0073]

"C₆₋₁₀ arylene group" refers to a substituent that is a divalent group due to removing two hydrogen atoms from aromatic hydrocarbon with 6 to 10 carbon atoms. "C₆ arylene group" refers to a substituent that is a divalent group due to removing two hydrogen atoms from aromatic hydrocarbon with 6 carbon atoms.

[0074]

"5- or 6-membered heteroarylene group" refers to a substituent that is a divalent group due to removing two hydrogen atoms from a 5- or 6-membered heteroaryl ring. "5-membered heteroarylene group" and "6-membered heteroarylene group" refer to substituents that are divalent groups due to removing two hydrogen atoms from 5-membered and 6-

membered heteroaryl rings, respectively.

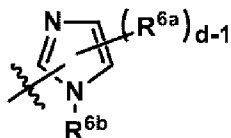
[0075]

"4- to 10-membered non-aryl heterocyclylene group" refers to a substituent that is a divalent group due to removing two hydrogen atoms from a 4- to 10-membered non-aryl heterocycle. "4- to 5-membered non-aryl heterocyclylene group" and "4- to 6-membered non-aryl heterocyclylene group" refer to substituents that are divalent groups due to removing two hydrogen atoms from 4- to 5-membered and 4- to 6-membered non-aryl heterocycles, respectively.

[0076]

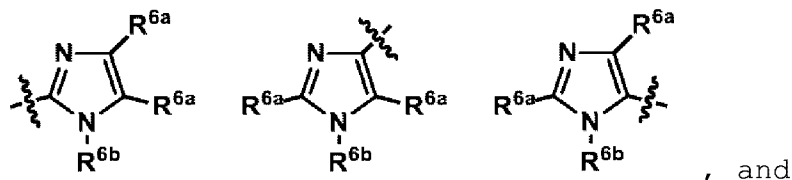
A bond intersecting a wavy line in the description of a specific structure of R^5 indicates a bond with L^4 . A bond intersecting a bond between ring atoms means that there are variables (e.g., R^{6a} , R^{7a} , and the like) at each of the substitutable positions on a monocycle or fused polycycle including the ring atoms. For example, for a monocyclic 5-membered ring (heteroaryl),

[Chemical Formula 628]



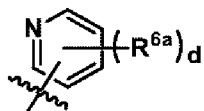
(wherein d is 3) is one of

[Chemical Formula 629]



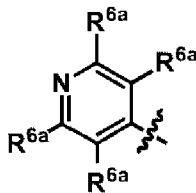
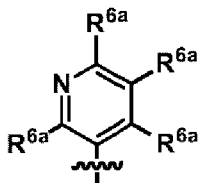
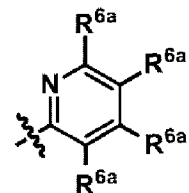
L^4 attaches to a ring carbon atom of the 5-membered ring. For example, for a monocyclic 6-membered ring (heteroaryl),

[Chemical Formula 630]



(wherein d is 4) is one of

[Chemical Formula 631]

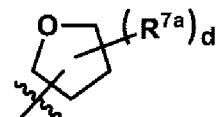


5

, and

L⁴ attaches to a ring carbon atom of the 6-membered ring.
Alternatively, for example, for a monocyclic 5-membered
ring (non-aryl heterocycle),

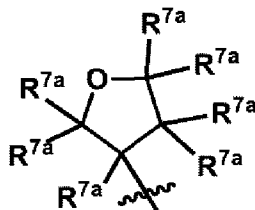
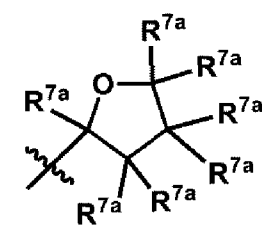
[Chemical Formula 632]



10

(wherein d is 7) is one of

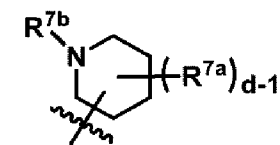
[Chemical Formula 633]



, and

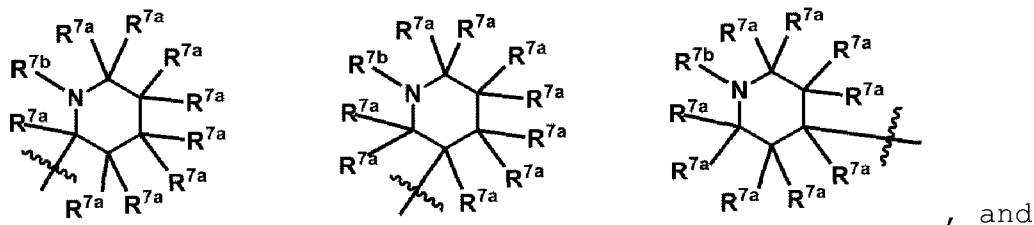
L⁴ attaches to a ring carbon atom of the 5-membered ring.
For example, for a monocyclic 6-membered ring (non-aryl
heterocycle),

[Chemical Formula 634]



(wherein d is 10) is one of

[Chemical Formula 635]



L^4 attaches to a ring carbon atom of the 6-membered ring.

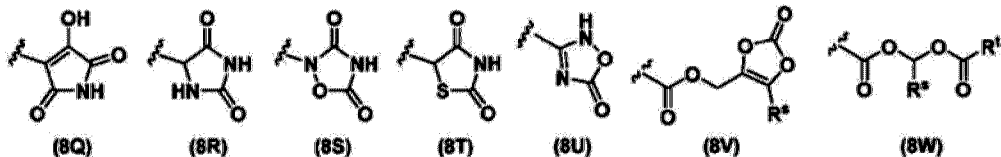
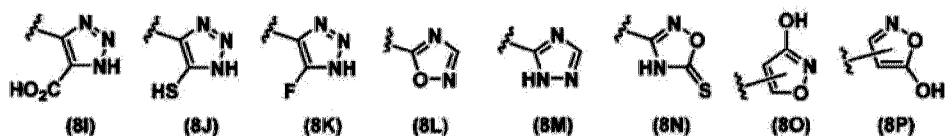
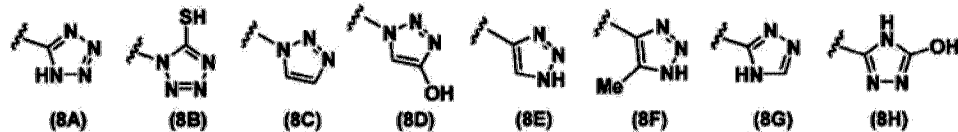
Subscript d is the number of substitutable positions on a ring of R^5 , but is a number of substitutable positions excluding the attachment position to L^4 .

[0077]

"Bioisostere" refers to another partial structure (functional group) serving the same biological role as a group (e.g., carboxyl group) in a drug molecule (prodrug structures are also encompassed as a concept of a bioisostere in the present invention). "Carboxylic acid isostere" refers to a bioisostere of carboxylic acid. Examples of the carboxylic acid isostere include, but are not limited to, $-SO_3H$, $-SO_2NHR^{19a}$, $-B(OR^{m1})_2$, $-PO(OR^{m1})(OR^{m2})$, $-CONHR^{19a}$, $-CONHSO_2R^{19a}$, $-CONR^{19a}CN$, $-CONHNHSO_2R^{19a}$, and substituents represented by the formulas (8A), (8B), (8C), (8D), (8E), (8F), (8G), (8H), (8I), (8J), (8K), (8L), (8M), (8N), (8O), (8P), (8Q), (8R), (8S), (8T), (8U), (8V), and (8W) described below (each of the substituents is further optionally substituted with 1 to 3 of the same or different R^{19b} at a chemical substitutable position),

[Chemical Formula 636]

Formulas (8A) ; (8B) ; (8C) ; (8D) ; (8E) ; (8F) ; (8G) ; (8H) ;
 (8I) ; (8J) ; (8K) ; (8L) ; (8M) ; (8N) ; (8O) ; (8P) ;
 (8Q) ; (8R) ; (8S) ; (8T) ; (8U) ; (8V) ; (8W) :



wherein [in (8V) and (8W),

R^s is a hydrogen atom, a C_{1-6} alkyl group, or a C_{3-10} alicyclic group (wherein the C_{1-6} alkyl group or C_{3-10} alicyclic group is optionally substituted with 1 to 5 halogen atoms),

R^t is a hydrogen atom, a C_{1-6} alkyl group, a C_{1-6} alkoxy group, (wherein the C_{1-6} alkyl group or C_{1-6} alkoxy group is optionally substituted with 1 to 5 halogen atoms), a C_{3-10} alicyclic group, a C_{3-10} alicyclic oxy group, a phenyl group, a phenoxy group, a pyridyl group, or a pyridyloxy group, (wherein the C_{3-10} alicyclic group, C_{3-10} alicyclic oxy group, phenyl group, phenoxy group, pyridyl group, or pyridyloxy group is optionally substituted with 1 to 5 substituents selected from the group consisting of a halogen atom, a C_{1-6} alkyl group, and a C_{1-6} alkoxy group)],

R^{19a} and R^{19b} are the same or different, each independently representing a hydrogen atom, a hydroxyl group, a C_{1-6} alkyl group, C_{6-10} aryl, 5- or 6-membered heteroaryl, or a 4- to 10-membered non-aryl heterocycle,

R^{m1} represents

- 1) a hydrogen atom,
 - 2) a C₁₋₆ alkyl group,
 - 3) a C₃₋₁₀ alicyclic group,
 - 4) C₆₋₁₀ aryl,
 - 5) 5- or 6-membered heteroaryl, or
 - 6) a 4- to 10-membered non-aryl heterocycle,
- (wherein each substituent from 2) to 6) is optionally substituted),

wherein if R^{m1} is attached to a boron atom via an oxygen atom, two R^{m1}, as C₂₋₄ alkylene, together with the boron atom and two oxygen atoms, may form a 5- to 7-membered non-aryl heterocycle (wherein an alkylene moiety is optionally substituted in the non-aryl heterocycle), and R^{m2} represents a hydrogen atom, an optionally substituted C₁₋₆ alkyl group, or an optionally substituted C₃₋₁₀ alicyclic group, wherein, preferably,

R^s is a hydrogen atom or a C₁₋₆ alkyl group, and

R^t is a hydrogen atom, a C₁₋₆ alkyl group, a C₁₋₆ alkoxy group, a C₃₋₁₀ alicyclic group, or a C₃₋₁₀ alicyclic oxy group, or alternatively preferably,

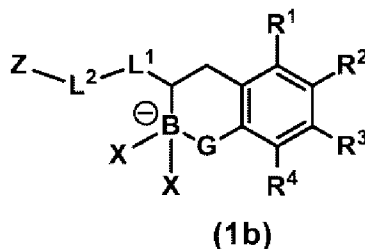
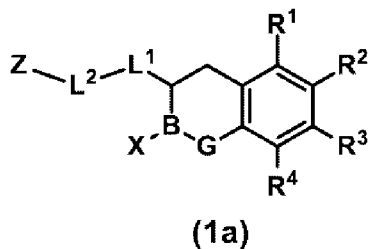
R^{19a} and R^{19b} are the same or different, each independently a hydrogen atom, a hydroxyl group, or a C₁₋₆ alkyl group, or also preferably

R^{m1} and R^{m2} are the same or different, each independently a hydrogen atom, a C₁₋₆ alkyl group, or a C₃₋₁₀ alicyclic group.

[0078]

An exemplary embodiment of the compounds of the invention is a compound represented by formula (1a) or (1b):

[Chemical Formula 637]

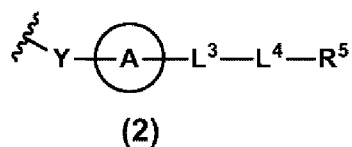


or a pharmaceutically acceptable salt thereof,
wherein

- 5 G is an oxygen atom, a sulfur atom, or -NR^{a1}-,
 X is a hydroxyl group, an optionally substituted C₁₋₆
 alkoxy group, or -NR^{a2}R^{b1},
 R^{a1}, R^{a2}, and R^{b1} are the same or different, each
 independently
- 10 1) a hydrogen atom,
 2) a C₁₋₆ alkyl group,
 3) a C₃₋₁₀ alicyclic group,
 4) C₆₋₁₀ aryl
 5) 5- or 6-membered heteroaryl,
- 15 6) a 4- to 10-membered non-aryl heterocycle,
 7) a C₁₋₆ alkylcarbonyl group,
 8) a C₃₋₁₀ alicyclic carbonyl group,
 9) a C₆₋₁₀ arylcarbonyl group,
 10) a 5- or 6-membered heteroarylcarbonyl group,
- 20 11) a C₁₋₆ alkylsulfonyl group,
 12) a C₃₋₁₀ alicyclic sulfonyl group,
 13) a C₆₋₁₀ arylsulfonyl group,
 14) a 5- or 6-membered heteroarylsulfonyl group, or
 15) - OR^{c1},
- 25 (wherein each substituent from 2) to 14) is optionally
 substituted),
 wherein R^{a2} and R^{b1} together may form an optionally
 substituted 4- to 10-membered nitrogen-containing non-aryl
 heterocycle,
- 30 R^{c1} is
 1) a hydrogen atom,

- 2) a C₁₋₆ alkyl group,
- 3) a C₃₋₁₀ alicyclic group,
- 4) C₆₋₁₀ aryl,
- 5) 5- or 6-membered heteroaryl, or
- 5 6) a 4- to 10-membered non-aryl heterocycle,
(wherein each substituent from 2) to 6) is optionally substituted),
- L¹ is a single bond, an oxygen atom, a sulfur atom, -SO-, -SO₂-, -NR^d-, -NR^dC(=O)-, or -NR^dSO₂-,
- 10 L² is a single bond or an optionally substituted C₁₋₆ alkylene group,
- Z is
- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 15 3) a cyano group,
- 4) a carboxyl group,
- 5) a C₃₋₁₀ alicyclic group,
- 6) C₆₋₁₀ aryl,
- 7) 5- or 6-membered heteroaryl,
- 20 8) a 4- to 10-membered non-aryl heterocycle,
- 9) a C₁₋₆ alkoxy group,
- 10) a C₃₋₁₀ alicyclic oxy group,
- 11) a C₆₋₁₀ aryloxy group,
- 12) a 5- or 6-membered heteroaryloxy group,
- 25 13) a 4- to 10-membered non-aryl heterocyclyl oxy group,
- 14) a C₁₋₆ alkylthio group,
- 15) a C₃₋₁₀ alicyclic thio group,
- 16) a C₆₋₁₀ arylthio group,
- 17) a 5- or 6-membered heteroarylthio group,
- 30 18) a 4- to 10-membered non-aryl heterocyclyl thio group,
(wherein each substituent from 5) to 18) is optionally substituted),
- 19) -SO₂-NR^{e1}R^{f1},
- 20) -NR^{e1}-C(=O)OR^{f1},
- 35 21) -NR^{g1}-C(=O)NR^{e1}R^{f1},
- 22) -NR^{e1}-C(=S)R^{f1},

- 23) $-\text{NR}^{\text{e}1}-\text{C}(=\text{S})\text{OR}^{\text{f}1}$,
 24) $-\text{NR}^{\text{g}1}-\text{C}(=\text{S})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 25) $-\text{NR}^{\text{g}1}-\text{CR}^{\text{e}1}(=\text{NR}^{\text{f}1})$,
 26) $-\text{NR}^{\text{g}1}-\text{CR}^{\text{e}1}(=\text{N}-\text{OR}^{\text{f}1})$,
 5 27) $-\text{NR}^{\text{h}1}-\text{C}(=\text{NR}^{\text{g}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 28) $-\text{NR}^{\text{h}1}-\text{C}(=\text{N}-\text{OR}^{\text{g}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 29) $-\text{NR}^{\text{i}1}-\text{C}(=\text{NR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 30) $-\text{NR}^{\text{i}1}-\text{C}(=\text{N}-\text{OR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 31) $-\text{NR}^{\text{e}1}-\text{SO}_2-\text{R}^{\text{f}1}$,
 10 32) $-\text{NR}^{\text{g}1}-\text{SO}_2-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 33) $-\text{C}(=\text{O})\text{OR}^{\text{e}1}$,
 34) $-\text{C}(=\text{S})\text{OR}^{\text{e}1}$,
 35) $-\text{C}(=\text{S})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 36) $-\text{C}(=\text{S})\text{NR}^{\text{e}1}\text{OR}^{\text{f}1}$,
 15 37) $-\text{C}(=\text{S})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 38) $-\text{C}(=\text{NR}^{\text{e}1})\text{R}^{\text{f}1}$,
 39) $-\text{C}(=\text{N}-\text{OR}^{\text{e}1})\text{R}^{\text{f}1}$,
 40) $-\text{C}(=\text{NR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 41) $-\text{C}(=\text{N}-\text{OR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 20 42) $-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 43) $-\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 44) $-\text{NR}^{\text{e}1}\text{OR}^{\text{f}1}$,
 45) $-\text{NR}^{\text{e}1}-\text{C}(=\text{O})\text{R}^{\text{f}1}$,
 46) $-\text{C}(=\text{O})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 25 47) $-\text{C}(=\text{O})\text{NR}^{\text{e}1}\text{OR}^{\text{f}1}$,
 48) $-\text{C}(=\text{O})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 49) $-\text{C}(=\text{O})\text{R}^{\text{e}1}$,
 50) $-\text{C}(=\text{NR}^{\text{g}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$, or
 51) $-\text{C}(=\text{N}-\text{OR}^{\text{h}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 30 one of R^1 , R^2 , and R^3 is formula (2):
 [Chemical Formula 638]



wherein,

Y is an oxygen atom, a sulfur atom, or $\text{-NR}^j\text{-}$,
 ring A is an optionally substituted 4- to 20-membered
 non-aryl heterocycle,

L^3 is -C(=O)- , -S(=O)- , or $\text{-S(=O)}_2\text{-}$,

5 L^4 is

- 1) a single bond,
- 2) a C_{1-6} alkylene group,
- 3) a C_{3-10} cycloalkylene group,
- 4) a C_{6-10} arylene group,
- 10 5) a 5- or 6-membered heteroarylene group,
- 6) a 4- to 10-membered non-aryl heterocyclylene group, or
- 7) $\text{-C(=N-OR}^{\text{h1}}\text{)-}$,
 (wherein each substituent from 2) to 6) is optionally
 substituted), and

15 R^5 is

- 1) a hydrogen atom,
- 2) a C_{1-6} alkyl group,
- 3) a C_{3-10} alicyclic group,
- 4) a 4- to 10-membered non-aryl heterocycle,
- 20 5) C_{6-10} aryl,
- 6) 5- or 6-membered heteroaryl,
- 7) a C_{1-6} alkylthio group,
 (wherein each substituent from 2) to 7) is optionally
 substituted), or
- 25 8) $\text{-NR}^{\text{e1}}\text{OH}$, ,

the remaining two (without the structure of formula (2)
 among R^1 , R^2 , and R^3) are the same or different, each
 independently a hydrogen atom, a halogen atom, an
 optionally substituted C_{1-6} alkyl group, an optionally
 30 substituted C_{1-6} alkoxy group, an optionally substituted C_{1-6}
 alkylthio group, an optionally substituted 5- or 6-membered
 heteroaryl, or $\text{-NR}^{\text{a3}}\text{R}^{\text{b2}}$,

R^{d} , R^{e1} , R^{e2} , R^{f1} , R^{f2} , R^{g1} , R^{g2} , R^{h1} , R^{h2} , R^{i1} , R^{i2} , and R^{j}
 are the same or different, each independently a hydrogen
 35 atom, an optionally substituted C_{1-6} alkyl group, an
 optionally substituted C_{3-10} alicyclic group, optionally

substituted C₆₋₁₀ aryl, optionally substituted 5- or 6-membered heteroaryl, or an optionally substituted 4- to 10-membered non-aryl heterocycle,

a combination of R^{e1} and R^{f1} or R^{e2} and R^{f2}, when
 5 attached to the same nitrogen atom, together may form an optionally substituted 4- to 10-membered nitrogen-containing non-aryl heterocycle,

R⁴ is

- 1) -C(=O)R⁸,
- 10 2) -SO₂-L⁶-R⁸,
 (wherein R⁸ in 1) and 2) is -NR^{a5}R^{b4}, -NR^{a5}-L⁷-B(OR^{m1})₂, -OR^{m1},
 or an optionally substituted C₁₋₆ alkyl group, and L⁶ is a single bond or -NR^{a6}-),
- 3) -NR^{a4}R^{b3},
- 15 4) -B(OR^{m1})₂,
- 5) -PO(OR^{m1})(OR^{m2}),
- 6) optionally substituted 5-membered heteroaryl,
- 7) an optionally substituted 5-membered non-aryl heterocycle, or
- 20 8) a bioisostere of one of 1) to 7),
 (wherein the formulas of 2), 4), 5), and 6) include a carboxylic acid isostere, and 8) may include them in duplicates),

R^{a3}, R^{a4}, R^{a5}, R^{a6}, R^{b2}, R^{b3}, and R^{b4} are the same or
 25 different, each independently having the same definition as R^{a1}, R^{a2}, and R^{b1}, wherein a combination of R^{a3} and R^{b2}, R^{a4} and R^{b3}, or R^{a5} and R^{b4}, when attached to the same nitrogen atom, together may form an optionally substituted 4- to 10-membered nitrogen-containing non-aryl heterocycle,

30 R^{m1} is

- 1) a hydrogen atom,
- 2) a C₁₋₆ alkyl group,
- 3) a C₃₋₁₀ alicyclic group,
- 4) C₆₋₁₀ aryl,
- 35 5) 5- or 6-membered heteroaryl, or
- 6) a 4- to 10-membered non-aryl heterocycle,

(wherein each substituent from 2) to 6) is optionally substituted),

wherein if R^{m1} is attached to a boron atom via an oxygen atom, two R^{m1} , as C_{2-4} alkylene, together with the boron atom and two oxygen atoms, may form a 5- to 7-membered non-aryl heterocycle (wherein an alkylene moiety is optionally substituted in the non-aryl heterocycle),

R^{m2} is a hydrogen atom, an optionally substituted C_{1-6} alkyl group, or an optionally substituted C_{3-10} alicyclic group, and

L^7 is an optionally substituted C_{1-3} alkylene group.

[0079]

In some embodiments, $Z-L^2-L^1$ is a hydrogen atom, an optionally substituted C_{1-6} alkyl group, or an optionally substituted C_{1-6} alkylthio group. In one embodiment, L^1 is a single bond.

[0080]

In some embodiments, L^2 is a single bond or an optionally substituted C_{1-6} alkylene group. In one embodiment, L^2 is a single bond.

[0081]

In some embodiments, Z is

- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 3) a cyano group,
- 4) a carboxyl group,
- 5) a C_{3-10} alicyclic group,
- 6) C_{6-10} aryl,
- 7) 5- or 6-membered heteroaryl,
- 8) a 4- to 10-membered non-aryl heterocycle,
- 9) a C_{1-6} alkoxy group,
- 10) a C_{3-10} alicyclic oxy group,
- 11) a C_{6-10} aryloxy group,
- 12) a 5- or 6-membered heteroaryloxy group,
- 13) a 4- to 10-membered non-aryl heterocyclyl oxy group,
- 14) a C_{1-6} alkylthio group,

- 15) a C₃₋₁₀ alicyclic thio group,
- 16) a C₆₋₁₀ arylthio group,
- 17) a 5- or 6-membered heteroarylthio group,
- 18) a 4- to 10-membered non-aryl heterocyclyl thio group,
- 5 (wherein each substituent from 5) to 18) is optionally substituted),
- 19) -SO₂-NR^{e1}R^{f1},
- 20) -NR^{e1}-C(=O)OR^{f1},
- 21) -NR^{g1}-C(=O)NR^{e1}R^{f1},
- 10 22) -NR^{e1}-C(=S)R^{f1},
- 23) -NR^{e1}-C(=S)OR^{f1},
- 24) -NR^{g1}-C(=S)NR^{e1}R^{f1},
- 25) -NR^{g1}-CR^{e1}(=NR^{f1}),
- 26) -NR^{g1}-CR^{e1}(=N-OR^{f1}),
- 15 27) -NR^{h1}-C(=NR^{g1})NR^{e1}R^{f1},
- 28) -NR^{h1}-C(=N-OR^{g1})NR^{e1}R^{f1},
- 29) -NRⁱ¹-C(=NR^{h1})NR^{g1}-NR^{e1}R^{f1},
- 30) -NRⁱ¹-C(=N-OR^{h1})NR^{g1}-NR^{e1}R^{f1},
- 31) -NR^{e1}-SO₂-R^{f1},
- 20 32) -NR^{g1}-SO₂-NR^{e1}R^{f1},
- 33) -C(=O)OR^{e1},
- 34) -C(=S)OR^{e1},
- 35) -C(=S)NR^{e1}R^{f1},
- 36) -C(=S)NR^{e1}OR^{f1},
- 25 37) -C(=S)NR^{g1}-NR^{e1}R^{f1},
- 38) -C(=NR^{e1})R^{f1},
- 39) -C(=N-OR^{e1})R^{f1},
- 40) -C(=NR^{h1})NR^{g1}-NR^{e1}R^{f1},
- 41) -C(=N-OR^{h1})NR^{g1}-NR^{e1}R^{f1},
- 30 42) -NR^{e1}R^{f1},
- 43) -NR^{g1}-NR^{e1}R^{f1},
- 44) -NR^{e1}OR^{f1},
- 45) -NR^{e1}-C(=O)R^{f1},
- 46) -C(=O)NR^{e1}R^{f1},
- 35 47) -C(=O)NR^{e1}OR^{f1},
- 48) -C(=O)NR^{g1}-NR^{e1}R^{f1},

- 49) $-C(=O)R^{e1}$,
 50) $-C(=NR^{g1})NR^{e1}R^{f1}$, or
 51) $-C(=N-OR^{h1})NR^{e1}R^{f1}$.

The R^{e1} , R^{f1} , R^{g1} , and R^{h1} are the same as the definitions
 5 herein. In a preferred embodiment, Z is one of 1), 2), 5)
 to 8), 39), and 42). In one embodiment, Z is a hydrogen
 atom. Alternatively, in another embodiment, Z is an
 optionally substituted C_{1-6} alkylthio group. In still
 another embodiment, Z is an optionally substituted C_{1-6}
 10 alkyl group.

[0082]

In a preferred embodiment, $Z-L^2-L^1$ is a hydrogen atom.
 Alternatively, in another embodiment, $Z-L^2-L^1$ is an
 optionally substituted C_{1-6} alkylthio group. In still
 15 another embodiment, $Z-L^2-L^1$ is an optionally substituted C_{1-6}
 alkyl group.

[0083]

In some embodiments, G is an oxygen atom, a sulfur atom,
 or $-NR^{a1}-$. In one embodiment, G is an oxygen atom or a
 20 sulfur atom. In a preferred embodiment, G is an oxygen atom.
 The R^{a1} is the same as the definition herein.

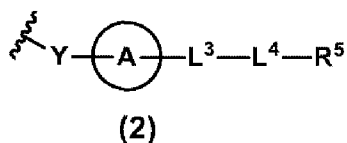
[0084]

In some embodiments, X is a hydroxyl group, an
 optionally substituted C_{1-6} alkoxy group, or $-NR^{a2}R^{b1}$. In one
 25 embodiment, X is a hydroxyl group or an optionally
 substituted C_{1-6} alkoxy group. In a preferred embodiment, X
 is a hydroxyl group. The R^{a2} and R^{b1} are the same as the
 definitions herein.

[0085]

30 In some embodiments, one of R^1 , R^2 , and R^3 is a group
 represented by formula (2):

[Chemical Formula 639]



wherein

Y is an oxygen atom, a sulfur atom, or $\text{-NR}^{\text{j-}}$,

ring A is an optionally substituted 4- to 20-membered non-aryl heterocycle,

5 L^3 is -C(=O)- , -S(=O)- , or $\text{-S(=O)}_2\text{-}$,

L^4 is

1) a single bond,

2) a C_{1-6} alkylene group,

3) a C_{3-10} cycloalkylene group,

10 4) a C_{6-10} arylene group

5) a 5- or 6-membered heteroarylene group,

6) a 4- to 10-membered non-aryl heterocyclylene group, or

7) $\text{-C(=N-OR}^{\text{h1}}\text{)-}$,

(wherein each substituent from 2) to 6) is optionally

15 substituted), and

R^5 is

1) a hydrogen atom,

2) a C_{1-6} alkyl group,

3) a C_{3-10} alicyclic group,

20 4) a 4- to 10-membered non-aryl heterocycle,

5) C_{6-10} aryl,

6) 5- or 6-membered heteroaryl,

7) a C_{1-6} alkylthio group,

(wherein each substituent from 2) to 7) is optionally

25 substituted), or

8) $\text{-NR}^{\text{e1}}\text{OH}$], and

the remaining two (without the structure of formula (2)

among R^1 , R^2 , and R^3) are the same or different, each

independently a hydrogen atom, a halogen atom, an

30 optionally substituted C_{1-6} alkyl group, an optionally

substituted C_{1-6} alkoxy group, an optionally substituted C_{1-6}

alkylthio group, optionally substituted 5- or 6-membered

heteroaryl, or $\text{-NR}^{\text{a3}}\text{R}^{\text{b2}}$, wherein R^{a3} and R^{b2} are the same as

the definitions herein. In a preferred embodiment, R^3 has

35 the structure of formula (2).

[0086]

In one embodiment, if R⁵ in formula (2) is 2) a C₁₋₆ alkyl group, 3) a C₃₋₁₀ alicyclic group, 4) a 4- to 10-membered non-aryl heterocycle, 5) C₆₋₁₀ aryl, 6) 5- or 6-membered heteroaryl, or 7) a C₁₋₆ alkylthio group, 2), 3), 4), 5), 6), and 7) are optionally substituted with a carboxyl group or a C₁₋₆ alkyl group substituted with a carboxyl group. In one embodiment, said 2), 3), 4), 5), 6), and 7) are optionally substituted with a carboxyl group. In one embodiment, said 2), 3), 4), 5), 6), and 7) are optionally substituted with a C₁₋₆ alkyl group substituted with a carboxyl group.

[0087]

In one embodiment, if one of R¹, R², and R³ is represented by formula (2), the remaining two without the structure of formula (2) among R¹, R², and R³ are each independently selected from the group consisting of a hydrogen atom, a halogen atom, methyl, trifluoromethyl, methoxy, and trifluoromethoxy. In a preferred embodiment, R³ is represented by formula (2), and R¹ and R² are each independently selected from the group consisting of a hydrogen atom, a halogen atom, methyl, trifluoromethyl, methoxy, and trifluoromethoxy.

[0088]

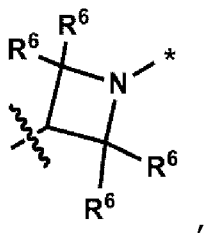
In some embodiments, Y is an oxygen atom, a sulfur atom, or -NR^j-. In one embodiment, Y is an oxygen atom or a sulfur atom. In a preferred embodiment, Y is an oxygen atom. The R^j is the same as the definition herein.

[0089]

In some embodiments, ring A is an optionally substituted 4- to 20-membered non-aryl heterocycle. In one embodiment, ring A is an optionally substituted 4- to 10-membered non-aryl heterocycle. In one embodiment, ring A is an optionally substituted 4- to 7-membered non-aryl heterocycle. In one embodiment, ring A is an optionally substituted 4- to 7-membered nitrogen-containing non-aryl heterocycle. In one embodiment, ring A is an optionally

substituted 4- to 6-membered non-aryl heterocycle. In one embodiment, ring A is an optionally substituted 4- to 6-membered nitrogen-containing non-aryl heterocycle. In one embodiment, ring A is an optionally substituted azetidine ring. In a specific embodiment of said embodiment, ring A is

[Chemical Formula 640-1]

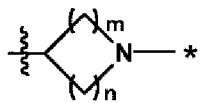


wherein R^6 represents a substituent on an azetidine ring and is defined the same as R^{6a} , a bond that is orthogonal to a wavy line indicates a bond with Y, and a bond with * indicates a bond with L^3 . In a preferred embodiment, R^6 are the same or different, each independently selected from the group consisting of

- 1) a hydrogen atom,
 - 2) a halogen atom,
 - 3) a C_{1-6} alkyl group, and
 - 4) a C_{1-6} alkoxy group
- (wherein each of substituents 3) and 4) is optionally substituted with a halogen atom), and in a preferred embodiment, are selected from the group consisting of
- 1) a hydrogen atom,
 - 2) a halogen atom, and
 - 3) a C_{1-6} alkyl group optionally substituted with a halogen atom, and
- most preferably are hydrogen atoms.

In a specific embodiment, ring A is

[Chemical Formula 640-2]



wherein m is 1, 2, or 3, n is 1, 2, or 3, m + n is 2, 3, 4, or 5, a bond that is orthogonal to a wavy line indicates a bond with Y, and a bond with * indicates a bond with L³. In one embodiment, m + n is 2, 3, or 4. In one embodiment, m + n is 2 or 3. In a preferred embodiment, m + n is 2. In a more preferred embodiment, m = 1 and n = 1.

[0090]

In some embodiments, L³ is -C(=O)-, -S(=O)-, or -S(=O)₂-. In one embodiment, L³ is -C(=O)- or -S(=O)₂-. In a preferred embodiment, L³ is -C(=O)-.

[0091]

In some embodiments, L⁴ is

- 1) a single bond,
 - 2) a C₁₋₆ alkylene group,
 - 3) a C₃₋₁₀ cycloalkylene group,
 - 4) a C₆₋₁₀ arylene group
 - 5) a 5- or 6-membered heteroarylene group,
 - 6) a 4- to 10-membered non-aryl heterocyclylene group, or
 - 7) -C(=N-OR^{h1})-,
- (wherein each substituent from 2) to 6) is optionally substituted).

In one embodiment, L⁴ is a single bond, -C(=N-OR^{h1})- or an optionally substituted C₁₋₆ alkylene group, wherein R^{h1} is an optionally substituted C₁₋₆ alkyl group. In one embodiment, L⁴ is a single bond or a C₁₋₆ alkylene group optionally substituted with -NR²¹R²² or =NOR²³, wherein R²¹, R²², and R²³ are each independently a hydrogen atom, an optionally substituted C₁₋₆ alkyl group, or an optionally substituted 4- to 10-membered non-aryl heterocyclyl carbonyl group. In a preferred embodiment, L⁴ is a bond, -CH₂-, -CH(NH₂)-, or -CH(NH₂)-CH₂-, wherein if an amino group is present in L⁴, carbon that attaches to the amino group

attaches to L³.

[0092]

In one embodiment, L⁴ is a single bond, -CH₂-, -CMe(NH₂)-, -CH(NHMe)-, -CD(NH₂)- (wherein D represents a heavy hydrogen atom), -CH(NH₂)-, or -CH₂CH₂-. In one embodiment, L⁴ is a single bond, -CH₂-, or -CH(NH₂)-.

[0093]

In one embodiment, L⁴ is

- 1) -(CH₂)_p-CR¹⁰(NHR¹¹)-,
- 10 2) -(CH₂)_q-CR¹²R¹³-, or
- 3) -(CH₂)_p-CR¹⁰(NHR¹¹)-(CH₂)_q-CR¹²R¹³-, wherein p and q are independently 0 or 1, R¹⁰ is
 - 1) a hydrogen atom,
 - 2) a carboxyl group, or
 - 15 3) -C(=O)NR^{10a}R^{10b},
 R¹¹ is
 - 1) a hydrogen atom,
 - 2) -C(=O)R^{11a}, or
 - 3) an optionally substituted 5- or 6-membered non-aryl
 - 20 heterocyclyl carbonyl group,
 wherein if R¹⁰ is -C(=O)NR^{10a}R^{10b}, R^{10b} and R¹¹ together may form -CH₂CH₂-,
 R¹² is
 - 1) a hydrogen atom, or
 - 25 2) an optionally substituted C₁₋₄ alkyl group,
 R¹³ is
 - 1) a hydrogen atom,
 - 2) a hydroxyl group
 - 3) an optionally substituted C₁₋₄ alkyl group
 - 30 4) a sulfanyl group,
 - 5) a carboxyl group,
 - 6) an optionally substituted C₁₋₄ alkylthio group,
 - 7) -NR^{13a}R^{13b},
 - 8) -NR^{13a}-C(=O)R^{13b},
 - 35 9) an optionally substituted 5- or 6-membered non-aryl heterocyclyl carbonylamino group,

- 10) $\text{-NR}^{13a}\text{-C(=O)NR}^{13b}\text{R}^{13c}$,
 11) $\text{-C(=O)NR}^{13a}\text{R}^{13b}$,
 12) $\text{-C(=O)NR}^{13a}\text{OR}^{13b}$,
 13) $\text{-S(=O)}_2\text{-R}^{13a}$,
 5 14) $\text{-S(=O)}_2\text{-NR}^{13a}\text{R}^{13b}$,
 15) $\text{-C(=O)NR}^{13a}\text{-S(=O)}_2\text{-R}^{13b}$, or
 16) $\text{-C(=O)NR}^{13a}\text{-S(=O)}_2\text{-NR}^{13b}\text{R}^{13c}$, and
 R^{10a} , R^{10b} , R^{11a} , R^{13a} , R^{13b} , and R^{13c} are each independently a
 hydrogen atom or an optionally substituted C_{1-4} alkyl group.

10 [0094]

In one embodiment, L^4 is $\text{-CH(NH}_2\text{)-CHR}^{13}\text{-}$, wherein carbon
 that attaches to the NH_2 attaches to L^3 ,
 R^5 is a hydrogen atom, and
 R^{13} is

- 15 1) -NH-C(=O)CH_3 ,
 2) -NH-C(=O)NH_2 ,
 3) $\text{-NH-C(=O)CH(NH}_2\text{)-CH}_2\text{C(=O)NH}_2$,
 4) $\text{-NH-C(=O)CH}_2\text{-NH}_2$,
 5) $\text{-NH-C(=O)CH(NH}_2\text{)-CH}_2\text{OH}$, or
 20 6) a pyrrolidin-2-ylcarbonylamino group.

[0095]

In one embodiment, L^4 is $\text{-CH(NH}_2\text{)-CR}^{12}\text{R}^{13}\text{-}$, wherein
 carbon that attaches to the NH_2 attaches to L^3 ,
 R^5 is a hydrogen atom or methyl,
 25 R^{12} is a hydrogen atom or methyl, and
 R^{13} is a benzylthio group or a sulfanyl group.

[0096]

- In one embodiment, L^4 is $\text{-CH(NH}_2\text{)-(CH}_2\text{)}_q\text{-CHR}^{13}\text{-}$, wherein
 q is 0 or 1, and carbon that attaches to the NH_2 attaches
 30 to L^3 ,
 R^5 is a hydrogen atom, and
 R^{13} is
 1) a carboxyl group,
 2) -C(=O)NH_2 ,
 35 3) $\text{-C(=O)NH(CH}_3\text{)}$,
 4) $\text{-C(=O)N(CH}_3\text{)}_2$,

- 5) $-C(=O)NH-(CH_2)_2-OH$,
 6) $-C(=O)NH-(CH_2)_2-NH_2$,
 7) $-C(=O)NH-S(=O)_2-CH_3$,
 8) $-C(=O)NHOH$,
 9) $-S(=O)_2-NH_2$,
 10) $-S(=O)_2-CH_3$, or
 11) a hydroxyl group.
 [0097]

In one embodiment, L^4 is $-CH(NHR^{11})-CH_2-$, wherein carbon
 10 that attaches to the NHR^{11} attaches to L^3 ,
 R^5 is hydrogen, and
 R^{11} is

- 1) $-C(=O)CH(NH_2)-CH_2C(=O)NH_2$,
 2) $-C(=O)CH_2-NH_2$,
 15 3) $-C(=O)CH(CH_3)-NH_2$,
 4) $-C(=O)CH(NH_2)-CH_2OH$, or
 5) pyrrolidin-2-ylcarbonyl.
 [0098]

In one embodiment, L^4 is $-CH(NHR^{11})-CH(COOH)-$, wherein
 20 carbon that attaches to the NHR^{11} attaches to L^3 ,
 R^5 is hydrogen, and
 R^{11} is

- 1) $-C(=O)CH(NH_2)-CH_2C(=O)NH_2$,
 2) $-C(=O)CH_2-NH_2$,
 25 3) $-C(=O)CH(CH_3)-NH_2$,
 4) $-C(=O)CH(NH_2)-CH_2OH$, or
 5) pyrrolidin-2-ylcarbonyl.
 [0099]

In one embodiment, L^4 is $-CHR^{13}-$ or $-CH_2-CHR^{13}-$,
 30 R^5 is hydrogen, and
 R^{13} is $-C(=O)NH_2$ or $-C(=O)NHOH$.
 [0100]

In one embodiment, L^4 is $-CH_2-CR^{10}(NH_2)-$, and the CH_2
 group attaches to L^3 ,
 35 R^5 is hydrogen, and
 R^{10} is a carboxy group or $-C(=O)NH_2$.

[0101]

In one embodiment, L^4 is $-(CH_2)_p-CR^{10}(NHR^{11})-(CH_2)_q-CHR^{13}-$ or $-CHR^{13}-(CH_2)_q-CR^{10}(NHR^{11})-(CH_2)_p-$, wherein q is 0 or 1,

R^5 is hydrogen,

5 (1) if L^4 is $-CHR^{13}-(CH_2)_q-CR^{10}(NHR^{11})-(CH_2)_p-$,

carbon of the $-CHR^{13}-$ group attaches to L^3 ,

p is 0,

R^{10} is a hydrogen atom, a carboxyl group, or $-C(=O)NHR^{10b}$,

R^{11} is a hydrogen atom,

10 R^{10b} is a hydrogen atom,

wherein if R^{10} is $-C(=O)NHR^{10b}$, R^{10b} and R^{11} together may form $-CH_2CH_2-$, and

R^{13} is a hydrogen atom, and

(2) if L^4 is $-(CH_2)_p-CR^{10}(NHR^{11})-(CH_2)_q-CHR^{13}-$,

15 carbon of the $-(CH_2)_p-$ group attaches to L^3 ,

p is 1,

R^{10} and R^{11} are both hydrogen atoms,

R^{13} is a carboxyl group or $-C(=O)NR^{13a}R^{13b}$, and

R^{13a} and R^{13b} are each independently a hydrogen atom or an

20 optionally substituted C_{1-4} alkyl group.

[0102]

In one embodiment, L^4 is $-CR^{12}(NH_2)-$,

R^{12} is a hydrogen atom or a methyl group, and

25 R^5 is a C_{1-4} alkyl group optionally substituted with a hydroxyl group.

[0103]

In some embodiments, R^5 is

1) a hydrogen atom,

2) a C_{1-6} alkyl group,

30 3) a C_{3-10} alicyclic group,

4) a 4- to 10-membered non-aryl heterocycle,

5) C_{6-10} aryl,

6) 5- or 6-membered heteroaryl,

7) a C_{1-6} alkylthio group,

35 (wherein each substituent from 2) to 7) is optionally substituted), or

8) -NR^{e1}OH.

In one embodiment, R⁵ is a hydrogen atom, an optionally substituted C₁₋₆ alkyl group, an optionally substituted 4- to 10-membered non-aryl heterocycle, optionally substituted C₆₋₁₀ aryl, optionally substituted 5- or 6-membered heteroaryl, an optionally substituted C₁₋₆ alkylthio group, or -NR^{e1}OH, wherein R^{e1} is a hydrogen atom or an optionally substituted C₁₋₆ alkyl group. In one embodiment, R⁵ is an optionally substituted 5- or 6-membered heteroaryl or optionally substituted C₆₋₁₀ aryl.

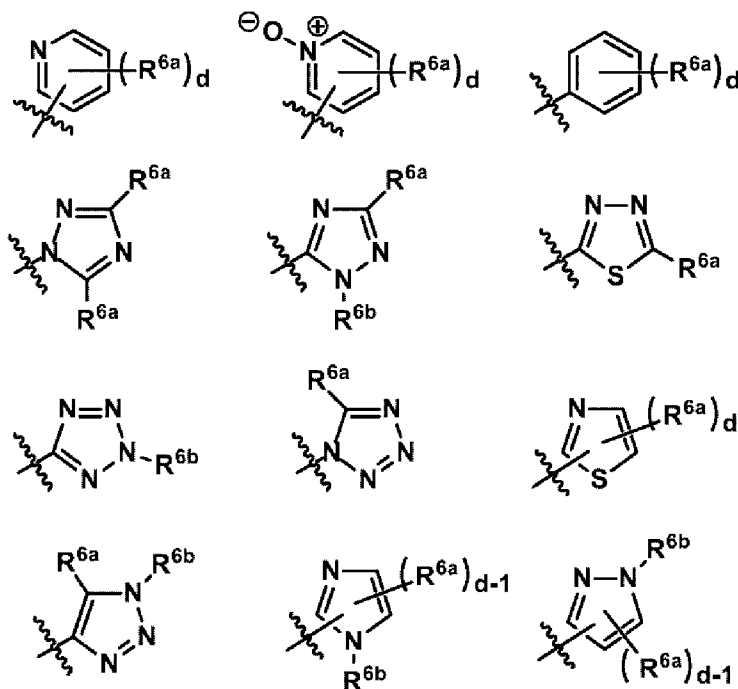
[0104]

In one embodiment, R⁵ is optionally substituted 5- or 6-membered heteroaryl. In one embodiment, R⁵ is an optionally substituted 4- to 10-membered non-aryl heterocycle. In one embodiment, R⁵ is a hydrogen atom or an optionally substituted C₁₋₄ alkyl group.

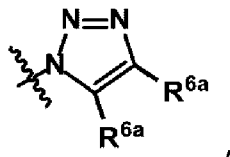
[0105]

In one embodiment, R⁵ is selected from the group consisting of

20 [Chemical Formula 641]



[Chemical Formula 642]



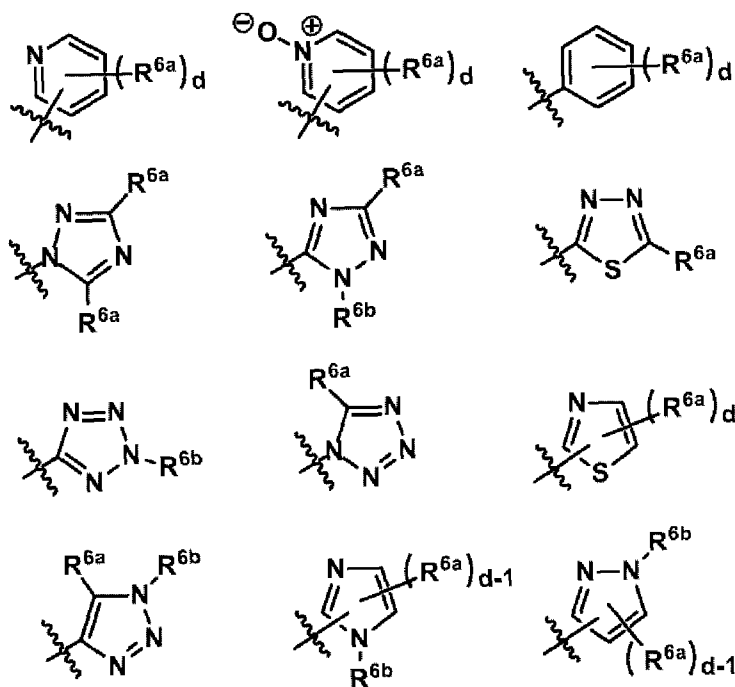
subscript d is the number of substitutable positions on a ring of R^5 ,

5 each R^{6a} is independently selected from the group consisting of

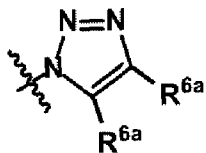
- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 3) a cyano group,
- 10 4) a nitro group,
- 5) halogen,
- 6) a C_{1-4} alkyl group,
- 7) a C_{3-10} alicyclic group,
- 8) a C_{1-4} alkoxy group,
- 15 9) a C_{3-10} alicyclic oxy group,
- 10) a C_{6-10} aryloxy group,
- 11) a 5- or 6-membered heteroaryloxy group,
- 12) a 4- to 10-membered non-aryl heterocyclyl oxy group,
(wherein each substituent from 6) to 12) is optionally
- 20 substituted),
- 13) $-SO_2-NR^{e2}R^{f2}$,
- 14) $-NR^{g2}-CR^{e2}(=NR^{f2})$,
- 15) $-NR^{g2}-CR^{e2}(=N-OR^{f2})$,
- 16) $-NR^{h2}-C(=NR^{g2})NR^{e2}R^{f2}$,
- 25 17) $-NR^{h2}-C(=N-OR^{g2})NR^{e2}R^{f2}$,
- 18) $-NR^{i2}-C(=NR^{h2})NR^{g2}-NR^{e2}R^{f2}$,
- 19) $-NR^{i2}-C(=N-OR^{h2})NR^{g2}-NR^{e2}R^{f2}$,
- 20) $-C(=NR^{e2})R^{f2}$,
- 21) $-C(=N-OR^{e2})R^{f2}$,
- 30 22) $-C(=NR^{h2})-NR^{e2}R^{f2}$,
- 23) $-C(=NR^{h2})NR^{g2}-NR^{e2}R^{f2}$,
- 24) $-C(=N-OR^{h2})NR^{g2}-NR^{e2}R^{f2}$,
- 25) $-NR^{e2}R^{f2}$,

- 26) $-\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 27) $-\text{NR}^{\text{e}2}\text{OR}^{\text{f}2}$,
 28) $-\text{NR}^{\text{e}2}-\text{C}(=\text{O})\text{R}^{\text{f}2}$,
 29) $-\text{C}(=\text{O})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 5 30) $-\text{C}(=\text{O})\text{NR}^{\text{e}2}\text{OR}^{\text{f}2}$,
 31) $-\text{C}(=\text{O})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 32) $-\text{C}(=\text{O})\text{R}^{\text{e}2}$,
 33) $-\text{C}(=\text{O})\text{OR}^{\text{e}2}$, and
 34) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$, and
 10 each R^{6b} is independently selected from the group
 consisting of
 1) a hydrogen atom,
 2) a hydroxyl group,
 3) a C_{1-4} alkyl group
 15 (wherein the alkyl group is optionally substituted),
 4) a C_{3-10} alicyclic group
 (wherein the alicyclic group is optionally substituted),
 5) $-\text{C}(=\text{NR}^{\text{e}2})\text{R}^{\text{f}2}$,
 6) $-\text{C}(=\text{N}-\text{OR}^{\text{e}2})\text{R}^{\text{f}2}$,
 20 7) $-\text{SO}_2-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 8) $-\text{C}(=\text{NR}^{\text{h}2})-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 9) $-\text{C}(=\text{NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 10) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 11) $-\text{C}(=\text{O})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 25 12) $-\text{C}(=\text{O})\text{NR}^{\text{e}2}\text{OR}^{\text{f}2}$,
 13) $-\text{C}(=\text{O})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 14) $-\text{C}(=\text{O})\text{R}^{\text{e}2}$, and
 15) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$.
 [0106]
 30 In one embodiment, R^5 is 5- or 6-membered aryl or
 heteroaryl selected from the group consisting of

[Chemical Formula 643]



[Chemical Formula 644]



- 5 subscript d is the number of substitutable positions on
a ring of R⁵,
- each R^{6a} is independently selected from the group
consisting of
- 1) a hydrogen atom,
 - 10 2) a hydroxyl group,
 - 3) halogen,
 - 4) a C₁₋₄ alkyl group
(wherein the alkyl group is optionally substituted with
NR^{e2}R^{f2}, a 5- or 6-membered non-aryl heterocycle, -C(=O)OR^{f2},
 - 15 or a hydroxyl group),
 - 5) a C₁₋₄ alkoxy group
 - 6) -NR^{e2}R^{f2}, and
 - 7) -C(=O)OR^{e2}, and

each R^{6b} is independently selected from the group consisting of

- 1) a hydrogen atom,
- 2) a hydroxyl group, and

5 3) a C_{1-4} alkyl group

(wherein the alkyl group is optionally substituted with $NR^{e2}R^{f2}$, $-C(=O)NR^{e2}R^{f2}$, $-C(=O)OR^{f2}$, or a hydroxyl group).

[0107]

In one embodiment, R^{e2} and R^{f2} are the same or different,
 10 each independently a hydrogen atom, an optionally substituted C_{1-6} alkyl group, or an optionally substituted C_{3-10} alicyclic group. In one embodiment, R^{e2} and R^{f2} are the same or different, each independently a hydrogen atom or an optionally substituted C_{1-6} alkyl group. In one embodiment,
 15 R^{e2} and R^{f2} are hydrogen atoms. In one embodiment, R^{6a} is $-NR^{e2}R^{f2}$, and one of R^{e2} and R^{f2} is a hydrogen atom and the other is a C_{1-4} alkyl group (wherein the alkyl group is optionally substituted with an amino group or a hydroxyl group).

20 [0108]

In one embodiment, each R^{6a} may be independently halogen.

[0109]

In one embodiment, each R^{6a} may be independently an
 25 alkylamino group substituted with an amino group. In one embodiment, each R^{6a} may be independently $NR^{e2}R^{f2}$, wherein R^{e2} is a C_{1-6} alkyl group, the C_{1-6} alkyl group is substituted with $-NR^{10a}R^{11a}$, and R^{10a} and R^{11a} are each independently defined the same as the description herein.

30 [0110]

In one embodiment, each R^{6a} may be independently $-C(=O)OH$.

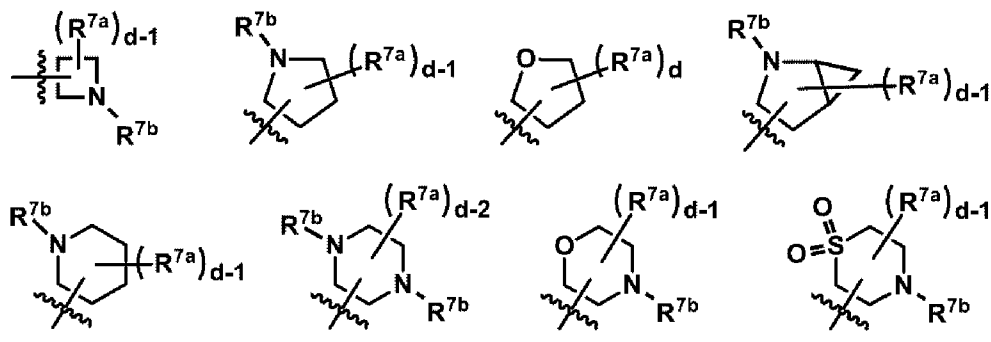
[0111]

In one embodiment, each R^{6a} and/or each R^{6b} may be
 35 independently an alkyl group substituted with a carboxyl group. In one embodiment, each R^{6a} and/or each R^{6b} may be

independently a C₁₋₄ alkyl group substituted with a -C(=O)OH group.

[0112]

In one embodiment, R⁵ is a 4- to 6-membered non-aryl
5 heterocycle selected from the group consisting of
[Chemical Formula 645]



subscript d is the number of substitutable positions on
a ring of R⁵,

10 each R^{7a} is independently selected from the group
consisting of

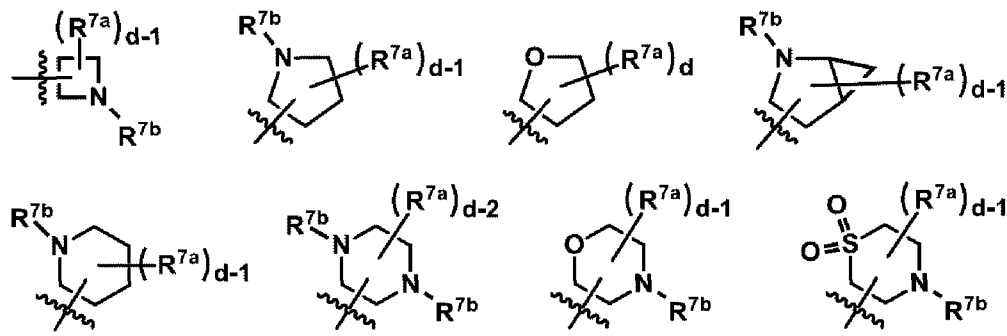
- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 3) a cyano group,
- 15 4) halogen,
- 5) a C₁₋₄ alkyl group,
- 6) a C₃₋₁₀ alicyclic group,
- 7) a C₁₋₄ alkoxy group,
- 8) a C₃₋₁₀ alicyclic oxy group,
- 20 9) a C₆₋₁₀ aryloxy group,
- 10) a 5- or 6-membered heteroaryloxy group,
- 11) a 4- to 10-membered non-aryl heterocyclyl oxy group,
(wherein each substituent from 5) to 11) is optionally
substituted),
- 25 12) -SO₂-NR^{e3}R^{f3},
- 13) -NR^{g2}-CR^{e3}(=NR^{f3}),
- 14) -NR^{g2}-CR^{e3}(=N-OR^{f3}),
- 15) -NR^{h2}-C(=NR^{g2})NR^{e3}R^{f3},
- 16) -NR^{h2}-C(=N-OR^{g2})NR^{e3}R^{f3},

- 17) $-\text{NR}^{\text{i}2}-\text{C}(=\text{NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 18) $-\text{NR}^{\text{i}2}-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 19) $-\text{C}(=\text{NR}^{\text{e}3})\text{R}^{\text{f}3}$,
 - 20) $-\text{C}(=\text{N}-\text{OR}^{\text{e}3})\text{R}^{\text{f}3}$,
 - 5 21) $-\text{C}(=\text{NR}^{\text{h}2})-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 22) $-\text{C}(=\text{NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 23) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 24) $-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 25) $-\text{NR}^{\text{g}2}-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 10 26) $-\text{NR}^{\text{e}3}\text{OR}^{\text{f}3}$,
 - 27) $-\text{NR}^{\text{e}3}-\text{C}(=\text{O})\text{R}^{\text{f}3}$,
 - 28) $-\text{C}(=\text{O})\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 29) $-\text{C}(=\text{O})\text{NR}^{\text{e}3}\text{OR}^{\text{f}3}$,
 - 30) $-\text{C}(=\text{O})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 15 31) $-\text{C}(=\text{O})\text{R}^{\text{e}3}$,
 - 32) $-\text{C}(=\text{O})\text{OR}^{\text{e}3}$, and
 - 33) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
- each R^{7b} is independently selected from the group consisting of
- 20 1) a hydrogen atom,
 - 2) a hydroxyl group,
 - 3) a C_{1-4} alkyl group
(wherein the alkyl group is optionally substituted),
 - 4) a C_{3-10} alicyclic group
(wherein the alicyclic group is optionally substituted),
 - 25 5) $-\text{C}(=\text{NR}^{\text{e}3})\text{R}^{\text{f}3}$,
 - 6) $-\text{C}(=\text{N}-\text{OR}^{\text{e}3})\text{R}^{\text{f}3}$,
 - 7) $-\text{SO}_2-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 8) $-\text{C}(=\text{NR}^{\text{h}2})-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 30 9) $-\text{C}(=\text{NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 10) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 11) $-\text{C}(=\text{O})\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 12) $-\text{C}(=\text{O})\text{NR}^{\text{e}3}\text{OR}^{\text{f}3}$,
 - 13) $-\text{C}(=\text{O})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$,
 - 35 14) $-\text{C}(=\text{O})\text{R}^{\text{e}3}$, and
 - 15) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$, and

R^{e3} and R^{f3} are defined the same as R^{e2} and R^{f2} according to item B1.

[0113]

In one embodiment, R^5 is a 4- to 6-membered non-aryl
5 heterocycle selected from the group consisting of
[Chemical Formula 646]



subscript d is the number of substitutable positions on a ring of R^5 ,

10 each R^{7a} is independently selected from the group consisting of

- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 3) halogen,
- 15 4) a C_{1-4} alkyl group
(wherein the alkyl group is optionally substituted with $NR^{e3}R^{f3}$, a 5- or 6-membered non-aryl heterocycle, $-C(=O)OR^{f3}$, or a hydroxyl group),
- 5) a C_{1-4} alkoxy group
- 20 6) $-NR^{e3}R^{f3}$,
- 7) $-C(=O)OR^{e3}$,
- 8) C_{6-10} aryl, and
- 9) $-C(=O)NR^{e3}R^{f3}$,

25 each R^{7b} is independently selected from the group consisting of

- 1) a hydrogen atom,
- 2) a hydroxyl group, and
- 3) a C_{1-4} alkyl group
(wherein the alkyl group is optionally substituted with

$\text{NR}^{\text{e}3}\text{R}^{\text{f}3}$, $-\text{C}(=\text{O})\text{OR}^{\text{f}3}$, or a hydroxyl group), and

$\text{R}^{\text{e}3}$ and $\text{R}^{\text{f}3}$ are defined the same as $\text{R}^{\text{e}2}$ and $\text{R}^{\text{f}2}$ according to any one of items B38 to B40.

[0114]

5 In some embodiments, if one of R^1 , R^2 , and R^3 is represented by formula (2), the remaining two are the same or different, each independently a hydrogen atom, a halogen atom, an optionally substituted C_{1-6} alkyl group, an optionally substituted C_{1-6} alkoxy group, an optionally substituted C_{1-6} alkylthio group, optionally substituted 5-
10 or 6-membered heteroaryl, or $-\text{NR}^{\text{a}3}\text{R}^{\text{b}2}$, wherein $\text{R}^{\text{a}3}$ and $\text{R}^{\text{b}2}$ are the same as the descriptions herein. In a preferred embodiment, R^3 is represented by formula (2).

[0115]

15 In one embodiment where R^3 is represented by formula (2), R^1 and R^2 are the same or different, each independently selected from the group consisting of

- 1) a hydrogen atom,
 - 2) a halogen atom,
 - 20 3) a C_{1-6} alkyl group,
 - 4) a C_{1-6} alkoxy group, and
 - 5) a C_{1-6} alkylthio group,
- (wherein each substituent from 3) to 5) is optionally substituted).

25 [0116]

In said embodiment, R^1 and R^2 are the same or different, each independently selected from the group consisting of

- 1) a hydrogen atom,
 - 2) a halogen atom, and
 - 30 3) an optionally substituted C_{1-6} alkyl group.
- In a preferred embodiment, R^1 and R^2 are both hydrogen atoms.

[0117]

In some embodiments, R^4 in formulas (1a) and (1b) is

- 35 1) $-\text{C}(=\text{O})\text{R}^8$,
- 2) $-\text{SO}_2-\text{L}^6-\text{R}^8$,

(wherein R^8 in 1) and 2) is $-NR^{a5}R^{b4}$, $-NR^{a5}-L^7-B(OR^{m1})_2$, $-OR^{m1}$, or an optionally substituted C_{1-6} alkyl group, and L^6 is a single bond or $-NR^{a6}-$),

3) $-NR^{a4}R^{b3}$,

5 4) $-B(OR^{m1})_2$,

5) $-PO(OR^{m1})(OR^{m2})$,

6) optionally substituted 5-membered heteroaryl,

7) an optionally substituted 5-membered non-aryl heterocycle, or

10 8) a bioisostere of one of 1) to 7),

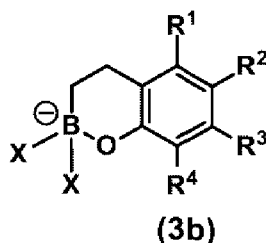
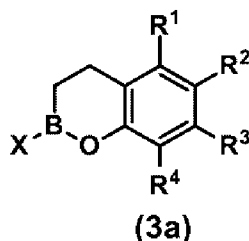
(wherein the formulas of 2), 4), 5), and 6) include a carboxylic acid isostere, and 8) may include them in duplicates).

In one embodiment, R^4 is $-C(=O)-OR^{m1}$ or a carboxylic acid isostere thereof. In a preferred embodiment, R^4 is 1) $-COOH$ (i.e., a carboxyl group), or 2) a carboxylic acid isostere. The R^{a4} , R^{a5} , R^{a6} , R^{b3} , R^{b4} , L^7 , R^{m1} , and R^{m2} are the same as the definitions herein.

[0118]

20 A specific example of a specific embodiment of the compound of the invention includes a compound represented by formula (3a) or (3b):

[Chemical Formula 647]



25 or a pharmaceutically acceptable salt thereof. X , R^1 , R^2 , and R^3 in formula (3a) or (3b) are defined the same as the definitions herein, and R^4 is selected from the group consisting of

1) $-COOR^{m1}$ (wherein R^{m1} is a hydrogen atom, a C_{1-6} alkyl group, a C_{3-10} alicyclic group, C_{6-10} aryl, 5- or 6-membered heteroaryl, or a 4- to 10-membered non-aryl heterocycle,

30

wherein the C₁₋₆ alkyl group, the C₃₋₁₀ alicyclic group, the C₆₋₁₀ aryl, the 5- or 6-membered heteroaryl, and the 4- to 10-membered non-aryl heterocycle are each optionally substituted), and

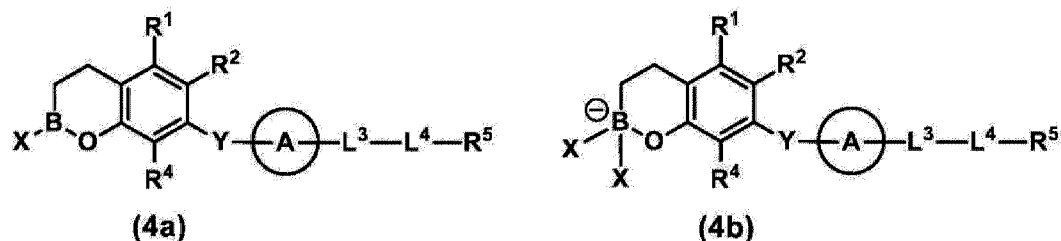
5 2) a bioisostere of 1).

In a preferred embodiment, R⁴ is 1) -COOH (i.e., a carboxyl group) or 2) a carboxylic acid isostere.

[0119]

A specific example of a preferred embodiment of the
10 compound of the invention includes compounds represented by formulas (4a) and (4b):

[Chemical Formula 648]

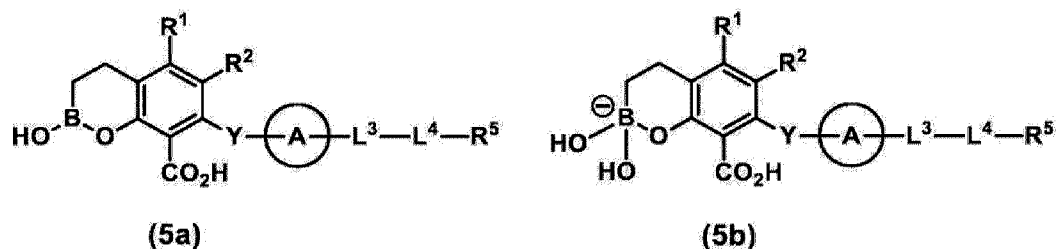


or a pharmaceutically acceptable salt thereof. X, R⁴, Y,
15 ring A, L³, L⁴, and R⁵ in formulas (4a) and (4b) are defined the same as the definitions herein, and R¹ and R² are the same or different, each independently a hydrogen atom, a halogen atom, a C₁₋₆ alkyl group, or a C₁₋₆ alkoxy group (wherein the C₁₋₆ alkyl group and C₁₋₆ alkoxy group are
20 optionally substituted with 1 to 5 halogens).

[0120]

A specific example of a still more preferred embodiment of the compound of the invention includes compounds represented by formulas (5a) and (5b):

25 [Chemical Formula 649]

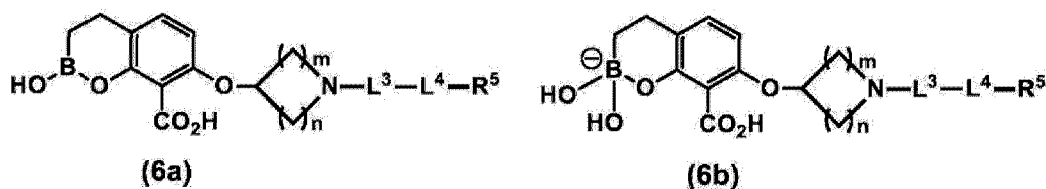


or a pharmaceutically acceptable salt thereof. R^1 , R^2 , Y , L^3 , L^4 , R^5 , and ring A in formulas (5a) and (5b) are defined the same as the definitions herein, and ring A is an optionally substituted 4- to 6-membered nitrogen-containing non-aryl heterocycle.

[0121]

A specific example of a yet still more preferred embodiment of the compound of the invention includes compounds represented by formulas (6a) and (6b):

10 [Chemical Formula 650]



or a pharmaceutically acceptable salt thereof. L^3 , L^4 , and R^5 in formulas (6a) and (6b) are defined the same as the definitions herein, m is an integer 1, 2, or 3, n is an integer 1, 2, or 3, and $m + n$ is 2, 3, or 4. In one embodiment, m is 1 or 2, n is 1 or 2, and $m + n$ is 2 or 3. In a preferred embodiment, m is 1, and n is 1.

[0122]

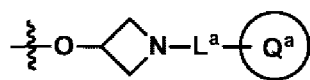
A specific example of a preferred embodiment of the compound of the invention includes the following compound: a compound represented by

[Chemical Formula 651]



or a pharmaceutically acceptable salt thereof, wherein R^{ZL} is a substituent selected from the group consisting of the Z1 to Z4 described below, one of R^1 , R^2 , and R^3 is

[Chemical Formula 652]

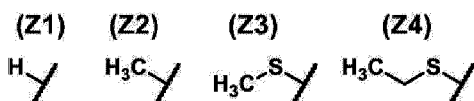


and

the remaining two are hydrogen atoms, linking group L^a is a substituent selected from the group consisting of L1 to L36 described below, and substituent Q^a is a substituent selected from the group consisting of Q1 to Q103 described below;

 R^{ZL} :

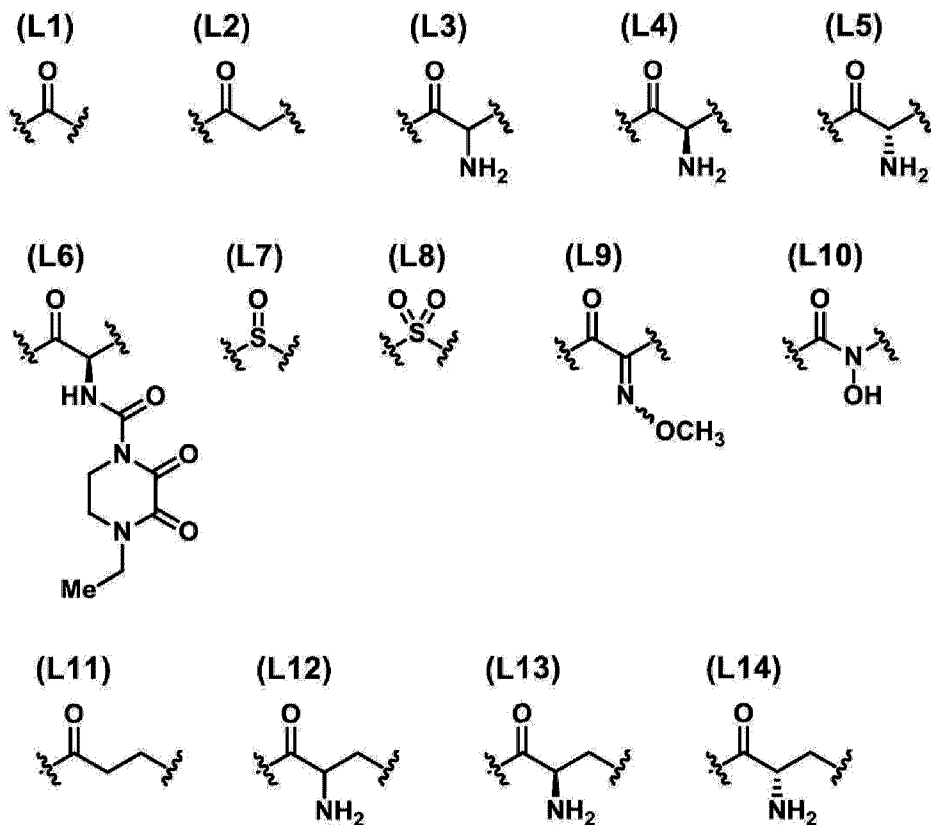
[Chemical Formula 653]



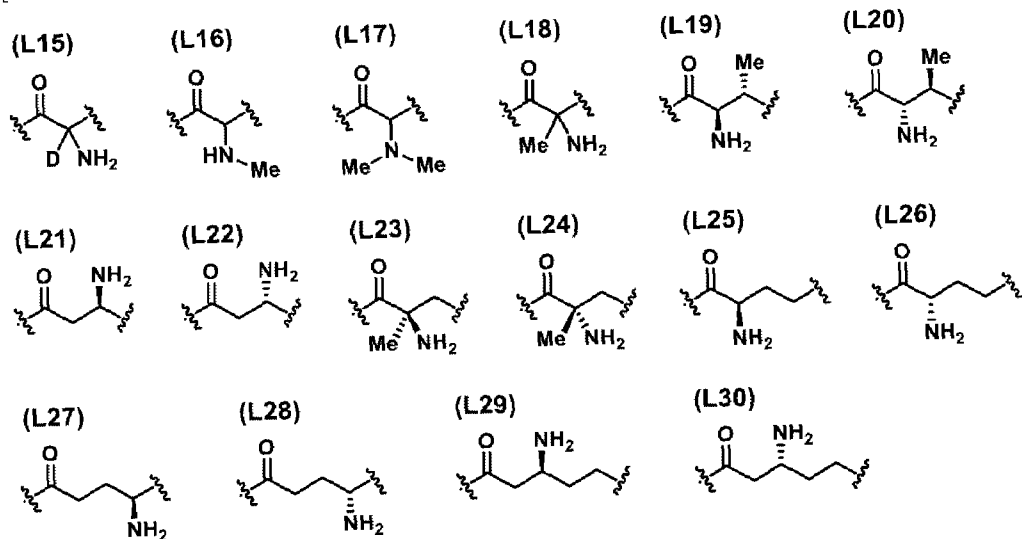
10

linking group L^a :

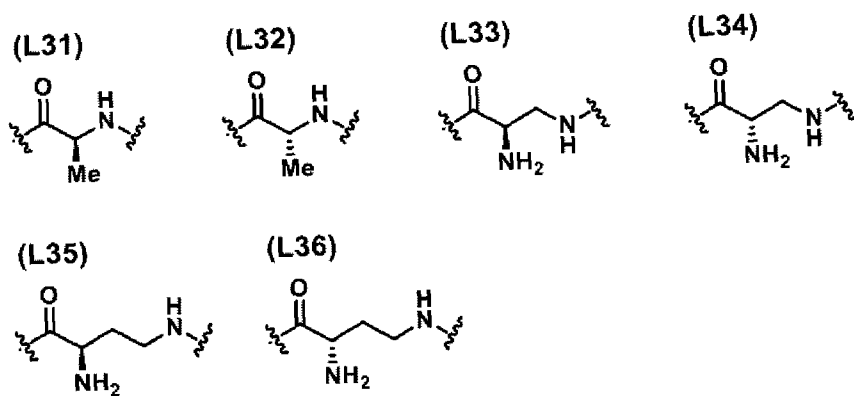
[Chemical Formula 654]



[Chemical Formula 655]



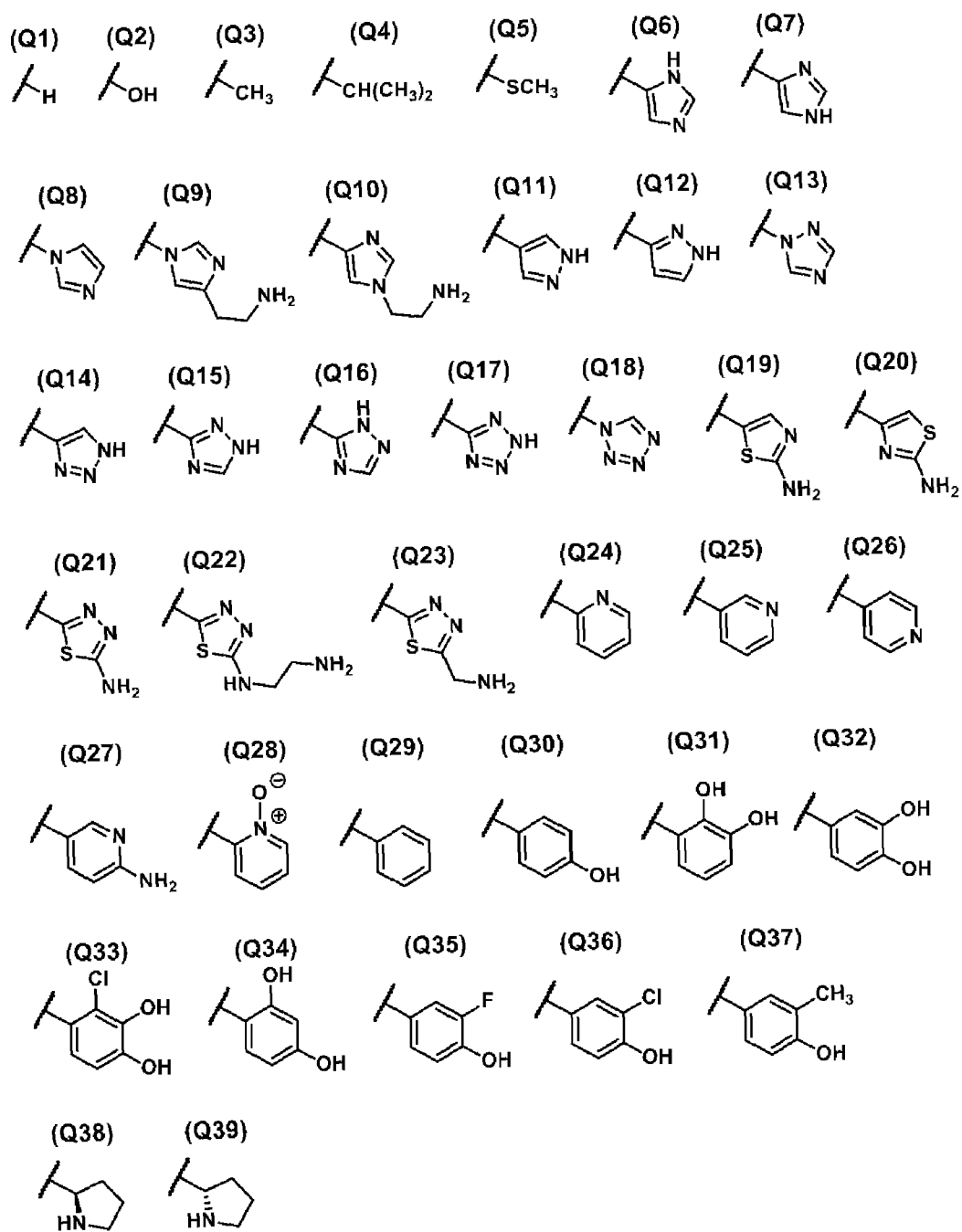
[Chemical Formula 656]



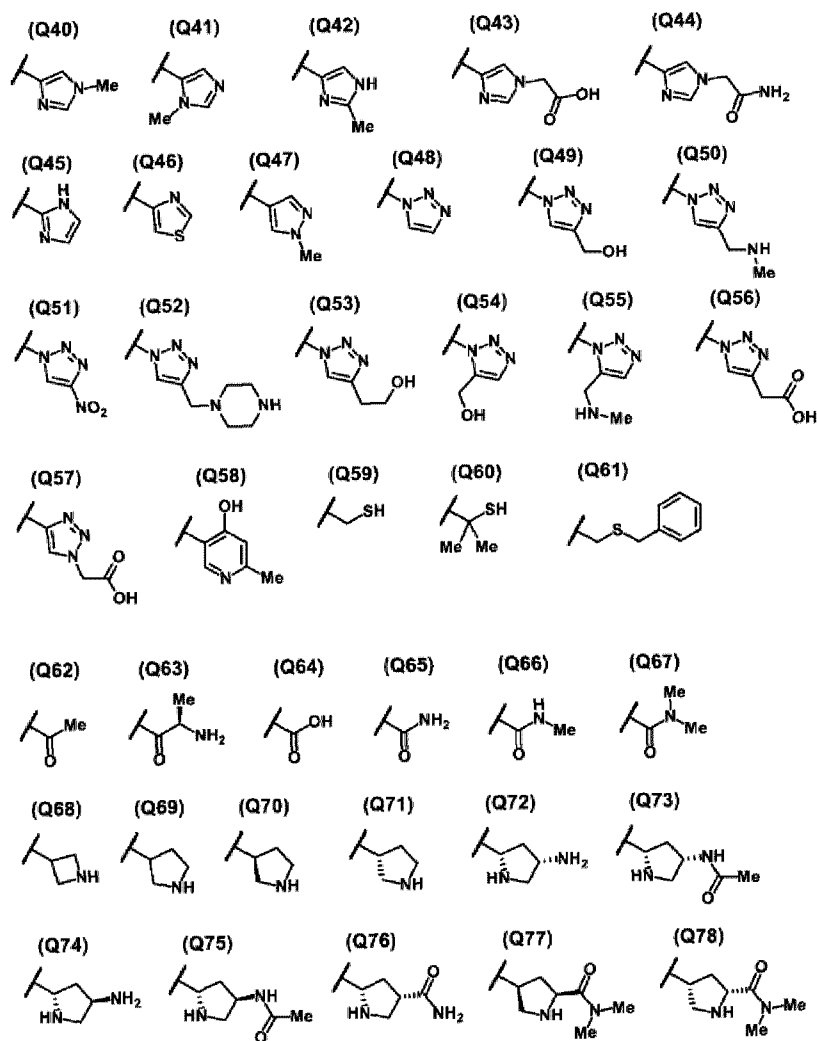
, and

5 substituent Q^a:

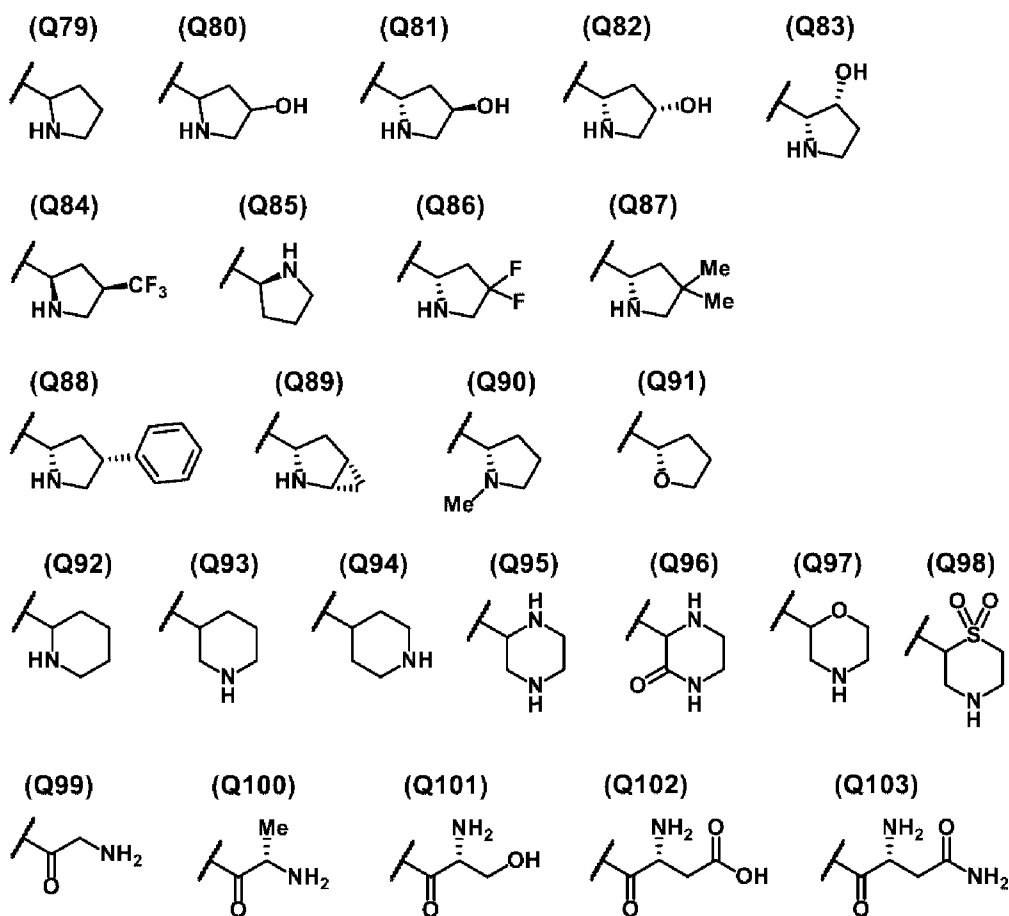
[Chemical Formula 657]



[Chemical Formula 658]



[Chemical Formula 659]

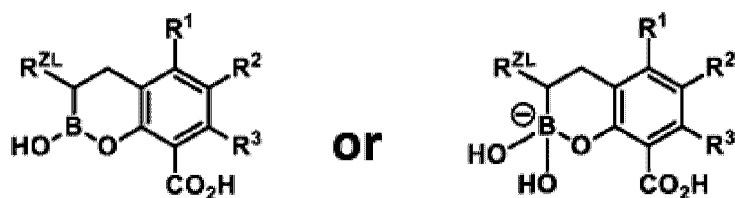


[0123]

A specific example of a more preferred embodiment of
 5 the compound of the invention includes a compound of the
 following formula:

a compound represented by

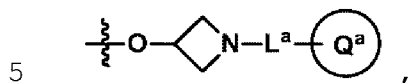
[Chemical Formula 660]



10 or a pharmaceutically acceptable salt thereof, wherein
 R^{ZL} is a substituent selected from the group consisting of

Z1 to Z4 described above,
 R¹ and R² are hydrogen atoms, and
 R³ is

[Chemical Formula 661]

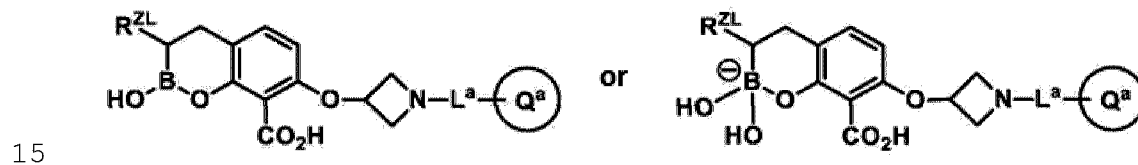


wherein linking group L^a is a substituent selected from the group consisting of L1 to L36 described above, and substituent Q^a is a substituent selected from the group consisting of Q1 to Q103 described above.

10 [0124]

Examples of a more preferred embodiment of the compound of the invention include the compounds of the following Table (1) or a pharmaceutically acceptable salt thereof.

[Chemical Formula 662]



[Table 1-1]

Example	R^{ZL}	L^a	Q^a
1	Z1	L1	Q1
2	Z1	L1	Q2
3	Z1	L1	Q3
4	Z1	L1	Q4
5	Z1	L1	Q5
6	Z1	L1	Q6
7	Z1	L1	Q7
8	Z1	L1	Q8
9	Z1	L1	Q9
10	Z1	L1	Q10
11	Z1	L1	Q11
12	Z1	L1	Q12
13	Z1	L1	Q13
14	Z1	L1	Q14
15	Z1	L1	Q15
16	Z1	L1	Q16
17	Z1	L1	Q17
18	Z1	L1	Q18
19	Z1	L1	Q19
20	Z1	L1	Q20
21	Z1	L1	Q21
22	Z1	L1	Q22
23	Z1	L1	Q23
24	Z1	L1	Q24
25	Z1	L1	Q25
26	Z1	L1	Q26

27	Z1	L1	Q27
28	Z1	L1	Q28
29	Z1	L1	Q29
30	Z1	L1	Q30
31	Z1	L1	Q31
32	Z1	L1	Q32
33	Z1	L1	Q33
34	Z1	L1	Q34
35	Z1	L1	Q35
36	Z1	L1	Q36
37	Z1	L1	Q37
38	Z1	L1	Q38
39	Z1	L1	Q39
40	Z1	L2	Q1
41	Z1	L2	Q2
42	Z1	L2	Q3
43	Z1	L2	Q4
44	Z1	L2	Q5
45	Z1	L2	Q6
46	Z1	L2	Q7
47	Z1	L2	Q8
48	Z1	L2	Q9
49	Z1	L2	Q10
50	Z1	L2	Q11
51	Z1	L2	Q12
52	Z1	L2	Q13
53	Z1	L2	Q14

54	Z1	L2	Q15
55	Z1	L2	Q16
56	Z1	L2	Q17
57	Z1	L2	Q18
58	Z1	L2	Q19
59	Z1	L2	Q20
60	Z1	L2	Q21
61	Z1	L2	Q22
62	Z1	L2	Q23
63	Z1	L2	Q24
64	Z1	L2	Q25
65	Z1	L2	Q26
66	Z1	L2	Q27
67	Z1	L2	Q28
68	Z1	L2	Q29
69	Z1	L2	Q30
70	Z1	L2	Q31
71	Z1	L2	Q32
72	Z1	L2	Q33
73	Z1	L2	Q34
74	Z1	L2	Q35
75	Z1	L2	Q36
76	Z1	L2	Q37
77	Z1	L2	Q38
78	Z1	L2	Q39
79	Z1	L3	Q1
80	Z1	L3	Q2

[Table 1-2]

81	Z1	L3	Q3
82	Z1	L3	Q4
83	Z1	L3	Q5
84	Z1	L3	Q6
85	Z1	L3	Q7
86	Z1	L3	Q8
87	Z1	L3	Q9
88	Z1	L3	Q10
89	Z1	L3	Q11
90	Z1	L3	Q12
91	Z1	L3	Q13
92	Z1	L3	Q14
93	Z1	L3	Q15
94	Z1	L3	Q16
95	Z1	L3	Q17
96	Z1	L3	Q18
97	Z1	L3	Q19
98	Z1	L3	Q20
99	Z1	L3	Q21
100	Z1	L3	Q22
101	Z1	L3	Q23
102	Z1	L3	Q24
103	Z1	L3	Q25
104	Z1	L3	Q26
105	Z1	L3	Q27
106	Z1	L3	Q28
107	Z1	L3	Q29
108	Z1	L3	Q30
109	Z1	L3	Q31
110	Z1	L3	Q32
111	Z1	L3	Q33
112	Z1	L3	Q34
113	Z1	L3	Q35
114	Z1	L3	Q36
115	Z1	L3	Q37
116	Z1	L3	Q38
117	Z1	L3	Q39
118	Z1	L4	Q1
119	Z1	L4	Q2
120	Z1	L4	Q3
121	Z1	L4	Q4
122	Z1	L4	Q5
123	Z1	L4	Q6
124	Z1	L4	Q7
125	Z1	L4	Q8
126	Z1	L4	Q9
127	Z1	L4	Q10

128	Z1	L4	Q11
129	Z1	L4	Q12
130	Z1	L4	Q13
131	Z1	L4	Q14
132	Z1	L4	Q15
133	Z1	L4	Q16
134	Z1	L4	Q17
135	Z1	L4	Q18
136	Z1	L4	Q19
137	Z1	L4	Q20
138	Z1	L4	Q21
139	Z1	L4	Q22
140	Z1	L4	Q23
141	Z1	L4	Q24
142	Z1	L4	Q25
143	Z1	L4	Q26
144	Z1	L4	Q27
145	Z1	L4	Q28
146	Z1	L4	Q29
147	Z1	L4	Q30
148	Z1	L4	Q31
149	Z1	L4	Q32
150	Z1	L4	Q33
151	Z1	L4	Q34
152	Z1	L4	Q35
153	Z1	L4	Q36
154	Z1	L4	Q37
155	Z1	L4	Q38
156	Z1	L4	Q39
157	Z1	L5	Q1
158	Z1	L5	Q2
159	Z1	L5	Q3
160	Z1	L5	Q4
161	Z1	L5	Q5
162	Z1	L5	Q6
163	Z1	L5	Q7
164	Z1	L5	Q8
165	Z1	L5	Q9
166	Z1	L5	Q10
167	Z1	L5	Q11
168	Z1	L5	Q12
169	Z1	L5	Q13
170	Z1	L5	Q14
171	Z1	L5	Q15
172	Z1	L5	Q16
173	Z1	L5	Q17
174	Z1	L5	Q18

175	Z1	L5	Q19
176	Z1	L5	Q20
177	Z1	L5	Q21
178	Z1	L5	Q22
179	Z1	L5	Q23
180	Z1	L5	Q24
181	Z1	L5	Q25
182	Z1	L5	Q26
183	Z1	L5	Q27
184	Z1	L5	Q28
185	Z1	L5	Q29
186	Z1	L5	Q30
187	Z1	L5	Q31
188	Z1	L5	Q32
189	Z1	L5	Q33
190	Z1	L5	Q34
191	Z1	L5	Q35
192	Z1	L5	Q36
193	Z1	L5	Q37
194	Z1	L5	Q38
195	Z1	L5	Q39
196	Z1	L6	Q1
197	Z1	L6	Q2
198	Z1	L6	Q3
199	Z1	L6	Q4
200	Z1	L6	Q5
201	Z1	L6	Q6
202	Z1	L6	Q7
203	Z1	L6	Q8
204	Z1	L6	Q9
205	Z1	L6	Q10
206	Z1	L6	Q11
207	Z1	L6	Q12
208	Z1	L6	Q13
209	Z1	L6	Q14
210	Z1	L6	Q15
211	Z1	L6	Q16
212	Z1	L6	Q17
213	Z1	L6	Q18
214	Z1	L6	Q19
215	Z1	L6	Q20
216	Z1	L6	Q21
217	Z1	L6	Q22
218	Z1	L6	Q23
219	Z1	L6	Q24
220	Z1	L6	Q25
221	Z1	L6	Q26

[Table 1-3]

222	Z1	L6	Q27
223	Z1	L6	Q28
224	Z1	L6	Q29
225	Z1	L6	Q30
226	Z1	L6	Q31
227	Z1	L6	Q32
228	Z1	L6	Q33
229	Z1	L6	Q34
230	Z1	L6	Q35
231	Z1	L6	Q36
232	Z1	L6	Q37
233	Z1	L6	Q38
234	Z1	L6	Q39
235	Z1	L7	Q1
236	Z1	L7	Q2
237	Z1	L7	Q3
238	Z1	L7	Q4
239	Z1	L7	Q5
240	Z1	L7	Q6
241	Z1	L7	Q7
242	Z1	L7	Q8
243	Z1	L7	Q9
244	Z1	L7	Q10
245	Z1	L7	Q11
246	Z1	L7	Q12
247	Z1	L7	Q13
248	Z1	L7	Q14
249	Z1	L7	Q15
250	Z1	L7	Q16
251	Z1	L7	Q17
252	Z1	L7	Q18
253	Z1	L7	Q19
254	Z1	L7	Q20
255	Z1	L7	Q21
256	Z1	L7	Q22
257	Z1	L7	Q23
258	Z1	L7	Q24
259	Z1	L7	Q25
260	Z1	L7	Q26
261	Z1	L7	Q27
262	Z1	L7	Q28
263	Z1	L7	Q29
264	Z1	L7	Q30
265	Z1	L7	Q31
266	Z1	L7	Q32
267	Z1	L7	Q33
268	Z1	L7	Q34

269	Z1	L7	Q35
270	Z1	L7	Q36
271	Z1	L7	Q37
272	Z1	L7	Q38
273	Z1	L7	Q39
274	Z1	L8	Q1
275	Z1	L8	Q2
276	Z1	L8	Q3
277	Z1	L8	Q4
278	Z1	L8	Q5
279	Z1	L8	Q6
280	Z1	L8	Q7
281	Z1	L8	Q8
282	Z1	L8	Q9
283	Z1	L8	Q10
284	Z1	L8	Q11
285	Z1	L8	Q12
286	Z1	L8	Q13
287	Z1	L8	Q14
288	Z1	L8	Q15
289	Z1	L8	Q16
290	Z1	L8	Q17
291	Z1	L8	Q18
292	Z1	L8	Q19
293	Z1	L8	Q20
294	Z1	L8	Q21
295	Z1	L8	Q22
296	Z1	L8	Q23
297	Z1	L8	Q24
298	Z1	L8	Q25
299	Z1	L8	Q26
300	Z1	L8	Q27
301	Z1	L8	Q28
302	Z1	L8	Q29
303	Z1	L8	Q30
304	Z1	L8	Q31
305	Z1	L8	Q32
306	Z1	L8	Q33
307	Z1	L8	Q34
308	Z1	L8	Q35
309	Z1	L8	Q36
310	Z1	L8	Q37
311	Z1	L8	Q38
312	Z1	L8	Q39
313	Z1	L9	Q1
314	Z1	L9	Q2
315	Z1	L9	Q3

316	Z1	L9	Q4
317	Z1	L9	Q5
318	Z1	L9	Q6
319	Z1	L9	Q7
320	Z1	L9	Q8
321	Z1	L9	Q9
322	Z1	L9	Q10
323	Z1	L9	Q11
324	Z1	L9	Q12
325	Z1	L9	Q13
326	Z1	L9	Q14
327	Z1	L9	Q15
328	Z1	L9	Q16
329	Z1	L9	Q17
330	Z1	L9	Q18
331	Z1	L9	Q19
332	Z1	L9	Q20
333	Z1	L9	Q21
334	Z1	L9	Q22
335	Z1	L9	Q23
336	Z1	L9	Q24
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338	Z1	L9	Q26
339	Z1	L9	Q27
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341	Z1	L9	Q29
342	Z1	L9	Q30
343	Z1	L9	Q31
344	Z1	L9	Q32
345	Z1	L9	Q33
346	Z1	L9	Q34
347	Z1	L9	Q35
348	Z1	L9	Q36
349	Z1	L9	Q37
350	Z1	L9	Q38
351	Z1	L9	Q39
352	Z1	L10	Q1
353	Z1	L10	Q2
354	Z1	L10	Q3
355	Z1	L10	Q4
356	Z1	L10	Q5
357	Z1	L10	Q6
358	Z1	L10	Q7
359	Z1	L10	Q8
360	Z1	L10	Q9
361	Z1	L10	Q10
362	Z1	L10	Q11

[Table 1-4]

363	Z1	L10	Q12
364	Z1	L10	Q13
365	Z1	L10	Q14
366	Z1	L10	Q15
367	Z1	L10	Q16
368	Z1	L10	Q17
369	Z1	L10	Q18
370	Z1	L10	Q19
371	Z1	L10	Q20
372	Z1	L10	Q21
373	Z1	L10	Q22
374	Z1	L10	Q23
375	Z1	L10	Q24
376	Z1	L10	Q25
377	Z1	L10	Q26
378	Z1	L10	Q27
379	Z1	L10	Q28
380	Z1	L10	Q29
381	Z1	L10	Q30
382	Z1	L10	Q31
383	Z1	L10	Q32
384	Z1	L10	Q33
385	Z1	L10	Q34
386	Z1	L10	Q35
387	Z1	L10	Q36
388	Z1	L10	Q37
389	Z1	L10	Q38
390	Z1	L10	Q39
391	Z1	L11	Q1
392	Z1	L11	Q2
393	Z1	L11	Q3
394	Z1	L11	Q4
395	Z1	L11	Q5
396	Z1	L11	Q6
397	Z1	L11	Q7
398	Z1	L11	Q8
399	Z1	L11	Q9
400	Z1	L11	Q10
401	Z1	L11	Q11
402	Z1	L11	Q12
403	Z1	L11	Q13
404	Z1	L11	Q14
405	Z1	L11	Q15
406	Z1	L11	Q16
407	Z1	L11	Q17
408	Z1	L11	Q18
409	Z1	L11	Q19

410	Z1	L11	Q20
411	Z1	L11	Q21
412	Z1	L11	Q22
413	Z1	L11	Q23
414	Z1	L11	Q24
415	Z1	L11	Q25
416	Z1	L11	Q26
417	Z1	L11	Q27
418	Z1	L11	Q28
419	Z1	L11	Q29
420	Z1	L11	Q30
421	Z1	L11	Q31
422	Z1	L11	Q32
423	Z1	L11	Q33
424	Z1	L11	Q34
425	Z1	L11	Q35
426	Z1	L11	Q36
427	Z1	L11	Q37
428	Z1	L11	Q38
429	Z1	L11	Q39
430	Z1	L12	Q1
431	Z1	L12	Q2
432	Z1	L12	Q3
433	Z1	L12	Q4
434	Z1	L12	Q5
435	Z1	L12	Q6
436	Z1	L12	Q7
437	Z1	L12	Q8
438	Z1	L12	Q9
439	Z1	L12	Q10
440	Z1	L12	Q11
441	Z1	L12	Q12
442	Z1	L12	Q13
443	Z1	L12	Q14
444	Z1	L12	Q15
445	Z1	L12	Q16
446	Z1	L12	Q17
447	Z1	L12	Q18
448	Z1	L12	Q19
449	Z1	L12	Q20
450	Z1	L12	Q21
451	Z1	L12	Q22
452	Z1	L12	Q23
453	Z1	L12	Q24
454	Z1	L12	Q25
455	Z1	L12	Q26
456	Z1	L12	Q27

457	Z1	L12	Q28
458	Z1	L12	Q29
459	Z1	L12	Q30
460	Z1	L12	Q31
461	Z1	L12	Q32
462	Z1	L12	Q33
463	Z1	L12	Q34
464	Z1	L12	Q35
465	Z1	L12	Q36
466	Z1	L12	Q37
467	Z1	L12	Q38
468	Z1	L12	Q39
469	Z1	L13	Q1
470	Z1	L13	Q2
471	Z1	L13	Q3
472	Z1	L13	Q4
473	Z1	L13	Q5
474	Z1	L13	Q6
475	Z1	L13	Q7
476	Z1	L13	Q8
477	Z1	L13	Q9
478	Z1	L13	Q10
479	Z1	L13	Q11
480	Z1	L13	Q12
481	Z1	L13	Q13
482	Z1	L13	Q14
483	Z1	L13	Q15
484	Z1	L13	Q16
485	Z1	L13	Q17
486	Z1	L13	Q18
487	Z1	L13	Q19
488	Z1	L13	Q20
489	Z1	L13	Q21
490	Z1	L13	Q22
491	Z1	L13	Q23
492	Z1	L13	Q24
493	Z1	L13	Q25
494	Z1	L13	Q26
495	Z1	L13	Q27
496	Z1	L13	Q28
497	Z1	L13	Q29
498	Z1	L13	Q30
499	Z1	L13	Q31
500	Z1	L13	Q32
501	Z1	L13	Q33
502	Z1	L13	Q34
503	Z1	L13	Q35

[Table 1-5]

504	Z1	L13	Q36
505	Z1	L13	Q37
506	Z1	L13	Q38
507	Z1	L13	Q39
508	Z1	L14	Q1
509	Z1	L14	Q2
510	Z1	L14	Q3
511	Z1	L14	Q4
512	Z1	L14	Q5
513	Z1	L14	Q6
514	Z1	L14	Q7
515	Z1	L14	Q8
516	Z1	L14	Q9
517	Z1	L14	Q10
518	Z1	L14	Q11
519	Z1	L14	Q12
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521	Z1	L14	Q14
522	Z1	L14	Q15
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529	Z1	L14	Q22
530	Z1	L14	Q23
531	Z1	L14	Q24
532	Z1	L14	Q25
533	Z1	L14	Q26
534	Z1	L14	Q27
535	Z1	L14	Q28
536	Z1	L14	Q29
537	Z1	L14	Q30
538	Z1	L14	Q31
539	Z1	L14	Q32
540	Z1	L14	Q33
541	Z1	L14	Q34
542	Z1	L14	Q35
543	Z1	L14	Q36
544	Z1	L14	Q37
545	Z1	L14	Q38
546	Z1	L14	Q39
547	Z2	L1	Q1
548	Z2	L1	Q2
549	Z2	L1	Q3
550	Z2	L1	Q4

551	Z2	L1	Q5
552	Z2	L1	Q6
553	Z2	L1	Q7
554	Z2	L1	Q8
555	Z2	L1	Q9
556	Z2	L1	Q10
557	Z2	L1	Q11
558	Z2	L1	Q12
559	Z2	L1	Q13
560	Z2	L1	Q14
561	Z2	L1	Q15
562	Z2	L1	Q16
563	Z2	L1	Q17
564	Z2	L1	Q18
565	Z2	L1	Q19
566	Z2	L1	Q20
567	Z2	L1	Q21
568	Z2	L1	Q22
569	Z2	L1	Q23
570	Z2	L1	Q24
571	Z2	L1	Q25
572	Z2	L1	Q26
573	Z2	L1	Q27
574	Z2	L1	Q28
575	Z2	L1	Q29
576	Z2	L1	Q30
577	Z2	L1	Q31
578	Z2	L1	Q32
579	Z2	L1	Q33
580	Z2	L1	Q34
581	Z2	L1	Q35
582	Z2	L1	Q36
583	Z2	L1	Q37
584	Z2	L1	Q38
585	Z2	L1	Q39
586	Z2	L2	Q1
587	Z2	L2	Q2
588	Z2	L2	Q3
589	Z2	L2	Q4
590	Z2	L2	Q5
591	Z2	L2	Q6
592	Z2	L2	Q7
593	Z2	L2	Q8
594	Z2	L2	Q9
595	Z2	L2	Q10
596	Z2	L2	Q11
597	Z2	L2	Q12

598	Z2	L2	Q13
599	Z2	L2	Q14
600	Z2	L2	Q15
601	Z2	L2	Q16
602	Z2	L2	Q17
603	Z2	L2	Q18
604	Z2	L2	Q19
605	Z2	L2	Q20
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607	Z2	L2	Q22
608	Z2	L2	Q23
609	Z2	L2	Q24
610	Z2	L2	Q25
611	Z2	L2	Q26
612	Z2	L2	Q27
613	Z2	L2	Q28
614	Z2	L2	Q29
615	Z2	L2	Q30
616	Z2	L2	Q31
617	Z2	L2	Q32
618	Z2	L2	Q33
619	Z2	L2	Q34
620	Z2	L2	Q35
621	Z2	L2	Q36
622	Z2	L2	Q37
623	Z2	L2	Q38
624	Z2	L2	Q39
625	Z2	L3	Q1
626	Z2	L3	Q2
627	Z2	L3	Q3
628	Z2	L3	Q4
629	Z2	L3	Q5
630	Z2	L3	Q6
631	Z2	L3	Q7
632	Z2	L3	Q8
633	Z2	L3	Q9
634	Z2	L3	Q10
635	Z2	L3	Q11
636	Z2	L3	Q12
637	Z2	L3	Q13
638	Z2	L3	Q14
639	Z2	L3	Q15
640	Z2	L3	Q16
641	Z2	L3	Q17
642	Z2	L3	Q18
643	Z2	L3	Q19
644	Z2	L3	Q20

[Table 1-6]

645	Z2	L3	Q21
646	Z2	L3	Q22
647	Z2	L3	Q23
648	Z2	L3	Q24
649	Z2	L3	Q25
650	Z2	L3	Q26
651	Z2	L3	Q27
652	Z2	L3	Q28
653	Z2	L3	Q29
654	Z2	L3	Q30
655	Z2	L3	Q31
656	Z2	L3	Q32
657	Z2	L3	Q33
658	Z2	L3	Q34
659	Z2	L3	Q35
660	Z2	L3	Q36
661	Z2	L3	Q37
662	Z2	L3	Q38
663	Z2	L3	Q39
664	Z2	L4	Q1
665	Z2	L4	Q2
666	Z2	L4	Q3
667	Z2	L4	Q4
668	Z2	L4	Q5
669	Z2	L4	Q6
670	Z2	L4	Q7
671	Z2	L4	Q8
672	Z2	L4	Q9
673	Z2	L4	Q10
674	Z2	L4	Q11
675	Z2	L4	Q12
676	Z2	L4	Q13
677	Z2	L4	Q14
678	Z2	L4	Q15
679	Z2	L4	Q16
680	Z2	L4	Q17
681	Z2	L4	Q18
682	Z2	L4	Q19
683	Z2	L4	Q20
684	Z2	L4	Q21
685	Z2	L4	Q22
686	Z2	L4	Q23
687	Z2	L4	Q24
688	Z2	L4	Q25
689	Z2	L4	Q26
690	Z2	L4	Q27
691	Z2	L4	Q28

692	Z2	L4	Q29
693	Z2	L4	Q30
694	Z2	L4	Q31
695	Z2	L4	Q32
696	Z2	L4	Q33
697	Z2	L4	Q34
698	Z2	L4	Q35
699	Z2	L4	Q36
700	Z2	L4	Q37
701	Z2	L4	Q38
702	Z2	L4	Q39
703	Z2	L5	Q1
704	Z2	L5	Q2
705	Z2	L5	Q3
706	Z2	L5	Q4
707	Z2	L5	Q5
708	Z2	L5	Q6
709	Z2	L5	Q7
710	Z2	L5	Q8
711	Z2	L5	Q9
712	Z2	L5	Q10
713	Z2	L5	Q11
714	Z2	L5	Q12
715	Z2	L5	Q13
716	Z2	L5	Q14
717	Z2	L5	Q15
718	Z2	L5	Q16
719	Z2	L5	Q17
720	Z2	L5	Q18
721	Z2	L5	Q19
722	Z2	L5	Q20
723	Z2	L5	Q21
724	Z2	L5	Q22
725	Z2	L5	Q23
726	Z2	L5	Q24
727	Z2	L5	Q25
728	Z2	L5	Q26
729	Z2	L5	Q27
730	Z2	L5	Q28
731	Z2	L5	Q29
732	Z2	L5	Q30
733	Z2	L5	Q31
734	Z2	L5	Q32
735	Z2	L5	Q33
736	Z2	L5	Q34
737	Z2	L5	Q35
738	Z2	L5	Q36

739	Z2	L5	Q37
740	Z2	L5	Q38
741	Z2	L5	Q39
742	Z2	L6	Q1
743	Z2	L6	Q2
744	Z2	L6	Q3
745	Z2	L6	Q4
746	Z2	L6	Q5
747	Z2	L6	Q6
748	Z2	L6	Q7
749	Z2	L6	Q8
750	Z2	L6	Q9
751	Z2	L6	Q10
752	Z2	L6	Q11
753	Z2	L6	Q12
754	Z2	L6	Q13
755	Z2	L6	Q14
756	Z2	L6	Q15
757	Z2	L6	Q16
758	Z2	L6	Q17
759	Z2	L6	Q18
760	Z2	L6	Q19
761	Z2	L6	Q20
762	Z2	L6	Q21
763	Z2	L6	Q22
764	Z2	L6	Q23
765	Z2	L6	Q24
766	Z2	L6	Q25
767	Z2	L6	Q26
768	Z2	L6	Q27
769	Z2	L6	Q28
770	Z2	L6	Q29
771	Z2	L6	Q30
772	Z2	L6	Q31
773	Z2	L6	Q32
774	Z2	L6	Q33
775	Z2	L6	Q34
776	Z2	L6	Q35
777	Z2	L6	Q36
778	Z2	L6	Q37
779	Z2	L6	Q38
780	Z2	L6	Q39
781	Z2	L7	Q1
782	Z2	L7	Q2
783	Z2	L7	Q3
784	Z2	L7	Q4
785	Z2	L7	Q5

[Table 1-7]

786	Z2	L7	Q6
787	Z2	L7	Q7
788	Z2	L7	Q8
789	Z2	L7	Q9
790	Z2	L7	Q10
791	Z2	L7	Q11
792	Z2	L7	Q12
793	Z2	L7	Q13
794	Z2	L7	Q14
795	Z2	L7	Q15
796	Z2	L7	Q16
797	Z2	L7	Q17
798	Z2	L7	Q18
799	Z2	L7	Q19
800	Z2	L7	Q20
801	Z2	L7	Q21
802	Z2	L7	Q22
803	Z2	L7	Q23
804	Z2	L7	Q24
805	Z2	L7	Q25
806	Z2	L7	Q26
807	Z2	L7	Q27
808	Z2	L7	Q28
809	Z2	L7	Q29
810	Z2	L7	Q30
811	Z2	L7	Q31
812	Z2	L7	Q32
813	Z2	L7	Q33
814	Z2	L7	Q34
815	Z2	L7	Q35
816	Z2	L7	Q36
817	Z2	L7	Q37
818	Z2	L7	Q38
819	Z2	L7	Q39
820	Z2	L8	Q1
821	Z2	L8	Q2
822	Z2	L8	Q3
823	Z2	L8	Q4
824	Z2	L8	Q5
825	Z2	L8	Q6
826	Z2	L8	Q7
827	Z2	L8	Q8
828	Z2	L8	Q9
829	Z2	L8	Q10
830	Z2	L8	Q11
831	Z2	L8	Q12
832	Z2	L8	Q13

833	Z2	L8	Q14
834	Z2	L8	Q15
835	Z2	L8	Q16
836	Z2	L8	Q17
837	Z2	L8	Q18
838	Z2	L8	Q19
839	Z2	L8	Q20
840	Z2	L8	Q21
841	Z2	L8	Q22
842	Z2	L8	Q23
843	Z2	L8	Q24
844	Z2	L8	Q25
845	Z2	L8	Q26
846	Z2	L8	Q27
847	Z2	L8	Q28
848	Z2	L8	Q29
849	Z2	L8	Q30
850	Z2	L8	Q31
851	Z2	L8	Q32
852	Z2	L8	Q33
853	Z2	L8	Q34
854	Z2	L8	Q35
855	Z2	L8	Q36
856	Z2	L8	Q37
857	Z2	L8	Q38
858	Z2	L8	Q39
859	Z2	L9	Q1
860	Z2	L9	Q2
861	Z2	L9	Q3
862	Z2	L9	Q4
863	Z2	L9	Q5
864	Z2	L9	Q6
865	Z2	L9	Q7
866	Z2	L9	Q8
867	Z2	L9	Q9
868	Z2	L9	Q10
869	Z2	L9	Q11
870	Z2	L9	Q12
871	Z2	L9	Q13
872	Z2	L9	Q14
873	Z2	L9	Q15
874	Z2	L9	Q16
875	Z2	L9	Q17
876	Z2	L9	Q18
877	Z2	L9	Q19
878	Z2	L9	Q20
879	Z2	L9	Q21

880	Z2	L9	Q22
881	Z2	L9	Q23
882	Z2	L9	Q24
883	Z2	L9	Q25
884	Z2	L9	Q26
885	Z2	L9	Q27
886	Z2	L9	Q28
887	Z2	L9	Q29
888	Z2	L9	Q30
889	Z2	L9	Q31
890	Z2	L9	Q32
891	Z2	L9	Q33
892	Z2	L9	Q34
893	Z2	L9	Q35
894	Z2	L9	Q36
895	Z2	L9	Q37
896	Z2	L9	Q38
897	Z2	L9	Q39
898	Z2	L10	Q1
899	Z2	L10	Q2
900	Z2	L10	Q3
901	Z2	L10	Q4
902	Z2	L10	Q5
903	Z2	L10	Q6
904	Z2	L10	Q7
905	Z2	L10	Q8
906	Z2	L10	Q9
907	Z2	L10	Q10
908	Z2	L10	Q11
909	Z2	L10	Q12
910	Z2	L10	Q13
911	Z2	L10	Q14
912	Z2	L10	Q15
913	Z2	L10	Q16
914	Z2	L10	Q17
915	Z2	L10	Q18
916	Z2	L10	Q19
917	Z2	L10	Q20
918	Z2	L10	Q21
919	Z2	L10	Q22
920	Z2	L10	Q23
921	Z2	L10	Q24
922	Z2	L10	Q25
923	Z2	L10	Q26
924	Z2	L10	Q27
925	Z2	L10	Q28
926	Z2	L10	Q29

[Table 1-8]

927	Z2	L10	Q30
928	Z2	L10	Q31
929	Z2	L10	Q32
930	Z2	L10	Q33
931	Z2	L10	Q34
932	Z2	L10	Q35
933	Z2	L10	Q36
934	Z2	L10	Q37
935	Z2	L10	Q38
936	Z2	L10	Q39
937	Z2	L11	Q1
938	Z2	L11	Q2
939	Z2	L11	Q3
940	Z2	L11	Q4
941	Z2	L11	Q5
942	Z2	L11	Q6
943	Z2	L11	Q7
944	Z2	L11	Q8
945	Z2	L11	Q9
946	Z2	L11	Q10
947	Z2	L11	Q11
948	Z2	L11	Q12
949	Z2	L11	Q13
950	Z2	L11	Q14
951	Z2	L11	Q15
952	Z2	L11	Q16
953	Z2	L11	Q17
954	Z2	L11	Q18
955	Z2	L11	Q19
956	Z2	L11	Q20
957	Z2	L11	Q21
958	Z2	L11	Q22
959	Z2	L11	Q23
960	Z2	L11	Q24
961	Z2	L11	Q25
962	Z2	L11	Q26
963	Z2	L11	Q27
964	Z2	L11	Q28
965	Z2	L11	Q29
966	Z2	L11	Q30
967	Z2	L11	Q31
968	Z2	L11	Q32
969	Z2	L11	Q33
970	Z2	L11	Q34
971	Z2	L11	Q35
972	Z2	L11	Q36
973	Z2	L11	Q37

974	Z2	L11	Q38
975	Z2	L11	Q39
976	Z2	L12	Q1
977	Z2	L12	Q2
978	Z2	L12	Q3
979	Z2	L12	Q4
980	Z2	L12	Q5
981	Z2	L12	Q6
982	Z2	L12	Q7
983	Z2	L12	Q8
984	Z2	L12	Q9
985	Z2	L12	Q10
986	Z2	L12	Q11
987	Z2	L12	Q12
988	Z2	L12	Q13
989	Z2	L12	Q14
990	Z2	L12	Q15
991	Z2	L12	Q16
992	Z2	L12	Q17
993	Z2	L12	Q18
994	Z2	L12	Q19
995	Z2	L12	Q20
996	Z2	L12	Q21
997	Z2	L12	Q22
998	Z2	L12	Q23
999	Z2	L12	Q24
1000	Z2	L12	Q25
1001	Z2	L12	Q26
1002	Z2	L12	Q27
1003	Z2	L12	Q28
1004	Z2	L12	Q29
1005	Z2	L12	Q30
1006	Z2	L12	Q31
1007	Z2	L12	Q32
1008	Z2	L12	Q33
1009	Z2	L12	Q34
1010	Z2	L12	Q35
1011	Z2	L12	Q36
1012	Z2	L12	Q37
1013	Z2	L12	Q38
1014	Z2	L12	Q39
1015	Z2	L13	Q1
1016	Z2	L13	Q2
1017	Z2	L13	Q3
1018	Z2	L13	Q4
1019	Z2	L13	Q5
1020	Z2	L13	Q6

1021	Z2	L13	Q7
1022	Z2	L13	Q8
1023	Z2	L13	Q9
1024	Z2	L13	Q10
1025	Z2	L13	Q11
1026	Z2	L13	Q12
1027	Z2	L13	Q13
1028	Z2	L13	Q14
1029	Z2	L13	Q15
1030	Z2	L13	Q16
1031	Z2	L13	Q17
1032	Z2	L13	Q18
1033	Z2	L13	Q19
1034	Z2	L13	Q20
1035	Z2	L13	Q21
1036	Z2	L13	Q22
1037	Z2	L13	Q23
1038	Z2	L13	Q24
1039	Z2	L13	Q25
1040	Z2	L13	Q26
1041	Z2	L13	Q27
1042	Z2	L13	Q28
1043	Z2	L13	Q29
1044	Z2	L13	Q30
1045	Z2	L13	Q31
1046	Z2	L13	Q32
1047	Z2	L13	Q33
1048	Z2	L13	Q34
1049	Z2	L13	Q35
1050	Z2	L13	Q36
1051	Z2	L13	Q37
1052	Z2	L13	Q38
1053	Z2	L13	Q39
1054	Z2	L14	Q1
1055	Z2	L14	Q2
1056	Z2	L14	Q3
1057	Z2	L14	Q4
1058	Z2	L14	Q5
1059	Z2	L14	Q6
1060	Z2	L14	Q7
1061	Z2	L14	Q8
1062	Z2	L14	Q9
1063	Z2	L14	Q10
1064	Z2	L14	Q11
1065	Z2	L14	Q12
1066	Z2	L14	Q13
1067	Z2	L14	Q14

[Table 1-9]

1068	Z2	L14	Q15
1069	Z2	L14	Q16
1070	Z2	L14	Q17
1071	Z2	L14	Q18
1072	Z2	L14	Q19
1073	Z2	L14	Q20
1074	Z2	L14	Q21
1075	Z2	L14	Q22
1076	Z2	L14	Q23
1077	Z2	L14	Q24
1078	Z2	L14	Q25
1079	Z2	L14	Q26
1080	Z2	L14	Q27
1081	Z2	L14	Q28
1082	Z2	L14	Q29
1083	Z2	L14	Q30
1084	Z2	L14	Q31
1085	Z2	L14	Q32
1086	Z2	L14	Q33
1087	Z2	L14	Q34
1088	Z2	L14	Q35
1089	Z2	L14	Q36
1090	Z2	L14	Q37
1091	Z2	L14	Q38
1092	Z2	L14	Q39
1093	Z3	L1	Q1
1094	Z3	L1	Q2
1095	Z3	L1	Q3
1096	Z3	L1	Q4
1097	Z3	L1	Q5
1098	Z3	L1	Q6
1099	Z3	L1	Q7
1100	Z3	L1	Q8
1101	Z3	L1	Q9
1102	Z3	L1	Q10
1103	Z3	L1	Q11
1104	Z3	L1	Q12
1105	Z3	L1	Q13
1106	Z3	L1	Q14
1107	Z3	L1	Q15
1108	Z3	L1	Q16
1109	Z3	L1	Q17
1110	Z3	L1	Q18
1111	Z3	L1	Q19
1112	Z3	L1	Q20
1113	Z3	L1	Q21
1114	Z3	L1	Q22

1115	Z3	L1	Q23
1116	Z3	L1	Q24
1117	Z3	L1	Q25
1118	Z3	L1	Q26
1119	Z3	L1	Q27
1120	Z3	L1	Q28
1121	Z3	L1	Q29
1122	Z3	L1	Q30
1123	Z3	L1	Q31
1124	Z3	L1	Q32
1125	Z3	L1	Q33
1126	Z3	L1	Q34
1127	Z3	L1	Q35
1128	Z3	L1	Q36
1129	Z3	L1	Q37
1130	Z3	L1	Q38
1131	Z3	L1	Q39
1132	Z3	L2	Q1
1133	Z3	L2	Q2
1134	Z3	L2	Q3
1135	Z3	L2	Q4
1136	Z3	L2	Q5
1137	Z3	L2	Q6
1138	Z3	L2	Q7
1139	Z3	L2	Q8
1140	Z3	L2	Q9
1141	Z3	L2	Q10
1142	Z3	L2	Q11
1143	Z3	L2	Q12
1144	Z3	L2	Q13
1145	Z3	L2	Q14
1146	Z3	L2	Q15
1147	Z3	L2	Q16
1148	Z3	L2	Q17
1149	Z3	L2	Q18
1150	Z3	L2	Q19
1151	Z3	L2	Q20
1152	Z3	L2	Q21
1153	Z3	L2	Q22
1154	Z3	L2	Q23
1155	Z3	L2	Q24
1156	Z3	L2	Q25
1157	Z3	L2	Q26
1158	Z3	L2	Q27
1159	Z3	L2	Q28
1160	Z3	L2	Q29
1161	Z3	L2	Q30

1162	Z3	L2	Q31
1163	Z3	L2	Q32
1164	Z3	L2	Q33
1165	Z3	L2	Q34
1166	Z3	L2	Q35
1167	Z3	L2	Q36
1168	Z3	L2	Q37
1169	Z3	L2	Q38
1170	Z3	L2	Q39
1171	Z3	L3	Q1
1172	Z3	L3	Q2
1173	Z3	L3	Q3
1174	Z3	L3	Q4
1175	Z3	L3	Q5
1176	Z3	L3	Q6
1177	Z3	L3	Q7
1178	Z3	L3	Q8
1179	Z3	L3	Q9
1180	Z3	L3	Q10
1181	Z3	L3	Q11
1182	Z3	L3	Q12
1183	Z3	L3	Q13
1184	Z3	L3	Q14
1185	Z3	L3	Q15
1186	Z3	L3	Q16
1187	Z3	L3	Q17
1188	Z3	L3	Q18
1189	Z3	L3	Q19
1190	Z3	L3	Q20
1191	Z3	L3	Q21
1192	Z3	L3	Q22
1193	Z3	L3	Q23
1194	Z3	L3	Q24
1195	Z3	L3	Q25
1196	Z3	L3	Q26
1197	Z3	L3	Q27
1198	Z3	L3	Q28
1199	Z3	L3	Q29
1200	Z3	L3	Q30
1201	Z3	L3	Q31
1202	Z3	L3	Q32
1203	Z3	L3	Q33
1204	Z3	L3	Q34
1205	Z3	L3	Q35
1206	Z3	L3	Q36
1207	Z3	L3	Q37
1208	Z3	L3	Q38

[Table 1-10]

1209	Z3	L3	Q39
1210	Z3	L4	Q1
1211	Z3	L4	Q2
1212	Z3	L4	Q3
1213	Z3	L4	Q4
1214	Z3	L4	Q5
1215	Z3	L4	Q6
1216	Z3	L4	Q7
1217	Z3	L4	Q8
1218	Z3	L4	Q9
1219	Z3	L4	Q10
1220	Z3	L4	Q11
1221	Z3	L4	Q12
1222	Z3	L4	Q13
1223	Z3	L4	Q14
1224	Z3	L4	Q15
1225	Z3	L4	Q16
1226	Z3	L4	Q17
1227	Z3	L4	Q18
1228	Z3	L4	Q19
1229	Z3	L4	Q20
1230	Z3	L4	Q21
1231	Z3	L4	Q22
1232	Z3	L4	Q23
1233	Z3	L4	Q24
1234	Z3	L4	Q25
1235	Z3	L4	Q26
1236	Z3	L4	Q27
1237	Z3	L4	Q28
1238	Z3	L4	Q29
1239	Z3	L4	Q30
1240	Z3	L4	Q31
1241	Z3	L4	Q32
1242	Z3	L4	Q33
1243	Z3	L4	Q34
1244	Z3	L4	Q35
1245	Z3	L4	Q36
1246	Z3	L4	Q37
1247	Z3	L4	Q38
1248	Z3	L4	Q39
1249	Z3	L5	Q1
1250	Z3	L5	Q2
1251	Z3	L5	Q3
1252	Z3	L5	Q4
1253	Z3	L5	Q5
1254	Z3	L5	Q6
1255	Z3	L5	Q7

1256	Z3	L5	Q8
1257	Z3	L5	Q9
1258	Z3	L5	Q10
1259	Z3	L5	Q11
1260	Z3	L5	Q12
1261	Z3	L5	Q13
1262	Z3	L5	Q14
1263	Z3	L5	Q15
1264	Z3	L5	Q16
1265	Z3	L5	Q17
1266	Z3	L5	Q18
1267	Z3	L5	Q19
1268	Z3	L5	Q20
1269	Z3	L5	Q21
1270	Z3	L5	Q22
1271	Z3	L5	Q23
1272	Z3	L5	Q24
1273	Z3	L5	Q25
1274	Z3	L5	Q26
1275	Z3	L5	Q27
1276	Z3	L5	Q28
1277	Z3	L5	Q29
1278	Z3	L5	Q30
1279	Z3	L5	Q31
1280	Z3	L5	Q32
1281	Z3	L5	Q33
1282	Z3	L5	Q34
1283	Z3	L5	Q35
1284	Z3	L5	Q36
1285	Z3	L5	Q37
1286	Z3	L5	Q38
1287	Z3	L5	Q39
1288	Z3	L6	Q1
1289	Z3	L6	Q2
1290	Z3	L6	Q3
1291	Z3	L6	Q4
1292	Z3	L6	Q5
1293	Z3	L6	Q6
1294	Z3	L6	Q7
1295	Z3	L6	Q8
1296	Z3	L6	Q9
1297	Z3	L6	Q10
1298	Z3	L6	Q11
1299	Z3	L6	Q12
1300	Z3	L6	Q13
1301	Z3	L6	Q14
1302	Z3	L6	Q15

1303	Z3	L6	Q16
1304	Z3	L6	Q17
1305	Z3	L6	Q18
1306	Z3	L6	Q19
1307	Z3	L6	Q20
1308	Z3	L6	Q21
1309	Z3	L6	Q22
1310	Z3	L6	Q23
1311	Z3	L6	Q24
1312	Z3	L6	Q25
1313	Z3	L6	Q26
1314	Z3	L6	Q27
1315	Z3	L6	Q28
1316	Z3	L6	Q29
1317	Z3	L6	Q30
1318	Z3	L6	Q31
1319	Z3	L6	Q32
1320	Z3	L6	Q33
1321	Z3	L6	Q34
1322	Z3	L6	Q35
1323	Z3	L6	Q36
1324	Z3	L6	Q37
1325	Z3	L6	Q38
1326	Z3	L6	Q39
1327	Z3	L7	Q1
1328	Z3	L7	Q2
1329	Z3	L7	Q3
1330	Z3	L7	Q4
1331	Z3	L7	Q5
1332	Z3	L7	Q6
1333	Z3	L7	Q7
1334	Z3	L7	Q8
1335	Z3	L7	Q9
1336	Z3	L7	Q10
1337	Z3	L7	Q11
1338	Z3	L7	Q12
1339	Z3	L7	Q13
1340	Z3	L7	Q14
1341	Z3	L7	Q15
1342	Z3	L7	Q16
1343	Z3	L7	Q17
1344	Z3	L7	Q18
1345	Z3	L7	Q19
1346	Z3	L7	Q20
1347	Z3	L7	Q21
1348	Z3	L7	Q22
1349	Z3	L7	Q23

[Table 1-11]

1350	Z3	L7	Q24
1351	Z3	L7	Q25
1352	Z3	L7	Q26
1353	Z3	L7	Q27
1354	Z3	L7	Q28
1355	Z3	L7	Q29
1356	Z3	L7	Q30
1357	Z3	L7	Q31
1358	Z3	L7	Q32
1359	Z3	L7	Q33
1360	Z3	L7	Q34
1361	Z3	L7	Q35
1362	Z3	L7	Q36
1363	Z3	L7	Q37
1364	Z3	L7	Q38
1365	Z3	L7	Q39
1366	Z3	L8	Q1
1367	Z3	L8	Q2
1368	Z3	L8	Q3
1369	Z3	L8	Q4
1370	Z3	L8	Q5
1371	Z3	L8	Q6
1372	Z3	L8	Q7
1373	Z3	L8	Q8
1374	Z3	L8	Q9
1375	Z3	L8	Q10
1376	Z3	L8	Q11
1377	Z3	L8	Q12
1378	Z3	L8	Q13
1379	Z3	L8	Q14
1380	Z3	L8	Q15
1381	Z3	L8	Q16
1382	Z3	L8	Q17
1383	Z3	L8	Q18
1384	Z3	L8	Q19
1385	Z3	L8	Q20
1386	Z3	L8	Q21
1387	Z3	L8	Q22
1388	Z3	L8	Q23
1389	Z3	L8	Q24
1390	Z3	L8	Q25
1391	Z3	L8	Q26
1392	Z3	L8	Q27
1393	Z3	L8	Q28
1394	Z3	L8	Q29
1395	Z3	L8	Q30
1396	Z3	L8	Q31

1397	Z3	L8	Q32
1398	Z3	L8	Q33
1399	Z3	L8	Q34
1400	Z3	L8	Q35
1401	Z3	L8	Q36
1402	Z3	L8	Q37
1403	Z3	L8	Q38
1404	Z3	L8	Q39
1405	Z3	L9	Q1
1406	Z3	L9	Q2
1407	Z3	L9	Q3
1408	Z3	L9	Q4
1409	Z3	L9	Q5
1410	Z3	L9	Q6
1411	Z3	L9	Q7
1412	Z3	L9	Q8
1413	Z3	L9	Q9
1414	Z3	L9	Q10
1415	Z3	L9	Q11
1416	Z3	L9	Q12
1417	Z3	L9	Q13
1418	Z3	L9	Q14
1419	Z3	L9	Q15
1420	Z3	L9	Q16
1421	Z3	L9	Q17
1422	Z3	L9	Q18
1423	Z3	L9	Q19
1424	Z3	L9	Q20
1425	Z3	L9	Q21
1426	Z3	L9	Q22
1427	Z3	L9	Q23
1428	Z3	L9	Q24
1429	Z3	L9	Q25
1430	Z3	L9	Q26
1431	Z3	L9	Q27
1432	Z3	L9	Q28
1433	Z3	L9	Q29
1434	Z3	L9	Q30
1435	Z3	L9	Q31
1436	Z3	L9	Q32
1437	Z3	L9	Q33
1438	Z3	L9	Q34
1439	Z3	L9	Q35
1440	Z3	L9	Q36
1441	Z3	L9	Q37
1442	Z3	L9	Q38
1443	Z3	L9	Q39

1444	Z3	L10	Q1
1445	Z3	L10	Q2
1446	Z3	L10	Q3
1447	Z3	L10	Q4
1448	Z3	L10	Q5
1449	Z3	L10	Q6
1450	Z3	L10	Q7
1451	Z3	L10	Q8
1452	Z3	L10	Q9
1453	Z3	L10	Q10
1454	Z3	L10	Q11
1455	Z3	L10	Q12
1456	Z3	L10	Q13
1457	Z3	L10	Q14
1458	Z3	L10	Q15
1459	Z3	L10	Q16
1460	Z3	L10	Q17
1461	Z3	L10	Q18
1462	Z3	L10	Q19
1463	Z3	L10	Q20
1464	Z3	L10	Q21
1465	Z3	L10	Q22
1466	Z3	L10	Q23
1467	Z3	L10	Q24
1468	Z3	L10	Q25
1469	Z3	L10	Q26
1470	Z3	L10	Q27
1471	Z3	L10	Q28
1472	Z3	L10	Q29
1473	Z3	L10	Q30
1474	Z3	L10	Q31
1475	Z3	L10	Q32
1476	Z3	L10	Q33
1477	Z3	L10	Q34
1478	Z3	L10	Q35
1479	Z3	L10	Q36
1480	Z3	L10	Q37
1481	Z3	L10	Q38
1482	Z3	L10	Q39
1483	Z3	L11	Q1
1484	Z3	L11	Q2
1485	Z3	L11	Q3
1486	Z3	L11	Q4
1487	Z3	L11	Q5
1488	Z3	L11	Q6
1489	Z3	L11	Q7
1490	Z3	L11	Q8

[Table 1-12]

1491	Z3	L11	Q9
1492	Z3	L11	Q10
1493	Z3	L11	Q11
1494	Z3	L11	Q12
1495	Z3	L11	Q13
1496	Z3	L11	Q14
1497	Z3	L11	Q15
1498	Z3	L11	Q16
1499	Z3	L11	Q17
1500	Z3	L11	Q18
1501	Z3	L11	Q19
1502	Z3	L11	Q20
1503	Z3	L11	Q21
1504	Z3	L11	Q22
1505	Z3	L11	Q23
1506	Z3	L11	Q24
1507	Z3	L11	Q25
1508	Z3	L11	Q26
1509	Z3	L11	Q27
1510	Z3	L11	Q28
1511	Z3	L11	Q29
1512	Z3	L11	Q30
1513	Z3	L11	Q31
1514	Z3	L11	Q32
1515	Z3	L11	Q33
1516	Z3	L11	Q34
1517	Z3	L11	Q35
1518	Z3	L11	Q36
1519	Z3	L11	Q37
1520	Z3	L11	Q38
1521	Z3	L11	Q39
1522	Z3	L12	Q1
1523	Z3	L12	Q2
1524	Z3	L12	Q3
1525	Z3	L12	Q4
1526	Z3	L12	Q5
1527	Z3	L12	Q6
1528	Z3	L12	Q7
1529	Z3	L12	Q8
1530	Z3	L12	Q9
1531	Z3	L12	Q10
1532	Z3	L12	Q11
1533	Z3	L12	Q12
1534	Z3	L12	Q13
1535	Z3	L12	Q14
1536	Z3	L12	Q15
1537	Z3	L12	Q16

1538	Z3	L12	Q17
1539	Z3	L12	Q18
1540	Z3	L12	Q19
1541	Z3	L12	Q20
1542	Z3	L12	Q21
1543	Z3	L12	Q22
1544	Z3	L12	Q23
1545	Z3	L12	Q24
1546	Z3	L12	Q25
1547	Z3	L12	Q26
1548	Z3	L12	Q27
1549	Z3	L12	Q28
1550	Z3	L12	Q29
1551	Z3	L12	Q30
1552	Z3	L12	Q31
1553	Z3	L12	Q32
1554	Z3	L12	Q33
1555	Z3	L12	Q34
1556	Z3	L12	Q35
1557	Z3	L12	Q36
1558	Z3	L12	Q37
1559	Z3	L12	Q38
1560	Z3	L12	Q39
1561	Z3	L13	Q1
1562	Z3	L13	Q2
1563	Z3	L13	Q3
1564	Z3	L13	Q4
1565	Z3	L13	Q5
1566	Z3	L13	Q6
1567	Z3	L13	Q7
1568	Z3	L13	Q8
1569	Z3	L13	Q9
1570	Z3	L13	Q10
1571	Z3	L13	Q11
1572	Z3	L13	Q12
1573	Z3	L13	Q13
1574	Z3	L13	Q14
1575	Z3	L13	Q15
1576	Z3	L13	Q16
1577	Z3	L13	Q17
1578	Z3	L13	Q18
1579	Z3	L13	Q19
1580	Z3	L13	Q20
1581	Z3	L13	Q21
1582	Z3	L13	Q22
1583	Z3	L13	Q23
1584	Z3	L13	Q24

1585	Z3	L13	Q25
1586	Z3	L13	Q26
1587	Z3	L13	Q27
1588	Z3	L13	Q28
1589	Z3	L13	Q29
1590	Z3	L13	Q30
1591	Z3	L13	Q31
1592	Z3	L13	Q32
1593	Z3	L13	Q33
1594	Z3	L13	Q34
1595	Z3	L13	Q35
1596	Z3	L13	Q36
1597	Z3	L13	Q37
1598	Z3	L13	Q38
1599	Z3	L13	Q39
1600	Z3	L14	Q1
1601	Z3	L14	Q2
1602	Z3	L14	Q3
1603	Z3	L14	Q4
1604	Z3	L14	Q5
1605	Z3	L14	Q6
1606	Z3	L14	Q7
1607	Z3	L14	Q8
1608	Z3	L14	Q9
1609	Z3	L14	Q10
1610	Z3	L14	Q11
1611	Z3	L14	Q12
1612	Z3	L14	Q13
1613	Z3	L14	Q14
1614	Z3	L14	Q15
1615	Z3	L14	Q16
1616	Z3	L14	Q17
1617	Z3	L14	Q18
1618	Z3	L14	Q19
1619	Z3	L14	Q20
1620	Z3	L14	Q21
1621	Z3	L14	Q22
1622	Z3	L14	Q23
1623	Z3	L14	Q24
1624	Z3	L14	Q25
1625	Z3	L14	Q26
1626	Z3	L14	Q27
1627	Z3	L14	Q28
1628	Z3	L14	Q29
1629	Z3	L14	Q30
1630	Z3	L14	Q31
1631	Z3	L14	Q32

[Table 1-13]

1632	Z3	L14	Q33
1633	Z3	L14	Q34
1634	Z3	L14	Q35
1635	Z3	L14	Q36
1636	Z3	L14	Q37
1637	Z3	L14	Q38
1638	Z3	L14	Q39
1639	Z4	L1	Q1
1640	Z4	L1	Q2
1641	Z4	L1	Q3
1642	Z4	L1	Q4
1643	Z4	L1	Q5
1644	Z4	L1	Q6
1645	Z4	L1	Q7
1646	Z4	L1	Q8
1647	Z4	L1	Q9
1648	Z4	L1	Q10
1649	Z4	L1	Q11
1650	Z4	L1	Q12
1651	Z4	L1	Q13
1652	Z4	L1	Q14
1653	Z4	L1	Q15
1654	Z4	L1	Q16
1655	Z4	L1	Q17
1656	Z4	L1	Q18
1657	Z4	L1	Q19
1658	Z4	L1	Q20
1659	Z4	L1	Q21
1660	Z4	L1	Q22
1661	Z4	L1	Q23
1662	Z4	L1	Q24
1663	Z4	L1	Q25
1664	Z4	L1	Q26
1665	Z4	L1	Q27
1666	Z4	L1	Q28
1667	Z4	L1	Q29
1668	Z4	L1	Q30
1669	Z4	L1	Q31
1670	Z4	L1	Q32
1671	Z4	L1	Q33
1672	Z4	L1	Q34
1673	Z4	L1	Q35
1674	Z4	L1	Q36
1675	Z4	L1	Q37
1676	Z4	L1	Q38
1677	Z4	L1	Q39
1678	Z4	L2	Q1

1679	Z4	L2	Q2
1680	Z4	L2	Q3
1681	Z4	L2	Q4
1682	Z4	L2	Q5
1683	Z4	L2	Q6
1684	Z4	L2	Q7
1685	Z4	L2	Q8
1686	Z4	L2	Q9
1687	Z4	L2	Q10
1688	Z4	L2	Q11
1689	Z4	L2	Q12
1690	Z4	L2	Q13
1691	Z4	L2	Q14
1692	Z4	L2	Q15
1693	Z4	L2	Q16
1694	Z4	L2	Q17
1695	Z4	L2	Q18
1696	Z4	L2	Q19
1697	Z4	L2	Q20
1698	Z4	L2	Q21
1699	Z4	L2	Q22
1700	Z4	L2	Q23
1701	Z4	L2	Q24
1702	Z4	L2	Q25
1703	Z4	L2	Q26
1704	Z4	L2	Q27
1705	Z4	L2	Q28
1706	Z4	L2	Q29
1707	Z4	L2	Q30
1708	Z4	L2	Q31
1709	Z4	L2	Q32
1710	Z4	L2	Q33
1711	Z4	L2	Q34
1712	Z4	L2	Q35
1713	Z4	L2	Q36
1714	Z4	L2	Q37
1715	Z4	L2	Q38
1716	Z4	L2	Q39
1717	Z4	L3	Q1
1718	Z4	L3	Q2
1719	Z4	L3	Q3
1720	Z4	L3	Q4
1721	Z4	L3	Q5
1722	Z4	L3	Q6
1723	Z4	L3	Q7
1724	Z4	L3	Q8
1725	Z4	L3	Q9

1726	Z4	L3	Q10
1727	Z4	L3	Q11
1728	Z4	L3	Q12
1729	Z4	L3	Q13
1730	Z4	L3	Q14
1731	Z4	L3	Q15
1732	Z4	L3	Q16
1733	Z4	L3	Q17
1734	Z4	L3	Q18
1735	Z4	L3	Q19
1736	Z4	L3	Q20
1737	Z4	L3	Q21
1738	Z4	L3	Q22
1739	Z4	L3	Q23
1740	Z4	L3	Q24
1741	Z4	L3	Q25
1742	Z4	L3	Q26
1743	Z4	L3	Q27
1744	Z4	L3	Q28
1745	Z4	L3	Q29
1746	Z4	L3	Q30
1747	Z4	L3	Q31
1748	Z4	L3	Q32
1749	Z4	L3	Q33
1750	Z4	L3	Q34
1751	Z4	L3	Q35
1752	Z4	L3	Q36
1753	Z4	L3	Q37
1754	Z4	L3	Q38
1755	Z4	L3	Q39
1756	Z4	L4	Q1
1757	Z4	L4	Q2
1758	Z4	L4	Q3
1759	Z4	L4	Q4
1760	Z4	L4	Q5
1761	Z4	L4	Q6
1762	Z4	L4	Q7
1763	Z4	L4	Q8
1764	Z4	L4	Q9
1765	Z4	L4	Q10
1766	Z4	L4	Q11
1767	Z4	L4	Q12
1768	Z4	L4	Q13
1769	Z4	L4	Q14
1770	Z4	L4	Q15
1771	Z4	L4	Q16
1772	Z4	L4	Q17

[Table 1-14]

1773	Z4	L4	Q18
1774	Z4	L4	Q19
1775	Z4	L4	Q20
1776	Z4	L4	Q21
1777	Z4	L4	Q22
1778	Z4	L4	Q23
1779	Z4	L4	Q24
1780	Z4	L4	Q25
1781	Z4	L4	Q26
1782	Z4	L4	Q27
1783	Z4	L4	Q28
1784	Z4	L4	Q29
1785	Z4	L4	Q30
1786	Z4	L4	Q31
1787	Z4	L4	Q32
1788	Z4	L4	Q33
1789	Z4	L4	Q34
1790	Z4	L4	Q35
1791	Z4	L4	Q36
1792	Z4	L4	Q37
1793	Z4	L4	Q38
1794	Z4	L4	Q39
1795	Z4	L5	Q1
1796	Z4	L5	Q2
1797	Z4	L5	Q3
1798	Z4	L5	Q4
1799	Z4	L5	Q5
1800	Z4	L5	Q6
1801	Z4	L5	Q7
1802	Z4	L5	Q8
1803	Z4	L5	Q9
1804	Z4	L5	Q10
1805	Z4	L5	Q11
1806	Z4	L5	Q12
1807	Z4	L5	Q13
1808	Z4	L5	Q14
1809	Z4	L5	Q15
1810	Z4	L5	Q16
1811	Z4	L5	Q17
1812	Z4	L5	Q18
1813	Z4	L5	Q19
1814	Z4	L5	Q20
1815	Z4	L5	Q21
1816	Z4	L5	Q22
1817	Z4	L5	Q23
1818	Z4	L5	Q24
1819	Z4	L5	Q25

1820	Z4	L5	Q26
1821	Z4	L5	Q27
1822	Z4	L5	Q28
1823	Z4	L5	Q29
1824	Z4	L5	Q30
1825	Z4	L5	Q31
1826	Z4	L5	Q32
1827	Z4	L5	Q33
1828	Z4	L5	Q34
1829	Z4	L5	Q35
1830	Z4	L5	Q36
1831	Z4	L5	Q37
1832	Z4	L5	Q38
1833	Z4	L5	Q39
1834	Z4	L6	Q1
1835	Z4	L6	Q2
1836	Z4	L6	Q3
1837	Z4	L6	Q4
1838	Z4	L6	Q5
1839	Z4	L6	Q6
1840	Z4	L6	Q7
1841	Z4	L6	Q8
1842	Z4	L6	Q9
1843	Z4	L6	Q10
1844	Z4	L6	Q11
1845	Z4	L6	Q12
1846	Z4	L6	Q13
1847	Z4	L6	Q14
1848	Z4	L6	Q15
1849	Z4	L6	Q16
1850	Z4	L6	Q17
1851	Z4	L6	Q18
1852	Z4	L6	Q19
1853	Z4	L6	Q20
1854	Z4	L6	Q21
1855	Z4	L6	Q22
1856	Z4	L6	Q23
1857	Z4	L6	Q24
1858	Z4	L6	Q25
1859	Z4	L6	Q26
1860	Z4	L6	Q27
1861	Z4	L6	Q28
1862	Z4	L6	Q29
1863	Z4	L6	Q30
1864	Z4	L6	Q31
1865	Z4	L6	Q32
1866	Z4	L6	Q33

1867	Z4	L6	Q34
1868	Z4	L6	Q35
1869	Z4	L6	Q36
1870	Z4	L6	Q37
1871	Z4	L6	Q38
1872	Z4	L6	Q39
1873	Z4	L7	Q1
1874	Z4	L7	Q2
1875	Z4	L7	Q3
1876	Z4	L7	Q4
1877	Z4	L7	Q5
1878	Z4	L7	Q6
1879	Z4	L7	Q7
1880	Z4	L7	Q8
1881	Z4	L7	Q9
1882	Z4	L7	Q10
1883	Z4	L7	Q11
1884	Z4	L7	Q12
1885	Z4	L7	Q13
1886	Z4	L7	Q14
1887	Z4	L7	Q15
1888	Z4	L7	Q16
1889	Z4	L7	Q17
1890	Z4	L7	Q18
1891	Z4	L7	Q19
1892	Z4	L7	Q20
1893	Z4	L7	Q21
1894	Z4	L7	Q22
1895	Z4	L7	Q23
1896	Z4	L7	Q24
1897	Z4	L7	Q25
1898	Z4	L7	Q26
1899	Z4	L7	Q27
1900	Z4	L7	Q28
1901	Z4	L7	Q29
1902	Z4	L7	Q30
1903	Z4	L7	Q31
1904	Z4	L7	Q32
1905	Z4	L7	Q33
1906	Z4	L7	Q34
1907	Z4	L7	Q35
1908	Z4	L7	Q36
1909	Z4	L7	Q37
1910	Z4	L7	Q38
1911	Z4	L7	Q39
1912	Z4	L8	Q1
1913	Z4	L8	Q2

[Table 1-15]

1914	Z4	L8	Q3
1915	Z4	L8	Q4
1916	Z4	L8	Q5
1917	Z4	L8	Q6
1918	Z4	L8	Q7
1919	Z4	L8	Q8
1920	Z4	L8	Q9
1921	Z4	L8	Q10
1922	Z4	L8	Q11
1923	Z4	L8	Q12
1924	Z4	L8	Q13
1925	Z4	L8	Q14
1926	Z4	L8	Q15
1927	Z4	L8	Q16
1928	Z4	L8	Q17
1929	Z4	L8	Q18
1930	Z4	L8	Q19
1931	Z4	L8	Q20
1932	Z4	L8	Q21
1933	Z4	L8	Q22
1934	Z4	L8	Q23
1935	Z4	L8	Q24
1936	Z4	L8	Q25
1937	Z4	L8	Q26
1938	Z4	L8	Q27
1939	Z4	L8	Q28
1940	Z4	L8	Q29
1941	Z4	L8	Q30
1942	Z4	L8	Q31
1943	Z4	L8	Q32
1944	Z4	L8	Q33
1945	Z4	L8	Q34
1946	Z4	L8	Q35
1947	Z4	L8	Q36
1948	Z4	L8	Q37
1949	Z4	L8	Q38
1950	Z4	L8	Q39
1951	Z4	L9	Q1
1952	Z4	L9	Q2
1953	Z4	L9	Q3
1954	Z4	L9	Q4
1955	Z4	L9	Q5
1956	Z4	L9	Q6
1957	Z4	L9	Q7
1958	Z4	L9	Q8
1959	Z4	L9	Q9
1960	Z4	L9	Q10

1961	Z4	L9	Q11
1962	Z4	L9	Q12
1963	Z4	L9	Q13
1964	Z4	L9	Q14
1965	Z4	L9	Q15
1966	Z4	L9	Q16
1967	Z4	L9	Q17
1968	Z4	L9	Q18
1969	Z4	L9	Q19
1970	Z4	L9	Q20
1971	Z4	L9	Q21
1972	Z4	L9	Q22
1973	Z4	L9	Q23
1974	Z4	L9	Q24
1975	Z4	L9	Q25
1976	Z4	L9	Q26
1977	Z4	L9	Q27
1978	Z4	L9	Q28
1979	Z4	L9	Q29
1980	Z4	L9	Q30
1981	Z4	L9	Q31
1982	Z4	L9	Q32
1983	Z4	L9	Q33
1984	Z4	L9	Q34
1985	Z4	L9	Q35
1986	Z4	L9	Q36
1987	Z4	L9	Q37
1988	Z4	L9	Q38
1989	Z4	L9	Q39
1990	Z4	L10	Q1
1991	Z4	L10	Q2
1992	Z4	L10	Q3
1993	Z4	L10	Q4
1994	Z4	L10	Q5
1995	Z4	L10	Q6
1996	Z4	L10	Q7
1997	Z4	L10	Q8
1998	Z4	L10	Q9
1999	Z4	L10	Q10
2000	Z4	L10	Q11
2001	Z4	L10	Q12
2002	Z4	L10	Q13
2003	Z4	L10	Q14
2004	Z4	L10	Q15
2005	Z4	L10	Q16
2006	Z4	L10	Q17
2007	Z4	L10	Q18

2008	Z4	L10	Q19
2009	Z4	L10	Q20
2010	Z4	L10	Q21
2011	Z4	L10	Q22
2012	Z4	L10	Q23
2013	Z4	L10	Q24
2014	Z4	L10	Q25
2015	Z4	L10	Q26
2016	Z4	L10	Q27
2017	Z4	L10	Q28
2018	Z4	L10	Q29
2019	Z4	L10	Q30
2020	Z4	L10	Q31
2021	Z4	L10	Q32
2022	Z4	L10	Q33
2023	Z4	L10	Q34
2024	Z4	L10	Q35
2025	Z4	L10	Q36
2026	Z4	L10	Q37
2027	Z4	L10	Q38
2028	Z4	L10	Q39
2029	Z4	L11	Q1
2030	Z4	L11	Q2
2031	Z4	L11	Q3
2032	Z4	L11	Q4
2033	Z4	L11	Q5
2034	Z4	L11	Q6
2035	Z4	L11	Q7
2036	Z4	L11	Q8
2037	Z4	L11	Q9
2038	Z4	L11	Q10
2039	Z4	L11	Q11
2040	Z4	L11	Q12
2041	Z4	L11	Q13
2042	Z4	L11	Q14
2043	Z4	L11	Q15
2044	Z4	L11	Q16
2045	Z4	L11	Q17
2046	Z4	L11	Q18
2047	Z4	L11	Q19
2048	Z4	L11	Q20
2049	Z4	L11	Q21
2050	Z4	L11	Q22
2051	Z4	L11	Q23
2052	Z4	L11	Q24
2053	Z4	L11	Q25
2054	Z4	L11	Q26

[Table 1-16]

2055	Z4	L11	Q27
2056	Z4	L11	Q28
2057	Z4	L11	Q29
2058	Z4	L11	Q30
2059	Z4	L11	Q31
2060	Z4	L11	Q32
2061	Z4	L11	Q33
2062	Z4	L11	Q34
2063	Z4	L11	Q35
2064	Z4	L11	Q36
2065	Z4	L11	Q37
2066	Z4	L11	Q38
2067	Z4	L11	Q39
2068	Z4	L12	Q1
2069	Z4	L12	Q2
2070	Z4	L12	Q3
2071	Z4	L12	Q4
2072	Z4	L12	Q5
2073	Z4	L12	Q6
2074	Z4	L12	Q7
2075	Z4	L12	Q8
2076	Z4	L12	Q9
2077	Z4	L12	Q10
2078	Z4	L12	Q11
2079	Z4	L12	Q12
2080	Z4	L12	Q13
2081	Z4	L12	Q14
2082	Z4	L12	Q15
2083	Z4	L12	Q16
2084	Z4	L12	Q17
2085	Z4	L12	Q18
2086	Z4	L12	Q19
2087	Z4	L12	Q20
2088	Z4	L12	Q21
2089	Z4	L12	Q22
2090	Z4	L12	Q23
2091	Z4	L12	Q24
2092	Z4	L12	Q25
2093	Z4	L12	Q26
2094	Z4	L12	Q27
2095	Z4	L12	Q28
2096	Z4	L12	Q29
2097	Z4	L12	Q30
2098	Z4	L12	Q31
2099	Z4	L12	Q32

2100	Z4	L12	Q33
2101	Z4	L12	Q34
2102	Z4	L12	Q35
2103	Z4	L12	Q36
2104	Z4	L12	Q37
2105	Z4	L12	Q38
2106	Z4	L12	Q39
2107	Z4	L13	Q1
2108	Z4	L13	Q2
2109	Z4	L13	Q3
2110	Z4	L13	Q4
2111	Z4	L13	Q5
2112	Z4	L13	Q6
2113	Z4	L13	Q7
2114	Z4	L13	Q8
2115	Z4	L13	Q9
2116	Z4	L13	Q10
2117	Z4	L13	Q11
2118	Z4	L13	Q12
2119	Z4	L13	Q13
2120	Z4	L13	Q14
2121	Z4	L13	Q15
2122	Z4	L13	Q16
2123	Z4	L13	Q17
2124	Z4	L13	Q18
2125	Z4	L13	Q19
2126	Z4	L13	Q20
2127	Z4	L13	Q21
2128	Z4	L13	Q22
2129	Z4	L13	Q23
2130	Z4	L13	Q24
2131	Z4	L13	Q25
2132	Z4	L13	Q26
2133	Z4	L13	Q27
2134	Z4	L13	Q28
2135	Z4	L13	Q29
2136	Z4	L13	Q30
2137	Z4	L13	Q31
2138	Z4	L13	Q32
2139	Z4	L13	Q33
2140	Z4	L13	Q34
2141	Z4	L13	Q35
2142	Z4	L13	Q36
2143	Z4	L13	Q37
2144	Z4	L13	Q38

2145	Z4	L13	Q39
2146	Z4	L14	Q1
2147	Z4	L14	Q2
2148	Z4	L14	Q3
2149	Z4	L14	Q4
2150	Z4	L14	Q5
2151	Z4	L14	Q6
2152	Z4	L14	Q7
2153	Z4	L14	Q8
2154	Z4	L14	Q9
2155	Z4	L14	Q10
2156	Z4	L14	Q11
2157	Z4	L14	Q12
2158	Z4	L14	Q13
2159	Z4	L14	Q14
2160	Z4	L14	Q15
2161	Z4	L14	Q16
2162	Z4	L14	Q17
2163	Z4	L14	Q18
2164	Z4	L14	Q19
2165	Z4	L14	Q20
2166	Z4	L14	Q21
2167	Z4	L14	Q22
2168	Z4	L14	Q23
2169	Z4	L14	Q24
2170	Z4	L14	Q25
2171	Z4	L14	Q26
2172	Z4	L14	Q27
2173	Z4	L14	Q28
2174	Z4	L14	Q29
2175	Z4	L14	Q30
2176	Z4	L14	Q31
2177	Z4	L14	Q32
2178	Z4	L14	Q33
2179	Z4	L14	Q34
2180	Z4	L14	Q35
2181	Z4	L14	Q36
2182	Z4	L14	Q37
2183	Z4	L14	Q38
2184	Z4	L14	Q39

[Table 1-17]

Example	R ^{BL}	L ^A	Q ^A
2185	Z1	L1	Q40
2186	Z1	L1	Q41
2187	Z1	L1	Q42
2188	Z1	L1	Q43
2189	Z1	L1	Q44
2190	Z1	L1	Q45
2191	Z1	L1	Q46
2192	Z1	L1	Q47
2193	Z1	L1	Q48
2194	Z1	L1	Q49
2195	Z1	L1	Q50
2196	Z1	L1	Q51
2197	Z1	L1	Q52
2198	Z1	L1	Q53
2199	Z1	L1	Q54
2200	Z1	L1	Q55
2201	Z1	L1	Q56
2202	Z1	L1	Q57
2203	Z1	L1	Q58
2204	Z1	L1	Q59
2205	Z1	L1	Q60
2206	Z1	L1	Q61
2207	Z1	L1	Q62
2208	Z1	L1	Q63
2209	Z1	L1	Q64
2210	Z1	L1	Q65
2211	Z1	L1	Q66
2212	Z1	L1	Q67
2213	Z1	L1	Q68
2214	Z1	L1	Q69
2215	Z1	L1	Q70
2216	Z1	L1	Q71
2217	Z1	L1	Q72
2218	Z1	L1	Q73
2219	Z1	L1	Q74
2220	Z1	L1	Q75
2221	Z1	L1	Q76
2222	Z1	L1	Q77
2223	Z1	L1	Q78
2224	Z1	L1	Q79
2225	Z1	L1	Q80
2226	Z1	L1	Q81
2227	Z1	L1	Q82
2228	Z1	L1	Q83
2229	Z1	L1	Q84
2230	Z1	L1	Q85
2231	Z1	L1	Q86
2232	Z1	L1	Q87
2233	Z1	L1	Q88
2234	Z1	L1	Q89
2235	Z1	L1	Q90
2236	Z1	L1	Q91
2237	Z1	L1	Q92
2238	Z1	L1	Q93
2239	Z1	L1	Q94
2240	Z1	L1	Q95
2241	Z1	L1	Q96
2242	Z1	L1	Q97
2243	Z1	L1	Q98
2244	Z1	L1	Q99
2245	Z1	L1	Q100
2246	Z1	L1	Q101
2247	Z1	L1	Q102
2248	Z1	L1	Q103
2249	Z1	L2	Q40
2250	Z1	L2	Q41

2251	Z1	L2	Q42
2252	Z1	L2	Q43
2253	Z1	L2	Q44
2254	Z1	L2	Q45
2255	Z1	L2	Q46
2256	Z1	L2	Q47
2257	Z1	L2	Q48
2258	Z1	L2	Q49
2259	Z1	L2	Q50
2260	Z1	L2	Q51
2261	Z1	L2	Q52
2262	Z1	L2	Q53
2263	Z1	L2	Q54
2264	Z1	L2	Q55
2265	Z1	L2	Q56
2266	Z1	L2	Q57
2267	Z1	L2	Q58
2268	Z1	L2	Q59
2269	Z1	L2	Q60
2270	Z1	L2	Q61
2271	Z1	L2	Q62
2272	Z1	L2	Q63
2273	Z1	L2	Q64
2274	Z1	L2	Q65
2275	Z1	L2	Q66
2276	Z1	L2	Q67
2277	Z1	L2	Q68
2278	Z1	L2	Q69
2279	Z1	L2	Q70
2280	Z1	L2	Q71
2281	Z1	L2	Q72
2282	Z1	L2	Q73
2283	Z1	L2	Q74
2284	Z1	L2	Q75
2285	Z1	L2	Q76
2286	Z1	L2	Q77
2287	Z1	L2	Q78
2288	Z1	L2	Q79
2289	Z1	L2	Q80
2290	Z1	L2	Q81
2291	Z1	L2	Q82
2292	Z1	L2	Q83
2293	Z1	L2	Q84
2294	Z1	L2	Q85
2295	Z1	L2	Q86
2296	Z1	L2	Q87
2297	Z1	L2	Q88
2298	Z1	L2	Q89
2299	Z1	L2	Q90
2300	Z1	L2	Q91
2301	Z1	L2	Q92
2302	Z1	L2	Q93
2303	Z1	L2	Q94
2304	Z1	L2	Q95
2305	Z1	L2	Q96
2306	Z1	L2	Q97
2307	Z1	L2	Q98
2308	Z1	L2	Q99
2309	Z1	L2	Q100
2310	Z1	L2	Q101
2311	Z1	L2	Q102
2312	Z1	L2	Q103
2313	Z1	L3	Q40
2314	Z1	L3	Q41
2315	Z1	L3	Q42
2316	Z1	L3	Q43
2317	Z1	L3	Q44

2318	Z1	L3	Q45
2319	Z1	L3	Q46
2320	Z1	L3	Q47
2321	Z1	L3	Q48
2322	Z1	L3	Q49
2323	Z1	L3	Q50
2324	Z1	L3	Q51
2325	Z1	L3	Q52
2326	Z1	L3	Q53
2327	Z1	L3	Q54
2328	Z1	L3	Q55
2329	Z1	L3	Q56
2330	Z1	L3	Q57
2331	Z1	L3	Q58
2332	Z1	L3	Q59
2333	Z1	L3	Q60
2334	Z1	L3	Q61
2335	Z1	L3	Q62
2336	Z1	L3	Q63
2337	Z1	L3	Q64
2338	Z1	L3	Q65
2339	Z1	L3	Q66
2340	Z1	L3	Q67
2341	Z1	L3	Q68
2342	Z1	L3	Q69
2343	Z1	L3	Q70
2344	Z1	L3	Q71
2345	Z1	L3	Q72
2346	Z1	L3	Q73
2347	Z1	L3	Q74
2348	Z1	L3	Q75
2349	Z1	L3	Q76
2350	Z1	L3	Q77
2351	Z1	L3	Q78
2352	Z1	L3	Q79
2353	Z1	L3	Q80
2354	Z1	L3	Q81
2355	Z1	L3	Q82
2356	Z1	L3	Q83
2357	Z1	L3	Q84
2358	Z1	L3	Q85
2359	Z1	L3	Q86
2360	Z1	L3	Q87
2361	Z1	L3	Q88
2362	Z1	L3	Q89
2363	Z1	L3	Q90
2364	Z1	L3	Q91
2365	Z1	L3	Q92
2366	Z1	L3	Q93
2367	Z1	L3	Q94
2368	Z1	L3	Q95
2369	Z1	L3	Q96
2370	Z1	L3	Q97
2371	Z1	L3	Q98
2372	Z1	L3	Q99
2373	Z1	L3	Q100
2374	Z1	L3	Q101
2375	Z1	L3	Q102
2376	Z1	L3	Q103
2377	Z1	L4	Q40
2378	Z1	L4	Q41
2379	Z1	L4	Q42
2380	Z1	L4	Q43
2381	Z1	L4	Q44
2382	Z1	L4	Q45
2383	Z1	L4	Q46
2384	Z1	L4	Q47

[Table 1-18]

2385	Z1	L4	Q48
2386	Z1	L4	Q49
2387	Z1	L4	Q50
2388	Z1	L4	Q51
2389	Z1	L4	Q52
2390	Z1	L4	Q53
2391	Z1	L4	Q54
2392	Z1	L4	Q55
2393	Z1	L4	Q56
2394	Z1	L4	Q57
2395	Z1	L4	Q58
2396	Z1	L4	Q59
2397	Z1	L4	Q60
2398	Z1	L4	Q61
2399	Z1	L4	Q62
2400	Z1	L4	Q63
2401	Z1	L4	Q64
2402	Z1	L4	Q65
2403	Z1	L4	Q66
2404	Z1	L4	Q67
2405	Z1	L4	Q68
2406	Z1	L4	Q69
2407	Z1	L4	Q70
2408	Z1	L4	Q71
2409	Z1	L4	Q72
2410	Z1	L4	Q73
2411	Z1	L4	Q74
2412	Z1	L4	Q75
2413	Z1	L4	Q76
2414	Z1	L4	Q77
2415	Z1	L4	Q78
2416	Z1	L4	Q79
2417	Z1	L4	Q80
2418	Z1	L4	Q81
2419	Z1	L4	Q82
2420	Z1	L4	Q83
2421	Z1	L4	Q84
2422	Z1	L4	Q85
2423	Z1	L4	Q86
2424	Z1	L4	Q87
2425	Z1	L4	Q88
2426	Z1	L4	Q89
2427	Z1	L4	Q90
2428	Z1	L4	Q91
2429	Z1	L4	Q92
2430	Z1	L4	Q93
2431	Z1	L4	Q94
2432	Z1	L4	Q95
2433	Z1	L4	Q96
2434	Z1	L4	Q97
2435	Z1	L4	Q98
2436	Z1	L4	Q99
2437	Z1	L4	Q100
2438	Z1	L4	Q101
2439	Z1	L4	Q102
2440	Z1	L4	Q103
2441	Z1	L5	Q40
2442	Z1	L5	Q41
2443	Z1	L5	Q42
2444	Z1	L5	Q43
2445	Z1	L5	Q44
2446	Z1	L5	Q45
2447	Z1	L5	Q46
2448	Z1	L5	Q47
2449	Z1	L5	Q48
2450	Z1	L5	Q49
2451	Z1	L5	Q50

2452	Z1	L5	Q51
2453	Z1	L5	Q52
2454	Z1	L5	Q53
2455	Z1	L5	Q54
2456	Z1	L5	Q55
2457	Z1	L5	Q56
2458	Z1	L5	Q57
2459	Z1	L5	Q58
2460	Z1	L5	Q59
2461	Z1	L5	Q60
2462	Z1	L5	Q61
2463	Z1	L5	Q62
2464	Z1	L5	Q63
2465	Z1	L5	Q64
2466	Z1	L5	Q65
2467	Z1	L5	Q66
2468	Z1	L5	Q67
2469	Z1	L5	Q68
2470	Z1	L5	Q69
2471	Z1	L5	Q70
2472	Z1	L5	Q71
2473	Z1	L5	Q72
2474	Z1	L5	Q73
2475	Z1	L5	Q74
2476	Z1	L5	Q75
2477	Z1	L5	Q76
2478	Z1	L5	Q77
2479	Z1	L5	Q78
2480	Z1	L5	Q79
2481	Z1	L5	Q80
2482	Z1	L5	Q81
2483	Z1	L5	Q82
2484	Z1	L5	Q83
2485	Z1	L5	Q84
2486	Z1	L5	Q85
2487	Z1	L5	Q86
2488	Z1	L5	Q87
2489	Z1	L5	Q88
2490	Z1	L5	Q89
2491	Z1	L5	Q90
2492	Z1	L5	Q91
2493	Z1	L5	Q92
2494	Z1	L5	Q93
2495	Z1	L5	Q94
2496	Z1	L5	Q95
2497	Z1	L5	Q96
2498	Z1	L5	Q97
2499	Z1	L5	Q98
2500	Z1	L5	Q99
2501	Z1	L5	Q100
2502	Z1	L5	Q101
2503	Z1	L5	Q102
2504	Z1	L5	Q103
2505	Z1	L6	Q40
2506	Z1	L6	Q41
2507	Z1	L6	Q42
2508	Z1	L6	Q43
2509	Z1	L6	Q44
2510	Z1	L6	Q45
2511	Z1	L6	Q46
2512	Z1	L6	Q47
2513	Z1	L6	Q48
2514	Z1	L6	Q49
2515	Z1	L6	Q50
2516	Z1	L6	Q51
2517	Z1	L6	Q52
2518	Z1	L6	Q53

2519	Z1	L6	Q54
2520	Z1	L6	Q55
2521	Z1	L6	Q56
2522	Z1	L6	Q57
2523	Z1	L6	Q58
2524	Z1	L6	Q59
2525	Z1	L6	Q60
2526	Z1	L6	Q61
2527	Z1	L6	Q62
2528	Z1	L6	Q63
2529	Z1	L6	Q64
2530	Z1	L6	Q65
2531	Z1	L6	Q66
2532	Z1	L6	Q67
2533	Z1	L6	Q68
2534	Z1	L6	Q69
2535	Z1	L6	Q70
2536	Z1	L6	Q71
2537	Z1	L6	Q72
2538	Z1	L6	Q73
2539	Z1	L6	Q74
2540	Z1	L6	Q75
2541	Z1	L6	Q76
2542	Z1	L6	Q77
2543	Z1	L6	Q78
2544	Z1	L6	Q79
2545	Z1	L6	Q80
2546	Z1	L6	Q81
2547	Z1	L6	Q82
2548	Z1	L6	Q83
2549	Z1	L6	Q84
2550	Z1	L6	Q85
2551	Z1	L6	Q86
2552	Z1	L6	Q87
2553	Z1	L6	Q88
2554	Z1	L6	Q89
2555	Z1	L6	Q90
2556	Z1	L6	Q91
2557	Z1	L6	Q92
2558	Z1	L6	Q93
2559	Z1	L6	Q94
2560	Z1	L6	Q95
2561	Z1	L6	Q96
2562	Z1	L6	Q97
2563	Z1	L6	Q98
2564	Z1	L6	Q99
2565	Z1	L6	Q100
2566	Z1	L6	Q101
2567	Z1	L6	Q102
2568	Z1	L6	Q103
2569	Z1	L7	Q40
2570	Z1	L7	Q41
2571	Z1	L7	Q42
2572	Z1	L7	Q43
2573	Z1	L7	Q44
2574	Z1	L7	Q45
2575	Z1	L7	Q46
2576	Z1	L7	Q47
2577	Z1	L7	Q48
2578	Z1	L7	Q49
2579	Z1	L7	Q50
2580	Z1	L7	Q51
2581	Z1	L7	Q52
2582	Z1	L7	Q53
2583	Z1	L7	Q54
2584	Z1	L7	Q55
2585	Z1	L7	Q56

[Table 1-19]

2586	Z1	L7	Q57
2587	Z1	L7	Q58
2588	Z1	L7	Q59
2589	Z1	L7	Q60
2590	Z1	L7	Q61
2591	Z1	L7	Q62
2592	Z1	L7	Q63
2593	Z1	L7	Q64
2594	Z1	L7	Q65
2595	Z1	L7	Q66
2596	Z1	L7	Q67
2597	Z1	L7	Q68
2598	Z1	L7	Q69
2599	Z1	L7	Q70
2600	Z1	L7	Q71
2601	Z1	L7	Q72
2602	Z1	L7	Q73
2603	Z1	L7	Q74
2604	Z1	L7	Q75
2605	Z1	L7	Q76
2606	Z1	L7	Q77
2607	Z1	L7	Q78
2608	Z1	L7	Q79
2609	Z1	L7	Q80
2610	Z1	L7	Q81
2611	Z1	L7	Q82
2612	Z1	L7	Q83
2613	Z1	L7	Q84
2614	Z1	L7	Q85
2615	Z1	L7	Q86
2616	Z1	L7	Q87
2617	Z1	L7	Q88
2618	Z1	L7	Q89
2619	Z1	L7	Q90
2620	Z1	L7	Q91
2621	Z1	L7	Q92
2622	Z1	L7	Q93
2623	Z1	L7	Q94
2624	Z1	L7	Q95
2625	Z1	L7	Q96
2626	Z1	L7	Q97
2627	Z1	L7	Q98
2628	Z1	L7	Q99
2629	Z1	L7	Q100
2630	Z1	L7	Q101
2631	Z1	L7	Q102
2632	Z1	L7	Q103
2633	Z1	L8	Q40
2634	Z1	L8	Q41
2635	Z1	L8	Q42
2636	Z1	L8	Q43
2637	Z1	L8	Q44
2638	Z1	L8	Q45
2639	Z1	L8	Q46
2640	Z1	L8	Q47
2641	Z1	L8	Q48
2642	Z1	L8	Q49
2643	Z1	L8	Q50
2644	Z1	L8	Q51
2645	Z1	L8	Q52
2646	Z1	L8	Q53
2647	Z1	L8	Q54
2648	Z1	L8	Q55
2649	Z1	L8	Q56
2650	Z1	L8	Q57
2651	Z1	L8	Q58
2652	Z1	L8	Q59

2653	Z1	L8	Q60
2654	Z1	L8	Q61
2655	Z1	L8	Q62
2656	Z1	L8	Q63
2657	Z1	L8	Q64
2658	Z1	L8	Q65
2659	Z1	L8	Q66
2660	Z1	L8	Q67
2661	Z1	L8	Q68
2662	Z1	L8	Q69
2663	Z1	L8	Q70
2664	Z1	L8	Q71
2665	Z1	L8	Q72
2666	Z1	L8	Q73
2667	Z1	L8	Q74
2668	Z1	L8	Q75
2669	Z1	L8	Q76
2670	Z1	L8	Q77
2671	Z1	L8	Q78
2672	Z1	L8	Q79
2673	Z1	L8	Q80
2674	Z1	L8	Q81
2675	Z1	L8	Q82
2676	Z1	L8	Q83
2677	Z1	L8	Q84
2678	Z1	L8	Q85
2679	Z1	L8	Q86
2680	Z1	L8	Q87
2681	Z1	L8	Q88
2682	Z1	L8	Q89
2683	Z1	L8	Q90
2684	Z1	L8	Q91
2685	Z1	L8	Q92
2686	Z1	L8	Q93
2687	Z1	L8	Q94
2688	Z1	L8	Q95
2689	Z1	L8	Q96
2690	Z1	L8	Q97
2691	Z1	L8	Q98
2692	Z1	L8	Q99
2693	Z1	L8	Q100
2694	Z1	L8	Q101
2695	Z1	L8	Q102
2696	Z1	L8	Q103
2697	Z1	L9	Q40
2698	Z1	L9	Q41
2699	Z1	L9	Q42
2700	Z1	L9	Q43
2701	Z1	L9	Q44
2702	Z1	L9	Q45
2703	Z1	L9	Q46
2704	Z1	L9	Q47
2705	Z1	L9	Q48
2706	Z1	L9	Q49
2707	Z1	L9	Q50
2708	Z1	L9	Q51
2709	Z1	L9	Q52
2710	Z1	L9	Q53
2711	Z1	L9	Q54
2712	Z1	L9	Q55
2713	Z1	L9	Q56
2714	Z1	L9	Q57
2715	Z1	L9	Q58
2716	Z1	L9	Q59
2717	Z1	L9	Q60
2718	Z1	L9	Q61
2719	Z1	L9	Q62

2720	Z1	L9	Q63
2721	Z1	L9	Q64
2722	Z1	L9	Q65
2723	Z1	L9	Q66
2724	Z1	L9	Q67
2725	Z1	L9	Q68
2726	Z1	L9	Q69
2727	Z1	L9	Q70
2728	Z1	L9	Q71
2729	Z1	L9	Q72
2730	Z1	L9	Q73
2731	Z1	L9	Q74
2732	Z1	L9	Q75
2733	Z1	L9	Q76
2734	Z1	L9	Q77
2735	Z1	L9	Q78
2736	Z1	L9	Q79
2737	Z1	L9	Q80
2738	Z1	L9	Q81
2739	Z1	L9	Q82
2740	Z1	L9	Q83
2741	Z1	L9	Q84
2742	Z1	L9	Q85
2743	Z1	L9	Q86
2744	Z1	L9	Q87
2745	Z1	L9	Q88
2746	Z1	L9	Q89
2747	Z1	L9	Q90
2748	Z1	L9	Q91
2749	Z1	L9	Q92
2750	Z1	L9	Q93
2751	Z1	L9	Q94
2752	Z1	L9	Q95
2753	Z1	L9	Q96
2754	Z1	L9	Q97
2755	Z1	L9	Q98
2756	Z1	L9	Q99
2757	Z1	L9	Q100
2758	Z1	L9	Q101
2759	Z1	L9	Q102
2760	Z1	L9	Q103
2761	Z1	L10	Q40
2762	Z1	L10	Q41
2763	Z1	L10	Q42
2764	Z1	L10	Q43
2765	Z1	L10	Q44
2766	Z1	L10	Q45
2767	Z1	L10	Q46
2768	Z1	L10	Q47
2769	Z1	L10	Q48
2770	Z1	L10	Q49
2771	Z1	L10	Q50
2772	Z1	L10	Q51
2773	Z1	L10	Q52
2774	Z1	L10	Q53
2775	Z1	L10	Q54
2776	Z1	L10	Q55
2777	Z1	L10	Q56
2778	Z1	L10	Q57
2779	Z1	L10	Q58
2780	Z1	L10	Q59
2781	Z1	L10	Q60
2782	Z1	L10	Q61
2783	Z1	L10	Q62
2784	Z1	L10	Q63
2785	Z1	L10	Q64
2786	Z1	L10	Q65

[Table 1-20]

2787	Z1	L10	Q66
2788	Z1	L10	Q67
2789	Z1	L10	Q68
2790	Z1	L10	Q69
2791	Z1	L10	Q70
2792	Z1	L10	Q71
2793	Z1	L10	Q72
2794	Z1	L10	Q73
2795	Z1	L10	Q74
2796	Z1	L10	Q75
2797	Z1	L10	Q76
2798	Z1	L10	Q77
2799	Z1	L10	Q78
2800	Z1	L10	Q79
2801	Z1	L10	Q80
2802	Z1	L10	Q81
2803	Z1	L10	Q82
2804	Z1	L10	Q83
2805	Z1	L10	Q84
2806	Z1	L10	Q85
2807	Z1	L10	Q86
2808	Z1	L10	Q87
2809	Z1	L10	Q88
2810	Z1	L10	Q89
2811	Z1	L10	Q90
2812	Z1	L10	Q91
2813	Z1	L10	Q92
2814	Z1	L10	Q93
2815	Z1	L10	Q94
2816	Z1	L10	Q95
2817	Z1	L10	Q96
2818	Z1	L10	Q97
2819	Z1	L10	Q98
2820	Z1	L10	Q99
2821	Z1	L10	Q100
2822	Z1	L10	Q101
2823	Z1	L10	Q102
2824	Z1	L10	Q103
2825	Z1	L11	Q40
2826	Z1	L11	Q41
2827	Z1	L11	Q42
2828	Z1	L11	Q43
2829	Z1	L11	Q44
2830	Z1	L11	Q45
2831	Z1	L11	Q46
2832	Z1	L11	Q47
2833	Z1	L11	Q48
2834	Z1	L11	Q49
2835	Z1	L11	Q50
2836	Z1	L11	Q51
2837	Z1	L11	Q52
2838	Z1	L11	Q53
2839	Z1	L11	Q54
2840	Z1	L11	Q55
2841	Z1	L11	Q56
2842	Z1	L11	Q57
2843	Z1	L11	Q58
2844	Z1	L11	Q59
2845	Z1	L11	Q60
2846	Z1	L11	Q61
2847	Z1	L11	Q62
2848	Z1	L11	Q63
2849	Z1	L11	Q64
2850	Z1	L11	Q65
2851	Z1	L11	Q66
2852	Z1	L11	Q67
2853	Z1	L11	Q68

2854	Z1	L11	Q69
2855	Z1	L11	Q70
2856	Z1	L11	Q71
2857	Z1	L11	Q72
2858	Z1	L11	Q73
2859	Z1	L11	Q74
2860	Z1	L11	Q75
2861	Z1	L11	Q76
2862	Z1	L11	Q77
2863	Z1	L11	Q78
2864	Z1	L11	Q79
2865	Z1	L11	Q80
2866	Z1	L11	Q81
2867	Z1	L11	Q82
2868	Z1	L11	Q83
2869	Z1	L11	Q84
2870	Z1	L11	Q85
2871	Z1	L11	Q86
2872	Z1	L11	Q87
2873	Z1	L11	Q88
2874	Z1	L11	Q89
2875	Z1	L11	Q90
2876	Z1	L11	Q91
2877	Z1	L11	Q92
2878	Z1	L11	Q93
2879	Z1	L11	Q94
2880	Z1	L11	Q95
2881	Z1	L11	Q96
2882	Z1	L11	Q97
2883	Z1	L11	Q98
2884	Z1	L11	Q99
2885	Z1	L11	Q100
2886	Z1	L11	Q101
2887	Z1	L11	Q102
2888	Z1	L11	Q103
2889	Z1	L12	Q40
2890	Z1	L12	Q41
2891	Z1	L12	Q42
2892	Z1	L12	Q43
2893	Z1	L12	Q44
2894	Z1	L12	Q45
2895	Z1	L12	Q46
2896	Z1	L12	Q47
2897	Z1	L12	Q48
2898	Z1	L12	Q49
2899	Z1	L12	Q50
2900	Z1	L12	Q51
2901	Z1	L12	Q52
2902	Z1	L12	Q53
2903	Z1	L12	Q54
2904	Z1	L12	Q55
2905	Z1	L12	Q56
2906	Z1	L12	Q57
2907	Z1	L12	Q58
2908	Z1	L12	Q59
2909	Z1	L12	Q60
2910	Z1	L12	Q61
2911	Z1	L12	Q62
2912	Z1	L12	Q63
2913	Z1	L12	Q64
2914	Z1	L12	Q65
2915	Z1	L12	Q66
2916	Z1	L12	Q67
2917	Z1	L12	Q68
2918	Z1	L12	Q69
2919	Z1	L12	Q70
2920	Z1	L12	Q71

2921	Z1	L12	Q72
2922	Z1	L12	Q73
2923	Z1	L12	Q74
2924	Z1	L12	Q75
2925	Z1	L12	Q76
2926	Z1	L12	Q77
2927	Z1	L12	Q78
2928	Z1	L12	Q79
2929	Z1	L12	Q80
2930	Z1	L12	Q81
2931	Z1	L12	Q82
2932	Z1	L12	Q83
2933	Z1	L12	Q84
2934	Z1	L12	Q85
2935	Z1	L12	Q86
2936	Z1	L12	Q87
2937	Z1	L12	Q88
2938	Z1	L12	Q89
2939	Z1	L12	Q90
2940	Z1	L12	Q91
2941	Z1	L12	Q92
2942	Z1	L12	Q93
2943	Z1	L12	Q94
2944	Z1	L12	Q95
2945	Z1	L12	Q96
2946	Z1	L12	Q97
2947	Z1	L12	Q98
2948	Z1	L12	Q99
2949	Z1	L12	Q100
2950	Z1	L12	Q101
2951	Z1	L12	Q102
2952	Z1	L12	Q103
2953	Z1	L13	Q40
2954	Z1	L13	Q41
2955	Z1	L13	Q42
2956	Z1	L13	Q43
2957	Z1	L13	Q44
2958	Z1	L13	Q45
2959	Z1	L13	Q46
2960	Z1	L13	Q47
2961	Z1	L13	Q48
2962	Z1	L13	Q49
2963	Z1	L13	Q50
2964	Z1	L13	Q51
2965	Z1	L13	Q52
2966	Z1	L13	Q53
2967	Z1	L13	Q54
2968	Z1	L13	Q55
2969	Z1	L13	Q56
2970	Z1	L13	Q57
2971	Z1	L13	Q58
2972	Z1	L13	Q59
2973	Z1	L13	Q60
2974	Z1	L13	Q61
2975	Z1	L13	Q62
2976	Z1	L13	Q63
2977	Z1	L13	Q64
2978	Z1	L13	Q65
2979	Z1	L13	Q66
2980	Z1	L13	Q67
2981	Z1	L13	Q68
2982	Z1	L13	Q69
2983	Z1	L13	Q70
2984	Z1	L13	Q71
2985	Z1	L13	Q72
2986	Z1	L13	Q73
2987	Z1	L13	Q74

[Table 1-21]

2988	Z1	L13	Q75
2989	Z1	L13	Q76
2990	Z1	L13	Q77
2991	Z1	L13	Q78
2992	Z1	L13	Q79
2993	Z1	L13	Q80
2994	Z1	L13	Q81
2995	Z1	L13	Q82
2996	Z1	L13	Q83
2997	Z1	L13	Q84
2998	Z1	L13	Q85
2999	Z1	L13	Q86
3000	Z1	L13	Q87
3001	Z1	L13	Q88
3002	Z1	L13	Q89
3003	Z1	L13	Q90
3004	Z1	L13	Q91
3005	Z1	L13	Q92
3006	Z1	L13	Q93
3007	Z1	L13	Q94
3008	Z1	L13	Q95
3009	Z1	L13	Q96
3010	Z1	L13	Q97
3011	Z1	L13	Q98
3012	Z1	L13	Q99
3013	Z1	L13	Q100
3014	Z1	L13	Q101
3015	Z1	L13	Q102
3016	Z1	L13	Q103
3017	Z1	L14	Q40
3018	Z1	L14	Q41
3019	Z1	L14	Q42
3020	Z1	L14	Q43
3021	Z1	L14	Q44
3022	Z1	L14	Q45
3023	Z1	L14	Q46
3024	Z1	L14	Q47
3025	Z1	L14	Q48
3026	Z1	L14	Q49
3027	Z1	L14	Q50
3028	Z1	L14	Q51
3029	Z1	L14	Q52
3030	Z1	L14	Q53
3031	Z1	L14	Q54
3032	Z1	L14	Q55
3033	Z1	L14	Q56
3034	Z1	L14	Q57
3035	Z1	L14	Q58
3036	Z1	L14	Q59
3037	Z1	L14	Q60
3038	Z1	L14	Q61
3039	Z1	L14	Q62
3040	Z1	L14	Q63
3041	Z1	L14	Q64
3042	Z1	L14	Q65
3043	Z1	L14	Q66
3044	Z1	L14	Q67
3045	Z1	L14	Q68
3046	Z1	L14	Q69
3047	Z1	L14	Q70
3048	Z1	L14	Q71
3049	Z1	L14	Q72
3050	Z1	L14	Q73
3051	Z1	L14	Q74
3052	Z1	L14	Q75
3053	Z1	L14	Q76
3054	Z1	L14	Q77
3055	Z1	L14	Q78
3056	Z1	L14	Q79
3057	Z1	L14	Q80
3058	Z1	L14	Q81
3059	Z1	L14	Q82
3060	Z1	L14	Q83
3061	Z1	L14	Q84
3062	Z1	L14	Q85
3063	Z1	L14	Q86
3064	Z1	L14	Q87
3065	Z1	L14	Q88
3066	Z1	L14	Q89
3067	Z1	L14	Q90
3068	Z1	L14	Q91
3069	Z1	L14	Q92
3070	Z1	L14	Q93
3071	Z1	L14	Q94
3072	Z1	L14	Q95
3073	Z1	L14	Q96
3074	Z1	L14	Q97
3075	Z1	L14	Q98
3076	Z1	L14	Q99
3077	Z1	L14	Q100
3078	Z1	L14	Q101
3079	Z1	L14	Q102
3080	Z1	L14	Q103
3081	Z2	L1	Q40
3082	Z2	L1	Q41
3083	Z2	L1	Q42
3084	Z2	L1	Q43
3085	Z2	L1	Q44
3086	Z2	L1	Q45
3087	Z2	L1	Q46
3088	Z2	L1	Q47
3089	Z2	L1	Q48
3090	Z2	L1	Q49
3091	Z2	L1	Q50
3092	Z2	L1	Q51
3093	Z2	L1	Q52
3094	Z2	L1	Q53
3095	Z2	L1	Q54
3096	Z2	L1	Q55
3097	Z2	L1	Q56
3098	Z2	L1	Q57
3099	Z2	L1	Q58
3100	Z2	L1	Q59
3101	Z2	L1	Q60
3102	Z2	L1	Q61
3103	Z2	L1	Q62
3104	Z2	L1	Q63
3105	Z2	L1	Q64
3106	Z2	L1	Q65
3107	Z2	L1	Q66
3108	Z2	L1	Q67
3109	Z2	L1	Q68
3110	Z2	L1	Q69
3111	Z2	L1	Q70
3112	Z2	L1	Q71
3113	Z2	L1	Q72
3114	Z2	L1	Q73
3115	Z2	L1	Q74
3116	Z2	L1	Q75
3117	Z2	L1	Q76
3118	Z2	L1	Q77
3119	Z2	L1	Q78
3120	Z2	L1	Q79
3121	Z2	L1	Q80
3122	Z2	L1	Q81
3123	Z2	L1	Q82
3124	Z2	L1	Q83
3125	Z2	L1	Q84
3126	Z2	L1	Q85
3127	Z2	L1	Q86
3128	Z2	L1	Q87
3129	Z2	L1	Q88
3130	Z2	L1	Q89
3131	Z2	L1	Q90
3132	Z2	L1	Q91
3133	Z2	L1	Q92
3134	Z2	L1	Q93
3135	Z2	L1	Q94
3136	Z2	L1	Q95
3137	Z2	L1	Q96
3138	Z2	L1	Q97
3139	Z2	L1	Q98
3140	Z2	L1	Q99
3141	Z2	L1	Q100
3142	Z2	L1	Q101
3143	Z2	L1	Q102
3144	Z2	L1	Q103
3145	Z2	L2	Q40
3146	Z2	L2	Q41
3147	Z2	L2	Q42
3148	Z2	L2	Q43
3149	Z2	L2	Q44
3150	Z2	L2	Q45
3151	Z2	L2	Q46
3152	Z2	L2	Q47
3153	Z2	L2	Q48
3154	Z2	L2	Q49
3155	Z2	L2	Q50
3156	Z2	L2	Q51
3157	Z2	L2	Q52
3158	Z2	L2	Q53
3159	Z2	L2	Q54
3160	Z2	L2	Q55
3161	Z2	L2	Q56
3162	Z2	L2	Q57
3163	Z2	L2	Q58
3164	Z2	L2	Q59
3165	Z2	L2	Q60
3166	Z2	L2	Q61
3167	Z2	L2	Q62
3168	Z2	L2	Q63
3169	Z2	L2	Q64
3170	Z2	L2	Q65
3171	Z2	L2	Q66
3172	Z2	L2	Q67
3173	Z2	L2	Q68
3174	Z2	L2	Q69
3175	Z2	L2	Q70
3176	Z2	L2	Q71
3177	Z2	L2	Q72
3178	Z2	L2	Q73
3179	Z2	L2	Q74
3180	Z2	L2	Q75
3181	Z2	L2	Q76
3182	Z2	L2	Q77
3183	Z2	L2	Q78
3184	Z2	L2	Q79
3185	Z2	L2	Q80
3186	Z2	L2	Q81
3187	Z2	L2	Q82
3188	Z2	L2	Q83

[Table 1-22]

3189	Z2	L2	Q84	3256	Z2	L3	Q87	3323	Z2	L4	Q90
3190	Z2	L2	Q85	3257	Z2	L3	Q88	3324	Z2	L4	Q91
3191	Z2	L2	Q86	3258	Z2	L3	Q89	3325	Z2	L4	Q92
3192	Z2	L2	Q87	3259	Z2	L3	Q90	3326	Z2	L4	Q93
3193	Z2	L2	Q88	3260	Z2	L3	Q91	3327	Z2	L4	Q94
3194	Z2	L2	Q89	3261	Z2	L3	Q92	3328	Z2	L4	Q95
3195	Z2	L2	Q90	3262	Z2	L3	Q93	3329	Z2	L4	Q96
3196	Z2	L2	Q91	3263	Z2	L3	Q94	3330	Z2	L4	Q97
3197	Z2	L2	Q92	3264	Z2	L3	Q95	3331	Z2	L4	Q98
3198	Z2	L2	Q93	3265	Z2	L3	Q96	3332	Z2	L4	Q99
3199	Z2	L2	Q94	3266	Z2	L3	Q97	3333	Z2	L4	Q100
3200	Z2	L2	Q95	3267	Z2	L3	Q98	3334	Z2	L4	Q101
3201	Z2	L2	Q96	3268	Z2	L3	Q99	3335	Z2	L4	Q102
3202	Z2	L2	Q97	3269	Z2	L3	Q100	3336	Z2	L4	Q103
3203	Z2	L2	Q98	3270	Z2	L3	Q101	3337	Z2	L5	Q40
3204	Z2	L2	Q99	3271	Z2	L3	Q102	3338	Z2	L5	Q41
3205	Z2	L2	Q100	3272	Z2	L3	Q103	3339	Z2	L5	Q42
3206	Z2	L2	Q101	3273	Z2	L4	Q40	3340	Z2	L5	Q43
3207	Z2	L2	Q102	3274	Z2	L4	Q41	3341	Z2	L5	Q44
3208	Z2	L2	Q103	3275	Z2	L4	Q42	3342	Z2	L5	Q45
3209	Z2	L3	Q40	3276	Z2	L4	Q43	3343	Z2	L5	Q46
3210	Z2	L3	Q41	3277	Z2	L4	Q44	3344	Z2	L5	Q47
3211	Z2	L3	Q42	3278	Z2	L4	Q45	3345	Z2	L5	Q48
3212	Z2	L3	Q43	3279	Z2	L4	Q46	3346	Z2	L5	Q49
3213	Z2	L3	Q44	3280	Z2	L4	Q47	3347	Z2	L5	Q50
3214	Z2	L3	Q45	3281	Z2	L4	Q48	3348	Z2	L5	Q51
3215	Z2	L3	Q46	3282	Z2	L4	Q49	3349	Z2	L5	Q52
3216	Z2	L3	Q47	3283	Z2	L4	Q50	3350	Z2	L5	Q53
3217	Z2	L3	Q48	3284	Z2	L4	Q51	3351	Z2	L5	Q54
3218	Z2	L3	Q49	3285	Z2	L4	Q52	3352	Z2	L5	Q55
3219	Z2	L3	Q50	3286	Z2	L4	Q53	3353	Z2	L5	Q56
3220	Z2	L3	Q51	3287	Z2	L4	Q54	3354	Z2	L5	Q57
3221	Z2	L3	Q52	3288	Z2	L4	Q55	3355	Z2	L5	Q58
3222	Z2	L3	Q53	3289	Z2	L4	Q56	3356	Z2	L5	Q59
3223	Z2	L3	Q54	3290	Z2	L4	Q57	3357	Z2	L5	Q60
3224	Z2	L3	Q55	3291	Z2	L4	Q58	3358	Z2	L5	Q61
3225	Z2	L3	Q56	3292	Z2	L4	Q59	3359	Z2	L5	Q62
3226	Z2	L3	Q57	3293	Z2	L4	Q60	3360	Z2	L5	Q63
3227	Z2	L3	Q58	3294	Z2	L4	Q61	3361	Z2	L5	Q64
3228	Z2	L3	Q59	3295	Z2	L4	Q62	3362	Z2	L5	Q65
3229	Z2	L3	Q60	3296	Z2	L4	Q63	3363	Z2	L5	Q66
3230	Z2	L3	Q61	3297	Z2	L4	Q64	3364	Z2	L5	Q67
3231	Z2	L3	Q62	3298	Z2	L4	Q65	3365	Z2	L5	Q68
3232	Z2	L3	Q63	3299	Z2	L4	Q66	3366	Z2	L5	Q69
3233	Z2	L3	Q64	3300	Z2	L4	Q67	3367	Z2	L5	Q70
3234	Z2	L3	Q65	3301	Z2	L4	Q68	3368	Z2	L5	Q71
3235	Z2	L3	Q66	3302	Z2	L4	Q69	3369	Z2	L5	Q72
3236	Z2	L3	Q67	3303	Z2	L4	Q70	3370	Z2	L5	Q73
3237	Z2	L3	Q68	3304	Z2	L4	Q71	3371	Z2	L5	Q74
3238	Z2	L3	Q69	3305	Z2	L4	Q72	3372	Z2	L5	Q75
3239	Z2	L3	Q70	3306	Z2	L4	Q73	3373	Z2	L5	Q76
3240	Z2	L3	Q71	3307	Z2	L4	Q74	3374	Z2	L5	Q77
3241	Z2	L3	Q72	3308	Z2	L4	Q75	3375	Z2	L5	Q78
3242	Z2	L3	Q73	3309	Z2	L4	Q76	3376	Z2	L5	Q79
3243	Z2	L3	Q74	3310	Z2	L4	Q77	3377	Z2	L5	Q80
3244	Z2	L3	Q75	3311	Z2	L4	Q78	3378	Z2	L5	Q81
3245	Z2	L3	Q76	3312	Z2	L4	Q79	3379	Z2	L5	Q82
3246	Z2	L3	Q77	3313	Z2	L4	Q80	3380	Z2	L5	Q83
3247	Z2	L3	Q78	3314	Z2	L4	Q81	3381	Z2	L5	Q84
3248	Z2	L3	Q79	3315	Z2	L4	Q82	3382	Z2	L5	Q85
3249	Z2	L3	Q80	3316	Z2	L4	Q83	3383	Z2	L5	Q86
3250	Z2	L3	Q81	3317	Z2	L4	Q84	3384	Z2	L5	Q87
3251	Z2	L3	Q82	3318	Z2	L4	Q85	3385	Z2	L5	Q88
3252	Z2	L3	Q83	3319	Z2	L4	Q86	3386	Z2	L5	Q89
3253	Z2	L3	Q84	3320	Z2	L4	Q87	3387	Z2	L5	Q90
3254	Z2	L3	Q85	3321	Z2	L4	Q88	3388	Z2	L5	Q91
3255	Z2	L3	Q86	3322	Z2	L4	Q89	3389	Z2	L5	Q92

[Table 1-23]

3390	Z2	L5	Q93
3391	Z2	L5	Q94
3392	Z2	L5	Q95
3393	Z2	L5	Q96
3394	Z2	L5	Q97
3395	Z2	L5	Q98
3396	Z2	L5	Q99
3397	Z2	L5	Q100
3398	Z2	L5	Q101
3399	Z2	L5	Q102
3400	Z2	L5	Q103
3401	Z2	L6	Q40
3402	Z2	L6	Q41
3403	Z2	L6	Q42
3404	Z2	L6	Q43
3405	Z2	L6	Q44
3406	Z2	L6	Q45
3407	Z2	L6	Q46
3408	Z2	L6	Q47
3409	Z2	L6	Q48
3410	Z2	L6	Q49
3411	Z2	L6	Q50
3412	Z2	L6	Q51
3413	Z2	L6	Q52
3414	Z2	L6	Q53
3415	Z2	L6	Q54
3416	Z2	L6	Q55
3417	Z2	L6	Q56
3418	Z2	L6	Q57
3419	Z2	L6	Q58
3420	Z2	L6	Q59
3421	Z2	L6	Q60
3422	Z2	L6	Q61
3423	Z2	L6	Q62
3424	Z2	L6	Q63
3425	Z2	L6	Q64
3426	Z2	L6	Q65
3427	Z2	L6	Q66
3428	Z2	L6	Q67
3429	Z2	L6	Q68
3430	Z2	L6	Q69
3431	Z2	L6	Q70
3432	Z2	L6	Q71
3433	Z2	L6	Q72
3434	Z2	L6	Q73
3435	Z2	L6	Q74
3436	Z2	L6	Q75
3437	Z2	L6	Q76
3438	Z2	L6	Q77
3439	Z2	L6	Q78
3440	Z2	L6	Q79
3441	Z2	L6	Q80
3442	Z2	L6	Q81
3443	Z2	L6	Q82
3444	Z2	L6	Q83
3445	Z2	L6	Q84
3446	Z2	L6	Q85
3447	Z2	L6	Q86
3448	Z2	L6	Q87
3449	Z2	L6	Q88
3450	Z2	L6	Q89
3451	Z2	L6	Q90
3452	Z2	L6	Q91
3453	Z2	L6	Q92
3454	Z2	L6	Q93
3455	Z2	L6	Q94
3456	Z2	L6	Q95

3457	Z2	L6	Q96
3458	Z2	L6	Q97
3459	Z2	L6	Q98
3460	Z2	L6	Q99
3461	Z2	L6	Q100
3462	Z2	L6	Q101
3463	Z2	L6	Q102
3464	Z2	L6	Q103
3465	Z2	L7	Q40
3466	Z2	L7	Q41
3467	Z2	L7	Q42
3468	Z2	L7	Q43
3469	Z2	L7	Q44
3470	Z2	L7	Q45
3471	Z2	L7	Q46
3472	Z2	L7	Q47
3473	Z2	L7	Q48
3474	Z2	L7	Q49
3475	Z2	L7	Q50
3476	Z2	L7	Q51
3477	Z2	L7	Q52
3478	Z2	L7	Q53
3479	Z2	L7	Q54
3480	Z2	L7	Q55
3481	Z2	L7	Q56
3482	Z2	L7	Q57
3483	Z2	L7	Q58
3484	Z2	L7	Q59
3485	Z2	L7	Q60
3486	Z2	L7	Q61
3487	Z2	L7	Q62
3488	Z2	L7	Q63
3489	Z2	L7	Q64
3490	Z2	L7	Q65
3491	Z2	L7	Q66
3492	Z2	L7	Q67
3493	Z2	L7	Q68
3494	Z2	L7	Q69
3495	Z2	L7	Q70
3496	Z2	L7	Q71
3497	Z2	L7	Q72
3498	Z2	L7	Q73
3499	Z2	L7	Q74
3500	Z2	L7	Q75
3501	Z2	L7	Q76
3502	Z2	L7	Q77
3503	Z2	L7	Q78
3504	Z2	L7	Q79
3505	Z2	L7	Q80
3506	Z2	L7	Q81
3507	Z2	L7	Q82
3508	Z2	L7	Q83
3509	Z2	L7	Q84
3510	Z2	L7	Q85
3511	Z2	L7	Q86
3512	Z2	L7	Q87
3513	Z2	L7	Q88
3514	Z2	L7	Q89
3515	Z2	L7	Q90
3516	Z2	L7	Q91
3517	Z2	L7	Q92
3518	Z2	L7	Q93
3519	Z2	L7	Q94
3520	Z2	L7	Q95
3521	Z2	L7	Q96
3522	Z2	L7	Q97
3523	Z2	L7	Q98

3524	Z2	L7	Q99
3525	Z2	L7	Q100
3526	Z2	L7	Q101
3527	Z2	L7	Q102
3528	Z2	L7	Q103
3529	Z2	L8	Q40
3530	Z2	L8	Q41
3531	Z2	L8	Q42
3532	Z2	L8	Q43
3533	Z2	L8	Q44
3534	Z2	L8	Q45
3535	Z2	L8	Q46
3536	Z2	L8	Q47
3537	Z2	L8	Q48
3538	Z2	L8	Q49
3539	Z2	L8	Q50
3540	Z2	L8	Q51
3541	Z2	L8	Q52
3542	Z2	L8	Q53
3543	Z2	L8	Q54
3544	Z2	L8	Q55
3545	Z2	L8	Q56
3546	Z2	L8	Q57
3547	Z2	L8	Q58
3548	Z2	L8	Q59
3549	Z2	L8	Q60
3550	Z2	L8	Q61
3551	Z2	L8	Q62
3552	Z2	L8	Q63
3553	Z2	L8	Q64
3554	Z2	L8	Q65
3555	Z2	L8	Q66
3556	Z2	L8	Q67
3557	Z2	L8	Q68
3558	Z2	L8	Q69
3559	Z2	L8	Q70
3560	Z2	L8	Q71
3561	Z2	L8	Q72
3562	Z2	L8	Q73
3563	Z2	L8	Q74
3564	Z2	L8	Q75
3565	Z2	L8	Q76
3566	Z2	L8	Q77
3567	Z2	L8	Q78
3568	Z2	L8	Q79
3569	Z2	L8	Q80
3570	Z2	L8	Q81
3571	Z2	L8	Q82
3572	Z2	L8	Q83
3573	Z2	L8	Q84
3574	Z2	L8	Q85
3575	Z2	L8	Q86
3576	Z2	L8	Q87
3577	Z2	L8	Q88
3578	Z2	L8	Q89
3579	Z2	L8	Q90
3580	Z2	L8	Q91
3581	Z2	L8	Q92
3582	Z2	L8	Q93
3583	Z2	L8	Q94
3584	Z2	L8	Q95
3585	Z2	L8	Q96
3586	Z2	L8	Q97
3587	Z2	L8	Q98
3588	Z2	L8	Q99
3589	Z2	L8	Q100
3590	Z2	L8	Q101

[Table 1-24]

3591	Z2	L8	Q102
3592	Z2	L8	Q103
3593	Z2	L9	Q40
3594	Z2	L9	Q41
3595	Z2	L9	Q42
3596	Z2	L9	Q43
3597	Z2	L9	Q44
3598	Z2	L9	Q45
3599	Z2	L9	Q46
3600	Z2	L9	Q47
3601	Z2	L9	Q48
3602	Z2	L9	Q49
3603	Z2	L9	Q50
3604	Z2	L9	Q51
3605	Z2	L9	Q52
3606	Z2	L9	Q53
3607	Z2	L9	Q54
3608	Z2	L9	Q55
3609	Z2	L9	Q56
3610	Z2	L9	Q57
3611	Z2	L9	Q58
3612	Z2	L9	Q59
3613	Z2	L9	Q60
3614	Z2	L9	Q61
3615	Z2	L9	Q62
3616	Z2	L9	Q63
3617	Z2	L9	Q64
3618	Z2	L9	Q65
3619	Z2	L9	Q66
3620	Z2	L9	Q67
3621	Z2	L9	Q68
3622	Z2	L9	Q69
3623	Z2	L9	Q70
3624	Z2	L9	Q71
3625	Z2	L9	Q72
3626	Z2	L9	Q73
3627	Z2	L9	Q74
3628	Z2	L9	Q75
3629	Z2	L9	Q76
3630	Z2	L9	Q77
3631	Z2	L9	Q78
3632	Z2	L9	Q79
3633	Z2	L9	Q80
3634	Z2	L9	Q81
3635	Z2	L9	Q82
3636	Z2	L9	Q83
3637	Z2	L9	Q84
3638	Z2	L9	Q85
3639	Z2	L9	Q86
3640	Z2	L9	Q87
3641	Z2	L9	Q88
3642	Z2	L9	Q89
3643	Z2	L9	Q90
3644	Z2	L9	Q91
3645	Z2	L9	Q92
3646	Z2	L9	Q93
3647	Z2	L9	Q94
3648	Z2	L9	Q95
3649	Z2	L9	Q96
3650	Z2	L9	Q97
3651	Z2	L9	Q98
3652	Z2	L9	Q99
3653	Z2	L9	Q100
3654	Z2	L9	Q101
3655	Z2	L9	Q102
3656	Z2	L9	Q103
3657	Z2	L10	Q40

3658	Z2	L10	Q41
3659	Z2	L10	Q42
3660	Z2	L10	Q43
3661	Z2	L10	Q44
3662	Z2	L10	Q45
3663	Z2	L10	Q46
3664	Z2	L10	Q47
3665	Z2	L10	Q48
3666	Z2	L10	Q49
3667	Z2	L10	Q50
3668	Z2	L10	Q51
3669	Z2	L10	Q52
3670	Z2	L10	Q53
3671	Z2	L10	Q54
3672	Z2	L10	Q55
3673	Z2	L10	Q56
3674	Z2	L10	Q57
3675	Z2	L10	Q58
3676	Z2	L10	Q59
3677	Z2	L10	Q60
3678	Z2	L10	Q61
3679	Z2	L10	Q62
3680	Z2	L10	Q63
3681	Z2	L10	Q64
3682	Z2	L10	Q65
3683	Z2	L10	Q66
3684	Z2	L10	Q67
3685	Z2	L10	Q68
3686	Z2	L10	Q69
3687	Z2	L10	Q70
3688	Z2	L10	Q71
3689	Z2	L10	Q72
3690	Z2	L10	Q73
3691	Z2	L10	Q74
3692	Z2	L10	Q75
3693	Z2	L10	Q76
3694	Z2	L10	Q77
3695	Z2	L10	Q78
3696	Z2	L10	Q79
3697	Z2	L10	Q80
3698	Z2	L10	Q81
3699	Z2	L10	Q82
3700	Z2	L10	Q83
3701	Z2	L10	Q84
3702	Z2	L10	Q85
3703	Z2	L10	Q86
3704	Z2	L10	Q87
3705	Z2	L10	Q88
3706	Z2	L10	Q89
3707	Z2	L10	Q90
3708	Z2	L10	Q91
3709	Z2	L10	Q92
3710	Z2	L10	Q93
3711	Z2	L10	Q94
3712	Z2	L10	Q95
3713	Z2	L10	Q96
3714	Z2	L10	Q97
3715	Z2	L10	Q98
3716	Z2	L10	Q99
3717	Z2	L10	Q100
3718	Z2	L10	Q101
3719	Z2	L10	Q102
3720	Z2	L10	Q103
3721	Z2	L11	Q40
3722	Z2	L11	Q41
3723	Z2	L11	Q42
3724	Z2	L11	Q43

3725	Z2	L11	Q44
3726	Z2	L11	Q45
3727	Z2	L11	Q46
3728	Z2	L11	Q47
3729	Z2	L11	Q48
3730	Z2	L11	Q49
3731	Z2	L11	Q50
3732	Z2	L11	Q51
3733	Z2	L11	Q52
3734	Z2	L11	Q53
3735	Z2	L11	Q54
3736	Z2	L11	Q55
3737	Z2	L11	Q56
3738	Z2	L11	Q57
3739	Z2	L11	Q58
3740	Z2	L11	Q59
3741	Z2	L11	Q60
3742	Z2	L11	Q61
3743	Z2	L11	Q62
3744	Z2	L11	Q63
3745	Z2	L11	Q64
3746	Z2	L11	Q65
3747	Z2	L11	Q66
3748	Z2	L11	Q67
3749	Z2	L11	Q68
3750	Z2	L11	Q69
3751	Z2	L11	Q70
3752	Z2	L11	Q71
3753	Z2	L11	Q72
3754	Z2	L11	Q73
3755	Z2	L11	Q74
3756	Z2	L11	Q75
3757	Z2	L11	Q76
3758	Z2	L11	Q77
3759	Z2	L11	Q78
3760	Z2	L11	Q79
3761	Z2	L11	Q80
3762	Z2	L11	Q81
3763	Z2	L11	Q82
3764	Z2	L11	Q83
3765	Z2	L11	Q84
3766	Z2	L11	Q85
3767	Z2	L11	Q86
3768	Z2	L11	Q87
3769	Z2	L11	Q88
3770	Z2	L11	Q89
3771	Z2	L11	Q90
3772	Z2	L11	Q91
3773	Z2	L11	Q92
3774	Z2	L11	Q93
3775	Z2	L11	Q94
3776	Z2	L11	Q95
3777	Z2	L11	Q96
3778	Z2	L11	Q97
3779	Z2	L11	Q98
3780	Z2	L11	Q99
3781	Z2	L11	Q100
3782	Z2	L11	Q101
3783	Z2	L11	Q102
3784	Z2	L11	Q103
3785	Z2	L12	Q40
3786	Z2	L12	Q41
3787	Z2	L12	Q42
3788	Z2	L12	Q43
3789	Z2	L12	Q44
3790	Z2	L12	Q45
3791	Z2	L12	Q46

[Table 1-25]

3792	Z2	L12	Q47
3793	Z2	L12	Q48
3794	Z2	L12	Q49
3795	Z2	L12	Q50
3796	Z2	L12	Q51
3797	Z2	L12	Q52
3798	Z2	L12	Q53
3799	Z2	L12	Q54
3800	Z2	L12	Q55
3801	Z2	L12	Q56
3802	Z2	L12	Q57
3803	Z2	L12	Q58
3804	Z2	L12	Q59
3805	Z2	L12	Q60
3806	Z2	L12	Q61
3807	Z2	L12	Q62
3808	Z2	L12	Q63
3809	Z2	L12	Q64
3810	Z2	L12	Q65
3811	Z2	L12	Q66
3812	Z2	L12	Q67
3813	Z2	L12	Q68
3814	Z2	L12	Q69
3815	Z2	L12	Q70
3816	Z2	L12	Q71
3817	Z2	L12	Q72
3818	Z2	L12	Q73
3819	Z2	L12	Q74
3820	Z2	L12	Q75
3821	Z2	L12	Q76
3822	Z2	L12	Q77
3823	Z2	L12	Q78
3824	Z2	L12	Q79
3825	Z2	L12	Q80
3826	Z2	L12	Q81
3827	Z2	L12	Q82
3828	Z2	L12	Q83
3829	Z2	L12	Q84
3830	Z2	L12	Q85
3831	Z2	L12	Q86
3832	Z2	L12	Q87
3833	Z2	L12	Q88
3834	Z2	L12	Q89
3835	Z2	L12	Q90
3836	Z2	L12	Q91
3837	Z2	L12	Q92
3838	Z2	L12	Q93
3839	Z2	L12	Q94
3840	Z2	L12	Q95
3841	Z2	L12	Q96
3842	Z2	L12	Q97
3843	Z2	L12	Q98
3844	Z2	L12	Q99
3845	Z2	L12	Q100
3846	Z2	L12	Q101
3847	Z2	L12	Q102
3848	Z2	L12	Q103
3849	Z2	L13	Q40
3850	Z2	L13	Q41
3851	Z2	L13	Q42
3852	Z2	L13	Q43
3853	Z2	L13	Q44
3854	Z2	L13	Q45
3855	Z2	L13	Q46
3856	Z2	L13	Q47
3857	Z2	L13	Q48
3858	Z2	L13	Q49

3859	Z2	L13	Q50
3860	Z2	L13	Q51
3861	Z2	L13	Q52
3862	Z2	L13	Q53
3863	Z2	L13	Q54
3864	Z2	L13	Q55
3865	Z2	L13	Q56
3866	Z2	L13	Q57
3867	Z2	L13	Q58
3868	Z2	L13	Q59
3869	Z2	L13	Q60
3870	Z2	L13	Q61
3871	Z2	L13	Q62
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3889	Z2	L13	Q80
3890	Z2	L13	Q81
3891	Z2	L13	Q82
3892	Z2	L13	Q83
3893	Z2	L13	Q84
3894	Z2	L13	Q85
3895	Z2	L13	Q86
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3904	Z2	L13	Q95
3905	Z2	L13	Q96
3906	Z2	L13	Q97
3907	Z2	L13	Q98
3908	Z2	L13	Q99
3909	Z2	L13	Q100
3910	Z2	L13	Q101
3911	Z2	L13	Q102
3912	Z2	L13	Q103
3913	Z2	L14	Q40
3914	Z2	L14	Q41
3915	Z2	L14	Q42
3916	Z2	L14	Q43
3917	Z2	L14	Q44
3918	Z2	L14	Q45
3919	Z2	L14	Q46
3920	Z2	L14	Q47
3921	Z2	L14	Q48
3922	Z2	L14	Q49
3923	Z2	L14	Q50
3924	Z2	L14	Q51
3925	Z2	L14	Q52

3926	Z2	L14	Q53
3927	Z2	L14	Q54
3928	Z2	L14	Q55
3929	Z2	L14	Q56
3930	Z2	L14	Q57
3931	Z2	L14	Q58
3932	Z2	L14	Q59
3933	Z2	L14	Q60
3934	Z2	L14	Q61
3935	Z2	L14	Q62
3936	Z2	L14	Q63
3937	Z2	L14	Q64
3938	Z2	L14	Q65
3939	Z2	L14	Q66
3940	Z2	L14	Q67
3941	Z2	L14	Q68
3942	Z2	L14	Q69
3943	Z2	L14	Q70
3944	Z2	L14	Q71
3945	Z2	L14	Q72
3946	Z2	L14	Q73
3947	Z2	L14	Q74
3948	Z2	L14	Q75
3949	Z2	L14	Q76
3950	Z2	L14	Q77
3951	Z2	L14	Q78
3952	Z2	L14	Q79
3953	Z2	L14	Q80
3954	Z2	L14	Q81
3955	Z2	L14	Q82
3956	Z2	L14	Q83
3957	Z2	L14	Q84
3958	Z2	L14	Q85
3959	Z2	L14	Q86
3960	Z2	L14	Q87
3961	Z2	L14	Q88
3962	Z2	L14	Q89
3963	Z2	L14	Q90
3964	Z2	L14	Q91
3965	Z2	L14	Q92
3966	Z2	L14	Q93
3967	Z2	L14	Q94
3968	Z2	L14	Q95
3969	Z2	L14	Q96
3970	Z2	L14	Q97
3971	Z2	L14	Q98
3972	Z2	L14	Q99
3973	Z2	L14	Q100
3974	Z2	L14	Q101
3975	Z2	L14	Q102
3976	Z2	L14	Q103
3977	Z3	L1	Q40
3978	Z3	L1	Q41
3979	Z3	L1	Q42
3980	Z3	L1	Q43
3981	Z3	L1	Q44
3982	Z3	L1	Q45
3983	Z3	L1	Q46
3984	Z3	L1	Q47
3985	Z3	L1	Q48
3986	Z3	L1	Q49
3987	Z3	L1	Q50
3988	Z3	L1	Q51
3989	Z3	L1	Q52
3990	Z3	L1	Q53
3991	Z3	L1	Q54
3992	Z3	L1	Q55

[Table 1-26]

3993	Z3	L1	Q56
3994	Z3	L1	Q57
3995	Z3	L1	Q58
3996	Z3	L1	Q59
3997	Z3	L1	Q60
3998	Z3	L1	Q61
3999	Z3	L1	Q62
4000	Z3	L1	Q63
4001	Z3	L1	Q64
4002	Z3	L1	Q65
4003	Z3	L1	Q66
4004	Z3	L1	Q67
4005	Z3	L1	Q68
4006	Z3	L1	Q69
4007	Z3	L1	Q70
4008	Z3	L1	Q71
4009	Z3	L1	Q72
4010	Z3	L1	Q73
4011	Z3	L1	Q74
4012	Z3	L1	Q75
4013	Z3	L1	Q76
4014	Z3	L1	Q77
4015	Z3	L1	Q78
4016	Z3	L1	Q79
4017	Z3	L1	Q80
4018	Z3	L1	Q81
4019	Z3	L1	Q82
4020	Z3	L1	Q83
4021	Z3	L1	Q84
4022	Z3	L1	Q85
4023	Z3	L1	Q86
4024	Z3	L1	Q87
4025	Z3	L1	Q88
4026	Z3	L1	Q89
4027	Z3	L1	Q90
4028	Z3	L1	Q91
4029	Z3	L1	Q92
4030	Z3	L1	Q93
4031	Z3	L1	Q94
4032	Z3	L1	Q95
4033	Z3	L1	Q96
4034	Z3	L1	Q97
4035	Z3	L1	Q98
4036	Z3	L1	Q99
4037	Z3	L1	Q100
4038	Z3	L1	Q101
4039	Z3	L1	Q102
4040	Z3	L1	Q103
4041	Z3	L2	Q40
4042	Z3	L2	Q41
4043	Z3	L2	Q42
4044	Z3	L2	Q43
4045	Z3	L2	Q44
4046	Z3	L2	Q45
4047	Z3	L2	Q46
4048	Z3	L2	Q47
4049	Z3	L2	Q48
4050	Z3	L2	Q49
4051	Z3	L2	Q50
4052	Z3	L2	Q51
4053	Z3	L2	Q52
4054	Z3	L2	Q53
4055	Z3	L2	Q54
4056	Z3	L2	Q55
4057	Z3	L2	Q56
4058	Z3	L2	Q57
4059	Z3	L2	Q58

4060	Z3	L2	Q59
4061	Z3	L2	Q60
4062	Z3	L2	Q61
4063	Z3	L2	Q62
4064	Z3	L2	Q63
4065	Z3	L2	Q64
4066	Z3	L2	Q65
4067	Z3	L2	Q66
4068	Z3	L2	Q67
4069	Z3	L2	Q68
4070	Z3	L2	Q69
4071	Z3	L2	Q70
4072	Z3	L2	Q71
4073	Z3	L2	Q72
4074	Z3	L2	Q73
4075	Z3	L2	Q74
4076	Z3	L2	Q75
4077	Z3	L2	Q76
4078	Z3	L2	Q77
4079	Z3	L2	Q78
4080	Z3	L2	Q79
4081	Z3	L2	Q80
4082	Z3	L2	Q81
4083	Z3	L2	Q82
4084	Z3	L2	Q83
4085	Z3	L2	Q84
4086	Z3	L2	Q85
4087	Z3	L2	Q86
4088	Z3	L2	Q87
4089	Z3	L2	Q88
4090	Z3	L2	Q89
4091	Z3	L2	Q90
4092	Z3	L2	Q91
4093	Z3	L2	Q92
4094	Z3	L2	Q93
4095	Z3	L2	Q94
4096	Z3	L2	Q95
4097	Z3	L2	Q96
4098	Z3	L2	Q97
4099	Z3	L2	Q98
4100	Z3	L2	Q99
4101	Z3	L2	Q100
4102	Z3	L2	Q101
4103	Z3	L2	Q102
4104	Z3	L2	Q103
4105	Z3	L3	Q40
4106	Z3	L3	Q41
4107	Z3	L3	Q42
4108	Z3	L3	Q43
4109	Z3	L3	Q44
4110	Z3	L3	Q45
4111	Z3	L3	Q46
4112	Z3	L3	Q47
4113	Z3	L3	Q48
4114	Z3	L3	Q49
4115	Z3	L3	Q50
4116	Z3	L3	Q51
4117	Z3	L3	Q52
4118	Z3	L3	Q53
4119	Z3	L3	Q54
4120	Z3	L3	Q55
4121	Z3	L3	Q56
4122	Z3	L3	Q57
4123	Z3	L3	Q58
4124	Z3	L3	Q59
4125	Z3	L3	Q60
4126	Z3	L3	Q61

4127	Z3	L3	Q62
4128	Z3	L3	Q63
4129	Z3	L3	Q64
4130	Z3	L3	Q65
4131	Z3	L3	Q66
4132	Z3	L3	Q67
4133	Z3	L3	Q68
4134	Z3	L3	Q69
4135	Z3	L3	Q70
4136	Z3	L3	Q71
4137	Z3	L3	Q72
4138	Z3	L3	Q73
4139	Z3	L3	Q74
4140	Z3	L3	Q75
4141	Z3	L3	Q76
4142	Z3	L3	Q77
4143	Z3	L3	Q78
4144	Z3	L3	Q79
4145	Z3	L3	Q80
4146	Z3	L3	Q81
4147	Z3	L3	Q82
4148	Z3	L3	Q83
4149	Z3	L3	Q84
4150	Z3	L3	Q85
4151	Z3	L3	Q86
4152	Z3	L3	Q87
4153	Z3	L3	Q88
4154	Z3	L3	Q89
4155	Z3	L3	Q90
4156	Z3	L3	Q91
4157	Z3	L3	Q92
4158	Z3	L3	Q93
4159	Z3	L3	Q94
4160	Z3	L3	Q95
4161	Z3	L3	Q96
4162	Z3	L3	Q97
4163	Z3	L3	Q98
4164	Z3	L3	Q99
4165	Z3	L3	Q100
4166	Z3	L3	Q101
4167	Z3	L3	Q102
4168	Z3	L3	Q103
4169	Z3	L4	Q40
4170	Z3	L4	Q41
4171	Z3	L4	Q42
4172	Z3	L4	Q43
4173	Z3	L4	Q44
4174	Z3	L4	Q45
4175	Z3	L4	Q46
4176	Z3	L4	Q47
4177	Z3	L4	Q48
4178	Z3	L4	Q49
4179	Z3	L4	Q50
4180	Z3	L4	Q51
4181	Z3	L4	Q52
4182	Z3	L4	Q53
4183	Z3	L4	Q54
4184	Z3	L4	Q55
4185	Z3	L4	Q56
4186	Z3	L4	Q57
4187	Z3	L4	Q58
4188	Z3	L4	Q59
4189	Z3	L4	Q60
4190	Z3	L4	Q61
4191	Z3	L4	Q62
4192	Z3	L4	Q63
4193	Z3	L4	Q64

[Table 1-27]

4194	Z3	L4	Q65
4195	Z3	L4	Q66
4196	Z3	L4	Q67
4197	Z3	L4	Q68
4198	Z3	L4	Q69
4199	Z3	L4	Q70
4200	Z3	L4	Q71
4201	Z3	L4	Q72
4202	Z3	L4	Q73
4203	Z3	L4	Q74
4204	Z3	L4	Q75
4205	Z3	L4	Q76
4206	Z3	L4	Q77
4207	Z3	L4	Q78
4208	Z3	L4	Q79
4209	Z3	L4	Q80
4210	Z3	L4	Q81
4211	Z3	L4	Q82
4212	Z3	L4	Q83
4213	Z3	L4	Q84
4214	Z3	L4	Q85
4215	Z3	L4	Q86
4216	Z3	L4	Q87
4217	Z3	L4	Q88
4218	Z3	L4	Q89
4219	Z3	L4	Q90
4220	Z3	L4	Q91
4221	Z3	L4	Q92
4222	Z3	L4	Q93
4223	Z3	L4	Q94
4224	Z3	L4	Q95
4225	Z3	L4	Q96
4226	Z3	L4	Q97
4227	Z3	L4	Q98
4228	Z3	L4	Q99
4229	Z3	L4	Q100
4230	Z3	L4	Q101
4231	Z3	L4	Q102
4232	Z3	L4	Q103
4233	Z3	L5	Q40
4234	Z3	L5	Q41
4235	Z3	L5	Q42
4236	Z3	L5	Q43
4237	Z3	L5	Q44
4238	Z3	L5	Q45
4239	Z3	L5	Q46
4240	Z3	L5	Q47
4241	Z3	L5	Q48
4242	Z3	L5	Q49
4243	Z3	L5	Q50
4244	Z3	L5	Q51
4245	Z3	L5	Q52
4246	Z3	L5	Q53
4247	Z3	L5	Q54
4248	Z3	L5	Q55
4249	Z3	L5	Q56
4250	Z3	L5	Q57
4251	Z3	L5	Q58
4252	Z3	L5	Q59
4253	Z3	L5	Q60
4254	Z3	L5	Q61
4255	Z3	L5	Q62
4256	Z3	L5	Q63
4257	Z3	L5	Q64
4258	Z3	L5	Q65
4259	Z3	L5	Q66
4260	Z3	L5	Q67

4261	Z3	L5	Q68
4262	Z3	L5	Q69
4263	Z3	L5	Q70
4264	Z3	L5	Q71
4265	Z3	L5	Q72
4266	Z3	L5	Q73
4267	Z3	L5	Q74
4268	Z3	L5	Q75
4269	Z3	L5	Q76
4270	Z3	L5	Q77
4271	Z3	L5	Q78
4272	Z3	L5	Q79
4273	Z3	L5	Q80
4274	Z3	L5	Q81
4275	Z3	L5	Q82
4276	Z3	L5	Q83
4277	Z3	L5	Q84
4278	Z3	L5	Q85
4279	Z3	L5	Q86
4280	Z3	L5	Q87
4281	Z3	L5	Q88
4282	Z3	L5	Q89
4283	Z3	L5	Q90
4284	Z3	L5	Q91
4285	Z3	L5	Q92
4286	Z3	L5	Q93
4287	Z3	L5	Q94
4288	Z3	L5	Q95
4289	Z3	L5	Q96
4290	Z3	L5	Q97
4291	Z3	L5	Q98
4292	Z3	L5	Q99
4293	Z3	L5	Q100
4294	Z3	L5	Q101
4295	Z3	L5	Q102
4296	Z3	L5	Q103
4297	Z3	L6	Q40
4298	Z3	L6	Q41
4299	Z3	L6	Q42
4300	Z3	L6	Q43
4301	Z3	L6	Q44
4302	Z3	L6	Q45
4303	Z3	L6	Q46
4304	Z3	L6	Q47
4305	Z3	L6	Q48
4306	Z3	L6	Q49
4307	Z3	L6	Q50
4308	Z3	L6	Q51
4309	Z3	L6	Q52
4310	Z3	L6	Q53
4311	Z3	L6	Q54
4312	Z3	L6	Q55
4313	Z3	L6	Q56
4314	Z3	L6	Q57
4315	Z3	L6	Q58
4316	Z3	L6	Q59
4317	Z3	L6	Q60
4318	Z3	L6	Q61
4319	Z3	L6	Q62
4320	Z3	L6	Q63
4321	Z3	L6	Q64
4322	Z3	L6	Q65
4323	Z3	L6	Q66
4324	Z3	L6	Q67
4325	Z3	L6	Q68
4326	Z3	L6	Q69
4327	Z3	L6	Q70

4328	Z3	L6	Q71
4329	Z3	L6	Q72
4330	Z3	L6	Q73
4331	Z3	L6	Q74
4332	Z3	L6	Q75
4333	Z3	L6	Q76
4334	Z3	L6	Q77
4335	Z3	L6	Q78
4336	Z3	L6	Q79
4337	Z3	L6	Q80
4338	Z3	L6	Q81
4339	Z3	L6	Q82
4340	Z3	L6	Q83
4341	Z3	L6	Q84
4342	Z3	L6	Q85
4343	Z3	L6	Q86
4344	Z3	L6	Q87
4345	Z3	L6	Q88
4346	Z3	L6	Q89
4347	Z3	L6	Q90
4348	Z3	L6	Q91
4349	Z3	L6	Q92
4350	Z3	L6	Q93
4351	Z3	L6	Q94
4352	Z3	L6	Q95
4353	Z3	L6	Q96
4354	Z3	L6	Q97
4355	Z3	L6	Q98
4356	Z3	L6	Q99
4357	Z3	L6	Q100
4358	Z3	L6	Q101
4359	Z3	L6	Q102
4360	Z3	L6	Q103
4361	Z3	L7	Q40
4362	Z3	L7	Q41
4363	Z3	L7	Q42
4364	Z3	L7	Q43
4365	Z3	L7	Q44
4366	Z3	L7	Q45
4367	Z3	L7	Q46
4368	Z3	L7	Q47
4369	Z3	L7	Q48
4370	Z3	L7	Q49
4371	Z3	L7	Q50
4372	Z3	L7	Q51
4373	Z3	L7	Q52
4374	Z3	L7	Q53
4375	Z3	L7	Q54
4376	Z3	L7	Q55
4377	Z3	L7	Q56
4378	Z3	L7	Q57
4379	Z3	L7	Q58
4380	Z3	L7	Q59
4381	Z3	L7	Q60
4382	Z3	L7	Q61
4383	Z3	L7	Q62
4384	Z3	L7	Q63
4385	Z3	L7	Q64
4386	Z3	L7	Q65
4387	Z3	L7	Q66
4388	Z3	L7	Q67
4389	Z3	L7	Q68
4390	Z3	L7	Q69
4391	Z3	L7	Q70
4392	Z3	L7	Q71
4393	Z3	L7	Q72
4394	Z3	L7	Q73

[Table 1-28]

4395	Z3	L7	Q74
4396	Z3	L7	Q75
4397	Z3	L7	Q76
4398	Z3	L7	Q77
4399	Z3	L7	Q78
4400	Z3	L7	Q79
4401	Z3	L7	Q80
4402	Z3	L7	Q81
4403	Z3	L7	Q82
4404	Z3	L7	Q83
4405	Z3	L7	Q84
4406	Z3	L7	Q85
4407	Z3	L7	Q86
4408	Z3	L7	Q87
4409	Z3	L7	Q88
4410	Z3	L7	Q89
4411	Z3	L7	Q90
4412	Z3	L7	Q91
4413	Z3	L7	Q92
4414	Z3	L7	Q93
4415	Z3	L7	Q94
4416	Z3	L7	Q95
4417	Z3	L7	Q96
4418	Z3	L7	Q97
4419	Z3	L7	Q98
4420	Z3	L7	Q99
4421	Z3	L7	Q100
4422	Z3	L7	Q101
4423	Z3	L7	Q102
4424	Z3	L7	Q103
4425	Z3	L8	Q40
4426	Z3	L8	Q41
4427	Z3	L8	Q42
4428	Z3	L8	Q43
4429	Z3	L8	Q44
4430	Z3	L8	Q45
4431	Z3	L8	Q46
4432	Z3	L8	Q47
4433	Z3	L8	Q48
4434	Z3	L8	Q49
4435	Z3	L8	Q50
4436	Z3	L8	Q51
4437	Z3	L8	Q52
4438	Z3	L8	Q53
4439	Z3	L8	Q54
4440	Z3	L8	Q55
4441	Z3	L8	Q56
4442	Z3	L8	Q57
4443	Z3	L8	Q58
4444	Z3	L8	Q59
4445	Z3	L8	Q60
4446	Z3	L8	Q61
4447	Z3	L8	Q62
4448	Z3	L8	Q63
4449	Z3	L8	Q64
4450	Z3	L8	Q65
4451	Z3	L8	Q66
4452	Z3	L8	Q67
4453	Z3	L8	Q68
4454	Z3	L8	Q69
4455	Z3	L8	Q70
4456	Z3	L8	Q71
4457	Z3	L8	Q72
4458	Z3	L8	Q73
4459	Z3	L8	Q74
4460	Z3	L8	Q75
4461	Z3	L8	Q76

4462	Z3	L8	Q77
4463	Z3	L8	Q78
4464	Z3	L8	Q79
4465	Z3	L8	Q80
4466	Z3	L8	Q81
4467	Z3	L8	Q82
4468	Z3	L8	Q83
4469	Z3	L8	Q84
4470	Z3	L8	Q85
4471	Z3	L8	Q86
4472	Z3	L8	Q87
4473	Z3	L8	Q88
4474	Z3	L8	Q89
4475	Z3	L8	Q90
4476	Z3	L8	Q91
4477	Z3	L8	Q92
4478	Z3	L8	Q93
4479	Z3	L8	Q94
4480	Z3	L8	Q95
4481	Z3	L8	Q96
4482	Z3	L8	Q97
4483	Z3	L8	Q98
4484	Z3	L8	Q99
4485	Z3	L8	Q100
4486	Z3	L8	Q101
4487	Z3	L8	Q102
4488	Z3	L8	Q103
4489	Z3	L9	Q40
4490	Z3	L9	Q41
4491	Z3	L9	Q42
4492	Z3	L9	Q43
4493	Z3	L9	Q44
4494	Z3	L9	Q45
4495	Z3	L9	Q46
4496	Z3	L9	Q47
4497	Z3	L9	Q48
4498	Z3	L9	Q49
4499	Z3	L9	Q50
4500	Z3	L9	Q51
4501	Z3	L9	Q52
4502	Z3	L9	Q53
4503	Z3	L9	Q54
4504	Z3	L9	Q55
4505	Z3	L9	Q56
4506	Z3	L9	Q57
4507	Z3	L9	Q58
4508	Z3	L9	Q59
4509	Z3	L9	Q60
4510	Z3	L9	Q61
4511	Z3	L9	Q62
4512	Z3	L9	Q63
4513	Z3	L9	Q64
4514	Z3	L9	Q65
4515	Z3	L9	Q66
4516	Z3	L9	Q67
4517	Z3	L9	Q68
4518	Z3	L9	Q69
4519	Z3	L9	Q70
4520	Z3	L9	Q71
4521	Z3	L9	Q72
4522	Z3	L9	Q73
4523	Z3	L9	Q74
4524	Z3	L9	Q75
4525	Z3	L9	Q76
4526	Z3	L9	Q77
4527	Z3	L9	Q78
4528	Z3	L9	Q79

4529	Z3	L9	Q80
4530	Z3	L9	Q81
4531	Z3	L9	Q82
4532	Z3	L9	Q83
4533	Z3	L9	Q84
4534	Z3	L9	Q85
4535	Z3	L9	Q86
4536	Z3	L9	Q87
4537	Z3	L9	Q88
4538	Z3	L9	Q89
4539	Z3	L9	Q90
4540	Z3	L9	Q91
4541	Z3	L9	Q92
4542	Z3	L9	Q93
4543	Z3	L9	Q94
4544	Z3	L9	Q95
4545	Z3	L9	Q96
4546	Z3	L9	Q97
4547	Z3	L9	Q98
4548	Z3	L9	Q99
4549	Z3	L9	Q100
4550	Z3	L9	Q101
4551	Z3	L9	Q102
4552	Z3	L9	Q103
4553	Z3	L10	Q40
4554	Z3	L10	Q41
4555	Z3	L10	Q42
4556	Z3	L10	Q43
4557	Z3	L10	Q44
4558	Z3	L10	Q45
4559	Z3	L10	Q46
4560	Z3	L10	Q47
4561	Z3	L10	Q48
4562	Z3	L10	Q49
4563	Z3	L10	Q50
4564	Z3	L10	Q51
4565	Z3	L10	Q52
4566	Z3	L10	Q53
4567	Z3	L10	Q54
4568	Z3	L10	Q55
4569	Z3	L10	Q56
4570	Z3	L10	Q57
4571	Z3	L10	Q58
4572	Z3	L10	Q59
4573	Z3	L10	Q60
4574	Z3	L10	Q61
4575	Z3	L10	Q62
4576	Z3	L10	Q63
4577	Z3	L10	Q64
4578	Z3	L10	Q65
4579	Z3	L10	Q66
4580	Z3	L10	Q67
4581	Z3	L10	Q68
4582	Z3	L10	Q69
4583	Z3	L10	Q70
4584	Z3	L10	Q71
4585	Z3	L10	Q72
4586	Z3	L10	Q73
4587	Z3	L10	Q74
4588	Z3	L10	Q75
4589	Z3	L10	Q76
4590	Z3	L10	Q77
4591	Z3	L10	Q78
4592	Z3	L10	Q79
4593	Z3	L10	Q80
4594	Z3	L10	Q81
4595	Z3	L10	Q82

[Table 1-29]

4596	Z3	L10	Q83
4597	Z3	L10	Q84
4598	Z3	L10	Q85
4599	Z3	L10	Q86
4600	Z3	L10	Q87
4601	Z3	L10	Q88
4602	Z3	L10	Q89
4603	Z3	L10	Q90
4604	Z3	L10	Q91
4605	Z3	L10	Q92
4606	Z3	L10	Q93
4607	Z3	L10	Q94
4608	Z3	L10	Q95
4609	Z3	L10	Q96
4610	Z3	L10	Q97
4611	Z3	L10	Q98
4612	Z3	L10	Q99
4613	Z3	L10	Q100
4614	Z3	L10	Q101
4615	Z3	L10	Q102
4616	Z3	L10	Q103
4617	Z3	L11	Q40
4618	Z3	L11	Q41
4619	Z3	L11	Q42
4620	Z3	L11	Q43
4621	Z3	L11	Q44
4622	Z3	L11	Q45
4623	Z3	L11	Q46
4624	Z3	L11	Q47
4625	Z3	L11	Q48
4626	Z3	L11	Q49
4627	Z3	L11	Q50
4628	Z3	L11	Q51
4629	Z3	L11	Q52
4630	Z3	L11	Q53
4631	Z3	L11	Q54
4632	Z3	L11	Q55
4633	Z3	L11	Q56
4634	Z3	L11	Q57
4635	Z3	L11	Q58
4636	Z3	L11	Q59
4637	Z3	L11	Q60
4638	Z3	L11	Q61
4639	Z3	L11	Q62
4640	Z3	L11	Q63
4641	Z3	L11	Q64
4642	Z3	L11	Q65
4643	Z3	L11	Q66
4644	Z3	L11	Q67
4645	Z3	L11	Q68
4646	Z3	L11	Q69
4647	Z3	L11	Q70
4648	Z3	L11	Q71
4649	Z3	L11	Q72
4650	Z3	L11	Q73
4651	Z3	L11	Q74
4652	Z3	L11	Q75
4653	Z3	L11	Q76
4654	Z3	L11	Q77
4655	Z3	L11	Q78
4656	Z3	L11	Q79
4657	Z3	L11	Q80
4658	Z3	L11	Q81
4659	Z3	L11	Q82
4660	Z3	L11	Q83
4661	Z3	L11	Q84
4662	Z3	L11	Q85

4663	Z3	L11	Q86
4664	Z3	L11	Q87
4665	Z3	L11	Q88
4666	Z3	L11	Q89
4667	Z3	L11	Q90
4668	Z3	L11	Q91
4669	Z3	L11	Q92
4670	Z3	L11	Q93
4671	Z3	L11	Q94
4672	Z3	L11	Q95
4673	Z3	L11	Q96
4674	Z3	L11	Q97
4675	Z3	L11	Q98
4676	Z3	L11	Q99
4677	Z3	L11	Q100
4678	Z3	L11	Q101
4679	Z3	L11	Q102
4680	Z3	L11	Q103
4681	Z3	L12	Q40
4682	Z3	L12	Q41
4683	Z3	L12	Q42
4684	Z3	L12	Q43
4685	Z3	L12	Q44
4686	Z3	L12	Q45
4687	Z3	L12	Q46
4688	Z3	L12	Q47
4689	Z3	L12	Q48
4690	Z3	L12	Q49
4691	Z3	L12	Q50
4692	Z3	L12	Q51
4693	Z3	L12	Q52
4694	Z3	L12	Q53
4695	Z3	L12	Q54
4696	Z3	L12	Q55
4697	Z3	L12	Q56
4698	Z3	L12	Q57
4699	Z3	L12	Q58
4700	Z3	L12	Q59
4701	Z3	L12	Q60
4702	Z3	L12	Q61
4703	Z3	L12	Q62
4704	Z3	L12	Q63
4705	Z3	L12	Q64
4706	Z3	L12	Q65
4707	Z3	L12	Q66
4708	Z3	L12	Q67
4709	Z3	L12	Q68
4710	Z3	L12	Q69
4711	Z3	L12	Q70
4712	Z3	L12	Q71
4713	Z3	L12	Q72
4714	Z3	L12	Q73
4715	Z3	L12	Q74
4716	Z3	L12	Q75
4717	Z3	L12	Q76
4718	Z3	L12	Q77
4719	Z3	L12	Q78
4720	Z3	L12	Q79
4721	Z3	L12	Q80
4722	Z3	L12	Q81
4723	Z3	L12	Q82
4724	Z3	L12	Q83
4725	Z3	L12	Q84
4726	Z3	L12	Q85
4727	Z3	L12	Q86
4728	Z3	L12	Q87
4729	Z3	L12	Q88

4730	Z3	L12	Q89
4731	Z3	L12	Q90
4732	Z3	L12	Q91
4733	Z3	L12	Q92
4734	Z3	L12	Q93
4735	Z3	L12	Q94
4736	Z3	L12	Q95
4737	Z3	L12	Q96
4738	Z3	L12	Q97
4739	Z3	L12	Q98
4740	Z3	L12	Q99
4741	Z3	L12	Q100
4742	Z3	L12	Q101
4743	Z3	L12	Q102
4744	Z3	L12	Q103
4745	Z3	L13	Q40
4746	Z3	L13	Q41
4747	Z3	L13	Q42
4748	Z3	L13	Q43
4749	Z3	L13	Q44
4750	Z3	L13	Q45
4751	Z3	L13	Q46
4752	Z3	L13	Q47
4753	Z3	L13	Q48
4754	Z3	L13	Q49
4755	Z3	L13	Q50
4756	Z3	L13	Q51
4757	Z3	L13	Q52
4758	Z3	L13	Q53
4759	Z3	L13	Q54
4760	Z3	L13	Q55
4761	Z3	L13	Q56
4762	Z3	L13	Q57
4763	Z3	L13	Q58
4764	Z3	L13	Q59
4765	Z3	L13	Q60
4766	Z3	L13	Q61
4767	Z3	L13	Q62
4768	Z3	L13	Q63
4769	Z3	L13	Q64
4770	Z3	L13	Q65
4771	Z3	L13	Q66
4772	Z3	L13	Q67
4773	Z3	L13	Q68
4774	Z3	L13	Q69
4775	Z3	L13	Q70
4776	Z3	L13	Q71
4777	Z3	L13	Q72
4778	Z3	L13	Q73
4779	Z3	L13	Q74
4780	Z3	L13	Q75
4781	Z3	L13	Q76
4782	Z3	L13	Q77
4783	Z3	L13	Q78
4784	Z3	L13	Q79
4785	Z3	L13	Q80
4786	Z3	L13	Q81
4787	Z3	L13	Q82
4788	Z3	L13	Q83
4789	Z3	L13	Q84
4790	Z3	L13	Q85
4791	Z3	L13	Q86
4792	Z3	L13	Q87
4793	Z3	L13	Q88
4794	Z3	L13	Q89
4795	Z3	L13	Q90
4796	Z3	L13	Q91

[Table 1-30]

4797	Z3	L13	Q92
4798	Z3	L13	Q93
4799	Z3	L13	Q94
4800	Z3	L13	Q95
4801	Z3	L13	Q96
4802	Z3	L13	Q97
4803	Z3	L13	Q98
4804	Z3	L13	Q99
4805	Z3	L13	Q100
4806	Z3	L13	Q101
4807	Z3	L13	Q102
4808	Z3	L13	Q103
4809	Z3	L14	Q40
4810	Z3	L14	Q41
4811	Z3	L14	Q42
4812	Z3	L14	Q43
4813	Z3	L14	Q44
4814	Z3	L14	Q45
4815	Z3	L14	Q46
4816	Z3	L14	Q47
4817	Z3	L14	Q48
4818	Z3	L14	Q49
4819	Z3	L14	Q50
4820	Z3	L14	Q51
4821	Z3	L14	Q52
4822	Z3	L14	Q53
4823	Z3	L14	Q54
4824	Z3	L14	Q55
4825	Z3	L14	Q56
4826	Z3	L14	Q57
4827	Z3	L14	Q58
4828	Z3	L14	Q59
4829	Z3	L14	Q60
4830	Z3	L14	Q61
4831	Z3	L14	Q62
4832	Z3	L14	Q63
4833	Z3	L14	Q64
4834	Z3	L14	Q65
4835	Z3	L14	Q66
4836	Z3	L14	Q67
4837	Z3	L14	Q68
4838	Z3	L14	Q69
4839	Z3	L14	Q70
4840	Z3	L14	Q71
4841	Z3	L14	Q72
4842	Z3	L14	Q73
4843	Z3	L14	Q74
4844	Z3	L14	Q75
4845	Z3	L14	Q76
4846	Z3	L14	Q77
4847	Z3	L14	Q78
4848	Z3	L14	Q79
4849	Z3	L14	Q80
4850	Z3	L14	Q81
4851	Z3	L14	Q82
4852	Z3	L14	Q83
4853	Z3	L14	Q84
4854	Z3	L14	Q85
4855	Z3	L14	Q86
4856	Z3	L14	Q87
4857	Z3	L14	Q88
4858	Z3	L14	Q89
4859	Z3	L14	Q90
4860	Z3	L14	Q91
4861	Z3	L14	Q92
4862	Z3	L14	Q93
4863	Z3	L14	Q94

4864	Z3	L14	Q95
4865	Z3	L14	Q96
4866	Z3	L14	Q97
4867	Z3	L14	Q98
4868	Z3	L14	Q99
4869	Z3	L14	Q100
4870	Z3	L14	Q101
4871	Z3	L14	Q102
4872	Z3	L14	Q103
4873	Z4	L1	Q40
4874	Z4	L1	Q41
4875	Z4	L1	Q42
4876	Z4	L1	Q43
4877	Z4	L1	Q44
4878	Z4	L1	Q45
4879	Z4	L1	Q46
4880	Z4	L1	Q47
4881	Z4	L1	Q48
4882	Z4	L1	Q49
4883	Z4	L1	Q50
4884	Z4	L1	Q51
4885	Z4	L1	Q52
4886	Z4	L1	Q53
4887	Z4	L1	Q54
4888	Z4	L1	Q55
4889	Z4	L1	Q56
4890	Z4	L1	Q57
4891	Z4	L1	Q58
4892	Z4	L1	Q59
4893	Z4	L1	Q60
4894	Z4	L1	Q61
4895	Z4	L1	Q62
4896	Z4	L1	Q63
4897	Z4	L1	Q64
4898	Z4	L1	Q65
4899	Z4	L1	Q66
4900	Z4	L1	Q67
4901	Z4	L1	Q68
4902	Z4	L1	Q69
4903	Z4	L1	Q70
4904	Z4	L1	Q71
4905	Z4	L1	Q72
4906	Z4	L1	Q73
4907	Z4	L1	Q74
4908	Z4	L1	Q75
4909	Z4	L1	Q76
4910	Z4	L1	Q77
4911	Z4	L1	Q78
4912	Z4	L1	Q79
4913	Z4	L1	Q80
4914	Z4	L1	Q81
4915	Z4	L1	Q82
4916	Z4	L1	Q83
4917	Z4	L1	Q84
4918	Z4	L1	Q85
4919	Z4	L1	Q86
4920	Z4	L1	Q87
4921	Z4	L1	Q88
4922	Z4	L1	Q89
4923	Z4	L1	Q90
4924	Z4	L1	Q91
4925	Z4	L1	Q92
4926	Z4	L1	Q93
4927	Z4	L1	Q94
4928	Z4	L1	Q95
4929	Z4	L1	Q96
4930	Z4	L1	Q97

4931	Z4	L1	Q98
4932	Z4	L1	Q99
4933	Z4	L1	Q100
4934	Z4	L1	Q101
4935	Z4	L1	Q102
4936	Z4	L1	Q103
4937	Z4	L2	Q40
4938	Z4	L2	Q41
4939	Z4	L2	Q42
4940	Z4	L2	Q43
4941	Z4	L2	Q44
4942	Z4	L2	Q45
4943	Z4	L2	Q46
4944	Z4	L2	Q47
4945	Z4	L2	Q48
4946	Z4	L2	Q49
4947	Z4	L2	Q50
4948	Z4	L2	Q51
4949	Z4	L2	Q52
4950	Z4	L2	Q53
4951	Z4	L2	Q54
4952	Z4	L2	Q55
4953	Z4	L2	Q56
4954	Z4	L2	Q57
4955	Z4	L2	Q58
4956	Z4	L2	Q59
4957	Z4	L2	Q60
4958	Z4	L2	Q61
4959	Z4	L2	Q62
4960	Z4	L2	Q63
4961	Z4	L2	Q64
4962	Z4	L2	Q65
4963	Z4	L2	Q66
4964	Z4	L2	Q67
4965	Z4	L2	Q68
4966	Z4	L2	Q69
4967	Z4	L2	Q70
4968	Z4	L2	Q71
4969	Z4	L2	Q72
4970	Z4	L2	Q73
4971	Z4	L2	Q74
4972	Z4	L2	Q75
4973	Z4	L2	Q76
4974	Z4	L2	Q77
4975	Z4	L2	Q78
4976	Z4	L2	Q79
4977	Z4	L2	Q80
4978	Z4	L2	Q81
4979	Z4	L2	Q82
4980	Z4	L2	Q83
4981	Z4	L2	Q84
4982	Z4	L2	Q85
4983	Z4	L2	Q86
4984	Z4	L2	Q87
4985	Z4	L2	Q88
4986	Z4	L2	Q89
4987	Z4	L2	Q90
4988	Z4	L2	Q91
4989	Z4	L2	Q92
4990	Z4	L2	Q93
4991	Z4	L2	Q94
4992	Z4	L2	Q95
4993	Z4	L2	Q96
4994	Z4	L2	Q97
4995	Z4	L2	Q98
4996	Z4	L2	Q99
4997	Z4	L2	Q100

[Table 1-31]

4998	Z4	L2	Q101
4999	Z4	L2	Q102
5000	Z4	L2	Q103
5001	Z4	L3	Q40
5002	Z4	L3	Q41
5003	Z4	L3	Q42
5004	Z4	L3	Q43
5005	Z4	L3	Q44
5006	Z4	L3	Q45
5007	Z4	L3	Q46
5008	Z4	L3	Q47
5009	Z4	L3	Q48
5010	Z4	L3	Q49
5011	Z4	L3	Q50
5012	Z4	L3	Q51
5013	Z4	L3	Q52
5014	Z4	L3	Q53
5015	Z4	L3	Q54
5016	Z4	L3	Q55
5017	Z4	L3	Q56
5018	Z4	L3	Q57
5019	Z4	L3	Q58
5020	Z4	L3	Q59
5021	Z4	L3	Q60
5022	Z4	L3	Q61
5023	Z4	L3	Q62
5024	Z4	L3	Q63
5025	Z4	L3	Q64
5026	Z4	L3	Q65
5027	Z4	L3	Q66
5028	Z4	L3	Q67
5029	Z4	L3	Q68
5030	Z4	L3	Q69
5031	Z4	L3	Q70
5032	Z4	L3	Q71
5033	Z4	L3	Q72
5034	Z4	L3	Q73
5035	Z4	L3	Q74
5036	Z4	L3	Q75
5037	Z4	L3	Q76
5038	Z4	L3	Q77
5039	Z4	L3	Q78
5040	Z4	L3	Q79
5041	Z4	L3	Q80
5042	Z4	L3	Q81
5043	Z4	L3	Q82
5044	Z4	L3	Q83
5045	Z4	L3	Q84
5046	Z4	L3	Q85
5047	Z4	L3	Q86
5048	Z4	L3	Q87
5049	Z4	L3	Q88
5050	Z4	L3	Q89
5051	Z4	L3	Q90
5052	Z4	L3	Q91
5053	Z4	L3	Q92
5054	Z4	L3	Q93
5055	Z4	L3	Q94
5056	Z4	L3	Q95
5057	Z4	L3	Q96
5058	Z4	L3	Q97
5059	Z4	L3	Q98
5060	Z4	L3	Q99
5061	Z4	L3	Q100
5062	Z4	L3	Q101
5063	Z4	L3	Q102
5064	Z4	L3	Q103

5065	Z4	L4	Q40
5066	Z4	L4	Q41
5067	Z4	L4	Q42
5068	Z4	L4	Q43
5069	Z4	L4	Q44
5070	Z4	L4	Q45
5071	Z4	L4	Q46
5072	Z4	L4	Q47
5073	Z4	L4	Q48
5074	Z4	L4	Q49
5075	Z4	L4	Q50
5076	Z4	L4	Q51
5077	Z4	L4	Q52
5078	Z4	L4	Q53
5079	Z4	L4	Q54
5080	Z4	L4	Q55
5081	Z4	L4	Q56
5082	Z4	L4	Q57
5083	Z4	L4	Q58
5084	Z4	L4	Q59
5085	Z4	L4	Q60
5086	Z4	L4	Q61
5087	Z4	L4	Q62
5088	Z4	L4	Q63
5089	Z4	L4	Q64
5090	Z4	L4	Q65
5091	Z4	L4	Q66
5092	Z4	L4	Q67
5093	Z4	L4	Q68
5094	Z4	L4	Q69
5095	Z4	L4	Q70
5096	Z4	L4	Q71
5097	Z4	L4	Q72
5098	Z4	L4	Q73
5099	Z4	L4	Q74
5100	Z4	L4	Q75
5101	Z4	L4	Q76
5102	Z4	L4	Q77
5103	Z4	L4	Q78
5104	Z4	L4	Q79
5105	Z4	L4	Q80
5106	Z4	L4	Q81
5107	Z4	L4	Q82
5108	Z4	L4	Q83
5109	Z4	L4	Q84
5110	Z4	L4	Q85
5111	Z4	L4	Q86
5112	Z4	L4	Q87
5113	Z4	L4	Q88
5114	Z4	L4	Q89
5115	Z4	L4	Q90
5116	Z4	L4	Q91
5117	Z4	L4	Q92
5118	Z4	L4	Q93
5119	Z4	L4	Q94
5120	Z4	L4	Q95
5121	Z4	L4	Q96
5122	Z4	L4	Q97
5123	Z4	L4	Q98
5124	Z4	L4	Q99
5125	Z4	L4	Q100
5126	Z4	L4	Q101
5127	Z4	L4	Q102
5128	Z4	L4	Q103
5129	Z4	L5	Q40
5130	Z4	L5	Q41
5131	Z4	L5	Q42

5132	Z4	L5	Q43
5133	Z4	L5	Q44
5134	Z4	L5	Q45
5135	Z4	L5	Q46
5136	Z4	L5	Q47
5137	Z4	L5	Q48
5138	Z4	L5	Q49
5139	Z4	L5	Q50
5140	Z4	L5	Q51
5141	Z4	L5	Q52
5142	Z4	L5	Q53
5143	Z4	L5	Q54
5144	Z4	L5	Q55
5145	Z4	L5	Q56
5146	Z4	L5	Q57
5147	Z4	L5	Q58
5148	Z4	L5	Q59
5149	Z4	L5	Q60
5150	Z4	L5	Q61
5151	Z4	L5	Q62
5152	Z4	L5	Q63
5153	Z4	L5	Q64
5154	Z4	L5	Q65
5155	Z4	L5	Q66
5156	Z4	L5	Q67
5157	Z4	L5	Q68
5158	Z4	L5	Q69
5159	Z4	L5	Q70
5160	Z4	L5	Q71
5161	Z4	L5	Q72
5162	Z4	L5	Q73
5163	Z4	L5	Q74
5164	Z4	L5	Q75
5165	Z4	L5	Q76
5166	Z4	L5	Q77
5167	Z4	L5	Q78
5168	Z4	L5	Q79
5169	Z4	L5	Q80
5170	Z4	L5	Q81
5171	Z4	L5	Q82
5172	Z4	L5	Q83
5173	Z4	L5	Q84
5174	Z4	L5	Q85
5175	Z4	L5	Q86
5176	Z4	L5	Q87
5177	Z4	L5	Q88
5178	Z4	L5	Q89
5179	Z4	L5	Q90
5180	Z4	L5	Q91
5181	Z4	L5	Q92
5182	Z4	L5	Q93
5183	Z4	L5	Q94
5184	Z4	L5	Q95
5185	Z4	L5	Q96
5186	Z4	L5	Q97
5187	Z4	L5	Q98
5188	Z4	L5	Q99
5189	Z4	L5	Q100
5190	Z4	L5	Q101
5191	Z4	L5	Q102
5192	Z4	L5	Q103
5193	Z4	L6	Q40
5194	Z4	L6	Q41
5195	Z4	L6	Q42
5196	Z4	L6	Q43
5197	Z4	L6	Q44
5198	Z4	L6	Q45

[Table 1-32]

5199	Z4	L6	Q46
5200	Z4	L6	Q47
5201	Z4	L6	Q48
5202	Z4	L6	Q49
5203	Z4	L6	Q50
5204	Z4	L6	Q51
5205	Z4	L6	Q52
5206	Z4	L6	Q53
5207	Z4	L6	Q54
5208	Z4	L6	Q55
5209	Z4	L6	Q56
5210	Z4	L6	Q57
5211	Z4	L6	Q58
5212	Z4	L6	Q59
5213	Z4	L6	Q60
5214	Z4	L6	Q61
5215	Z4	L6	Q62
5216	Z4	L6	Q63
5217	Z4	L6	Q64
5218	Z4	L6	Q65
5219	Z4	L6	Q66
5220	Z4	L6	Q67
5221	Z4	L6	Q68
5222	Z4	L6	Q69
5223	Z4	L6	Q70
5224	Z4	L6	Q71
5225	Z4	L6	Q72
5226	Z4	L6	Q73
5227	Z4	L6	Q74
5228	Z4	L6	Q75
5229	Z4	L6	Q76
5230	Z4	L6	Q77
5231	Z4	L6	Q78
5232	Z4	L6	Q79
5233	Z4	L6	Q80
5234	Z4	L6	Q81
5235	Z4	L6	Q82
5236	Z4	L6	Q83
5237	Z4	L6	Q84
5238	Z4	L6	Q85
5239	Z4	L6	Q86
5240	Z4	L6	Q87
5241	Z4	L6	Q88
5242	Z4	L6	Q89
5243	Z4	L6	Q90
5244	Z4	L6	Q91
5245	Z4	L6	Q92
5246	Z4	L6	Q93
5247	Z4	L6	Q94
5248	Z4	L6	Q95
5249	Z4	L6	Q96
5250	Z4	L6	Q97
5251	Z4	L6	Q98
5252	Z4	L6	Q99
5253	Z4	L6	Q100
5254	Z4	L6	Q101
5255	Z4	L6	Q102
5256	Z4	L6	Q103
5257	Z4	L7	Q40
5258	Z4	L7	Q41
5259	Z4	L7	Q42
5260	Z4	L7	Q43
5261	Z4	L7	Q44
5262	Z4	L7	Q45
5263	Z4	L7	Q46
5264	Z4	L7	Q47
5265	Z4	L7	Q48

5266	Z4	L7	Q49
5267	Z4	L7	Q50
5268	Z4	L7	Q51
5269	Z4	L7	Q52
5270	Z4	L7	Q53
5271	Z4	L7	Q54
5272	Z4	L7	Q55
5273	Z4	L7	Q56
5274	Z4	L7	Q57
5275	Z4	L7	Q58
5276	Z4	L7	Q59
5277	Z4	L7	Q60
5278	Z4	L7	Q61
5279	Z4	L7	Q62
5280	Z4	L7	Q63
5281	Z4	L7	Q64
5282	Z4	L7	Q65
5283	Z4	L7	Q66
5284	Z4	L7	Q67
5285	Z4	L7	Q68
5286	Z4	L7	Q69
5287	Z4	L7	Q70
5288	Z4	L7	Q71
5289	Z4	L7	Q72
5290	Z4	L7	Q73
5291	Z4	L7	Q74
5292	Z4	L7	Q75
5293	Z4	L7	Q76
5294	Z4	L7	Q77
5295	Z4	L7	Q78
5296	Z4	L7	Q79
5297	Z4	L7	Q80
5298	Z4	L7	Q81
5299	Z4	L7	Q82
5300	Z4	L7	Q83
5301	Z4	L7	Q84
5302	Z4	L7	Q85
5303	Z4	L7	Q86
5304	Z4	L7	Q87
5305	Z4	L7	Q88
5306	Z4	L7	Q89
5307	Z4	L7	Q90
5308	Z4	L7	Q91
5309	Z4	L7	Q92
5310	Z4	L7	Q93
5311	Z4	L7	Q94
5312	Z4	L7	Q95
5313	Z4	L7	Q96
5314	Z4	L7	Q97
5315	Z4	L7	Q98
5316	Z4	L7	Q99
5317	Z4	L7	Q100
5318	Z4	L7	Q101
5319	Z4	L7	Q102
5320	Z4	L7	Q103
5321	Z4	L8	Q40
5322	Z4	L8	Q41
5323	Z4	L8	Q42
5324	Z4	L8	Q43
5325	Z4	L8	Q44
5326	Z4	L8	Q45
5327	Z4	L8	Q46
5328	Z4	L8	Q47
5329	Z4	L8	Q48
5330	Z4	L8	Q49
5331	Z4	L8	Q50
5332	Z4	L8	Q51

5333	Z4	L8	Q52
5334	Z4	L8	Q53
5335	Z4	L8	Q54
5336	Z4	L8	Q55
5337	Z4	L8	Q56
5338	Z4	L8	Q57
5339	Z4	L8	Q58
5340	Z4	L8	Q59
5341	Z4	L8	Q60
5342	Z4	L8	Q61
5343	Z4	L8	Q62
5344	Z4	L8	Q63
5345	Z4	L8	Q64
5346	Z4	L8	Q65
5347	Z4	L8	Q66
5348	Z4	L8	Q67
5349	Z4	L8	Q68
5350	Z4	L8	Q69
5351	Z4	L8	Q70
5352	Z4	L8	Q71
5353	Z4	L8	Q72
5354	Z4	L8	Q73
5355	Z4	L8	Q74
5356	Z4	L8	Q75
5357	Z4	L8	Q76
5358	Z4	L8	Q77
5359	Z4	L8	Q78
5360	Z4	L8	Q79
5361	Z4	L8	Q80
5362	Z4	L8	Q81
5363	Z4	L8	Q82
5364	Z4	L8	Q83
5365	Z4	L8	Q84
5366	Z4	L8	Q85
5367	Z4	L8	Q86
5368	Z4	L8	Q87
5369	Z4	L8	Q88
5370	Z4	L8	Q89
5371	Z4	L8	Q90
5372	Z4	L8	Q91
5373	Z4	L8	Q92
5374	Z4	L8	Q93
5375	Z4	L8	Q94
5376	Z4	L8	Q95
5377	Z4	L8	Q96
5378	Z4	L8	Q97
5379	Z4	L8	Q98
5380	Z4	L8	Q99
5381	Z4	L8	Q100
5382	Z4	L8	Q101
5383	Z4	L8	Q102
5384	Z4	L8	Q103
5385	Z4	L9	Q40
5386	Z4	L9	Q41
5387	Z4	L9	Q42
5388	Z4	L9	Q43
5389	Z4	L9	Q44
5390	Z4	L9	Q45
5391	Z4	L9	Q46
5392	Z4	L9	Q47
5393	Z4	L9	Q48
5394	Z4	L9	Q49
5395	Z4	L9	Q50
5396	Z4	L9	Q51
5397	Z4	L9	Q52
5398	Z4	L9	Q53
5399	Z4	L9	Q54

[Table 1-33]

5400	Z4	L9	Q55
5401	Z4	L9	Q56
5402	Z4	L9	Q57
5403	Z4	L9	Q58
5404	Z4	L9	Q59
5405	Z4	L9	Q60
5406	Z4	L9	Q61
5407	Z4	L9	Q62
5408	Z4	L9	Q63
5409	Z4	L9	Q64
5410	Z4	L9	Q65
5411	Z4	L9	Q66
5412	Z4	L9	Q67
5413	Z4	L9	Q68
5414	Z4	L9	Q69
5415	Z4	L9	Q70
5416	Z4	L9	Q71
5417	Z4	L9	Q72
5418	Z4	L9	Q73
5419	Z4	L9	Q74
5420	Z4	L9	Q75
5421	Z4	L9	Q76
5422	Z4	L9	Q77
5423	Z4	L9	Q78
5424	Z4	L9	Q79
5425	Z4	L9	Q80
5426	Z4	L9	Q81
5427	Z4	L9	Q82
5428	Z4	L9	Q83
5429	Z4	L9	Q84
5430	Z4	L9	Q85
5431	Z4	L9	Q86
5432	Z4	L9	Q87
5433	Z4	L9	Q88
5434	Z4	L9	Q89
5435	Z4	L9	Q90
5436	Z4	L9	Q91
5437	Z4	L9	Q92
5438	Z4	L9	Q93
5439	Z4	L9	Q94
5440	Z4	L9	Q95
5441	Z4	L9	Q96
5442	Z4	L9	Q97
5443	Z4	L9	Q98
5444	Z4	L9	Q99
5445	Z4	L9	Q100
5446	Z4	L9	Q101
5447	Z4	L9	Q102
5448	Z4	L9	Q103
5449	Z4	L10	Q40
5450	Z4	L10	Q41
5451	Z4	L10	Q42
5452	Z4	L10	Q43
5453	Z4	L10	Q44
5454	Z4	L10	Q45
5455	Z4	L10	Q46
5456	Z4	L10	Q47
5457	Z4	L10	Q48
5458	Z4	L10	Q49
5459	Z4	L10	Q50
5460	Z4	L10	Q51
5461	Z4	L10	Q52
5462	Z4	L10	Q53
5463	Z4	L10	Q54
5464	Z4	L10	Q55
5465	Z4	L10	Q56
5466	Z4	L10	Q57

5467	Z4	L10	Q58
5468	Z4	L10	Q59
5469	Z4	L10	Q60
5470	Z4	L10	Q61
5471	Z4	L10	Q62
5472	Z4	L10	Q63
5473	Z4	L10	Q64
5474	Z4	L10	Q65
5475	Z4	L10	Q66
5476	Z4	L10	Q67
5477	Z4	L10	Q68
5478	Z4	L10	Q69
5479	Z4	L10	Q70
5480	Z4	L10	Q71
5481	Z4	L10	Q72
5482	Z4	L10	Q73
5483	Z4	L10	Q74
5484	Z4	L10	Q75
5485	Z4	L10	Q76
5486	Z4	L10	Q77
5487	Z4	L10	Q78
5488	Z4	L10	Q79
5489	Z4	L10	Q80
5490	Z4	L10	Q81
5491	Z4	L10	Q82
5492	Z4	L10	Q83
5493	Z4	L10	Q84
5494	Z4	L10	Q85
5495	Z4	L10	Q86
5496	Z4	L10	Q87
5497	Z4	L10	Q88
5498	Z4	L10	Q89
5499	Z4	L10	Q90
5500	Z4	L10	Q91
5501	Z4	L10	Q92
5502	Z4	L10	Q93
5503	Z4	L10	Q94
5504	Z4	L10	Q95
5505	Z4	L10	Q96
5506	Z4	L10	Q97
5507	Z4	L10	Q98
5508	Z4	L10	Q99
5509	Z4	L10	Q100
5510	Z4	L10	Q101
5511	Z4	L10	Q102
5512	Z4	L10	Q103
5513	Z4	L11	Q40
5514	Z4	L11	Q41
5515	Z4	L11	Q42
5516	Z4	L11	Q43
5517	Z4	L11	Q44
5518	Z4	L11	Q45
5519	Z4	L11	Q46
5520	Z4	L11	Q47
5521	Z4	L11	Q48
5522	Z4	L11	Q49
5523	Z4	L11	Q50
5524	Z4	L11	Q51
5525	Z4	L11	Q52
5526	Z4	L11	Q53
5527	Z4	L11	Q54
5528	Z4	L11	Q55
5529	Z4	L11	Q56
5530	Z4	L11	Q57
5531	Z4	L11	Q58
5532	Z4	L11	Q59
5533	Z4	L11	Q60

5534	Z4	L11	Q61
5535	Z4	L11	Q62
5536	Z4	L11	Q63
5537	Z4	L11	Q64
5538	Z4	L11	Q65
5539	Z4	L11	Q66
5540	Z4	L11	Q67
5541	Z4	L11	Q68
5542	Z4	L11	Q69
5543	Z4	L11	Q70
5544	Z4	L11	Q71
5545	Z4	L11	Q72
5546	Z4	L11	Q73
5547	Z4	L11	Q74
5548	Z4	L11	Q75
5549	Z4	L11	Q76
5550	Z4	L11	Q77
5551	Z4	L11	Q78
5552	Z4	L11	Q79
5553	Z4	L11	Q80
5554	Z4	L11	Q81
5555	Z4	L11	Q82
5556	Z4	L11	Q83
5557	Z4	L11	Q84
5558	Z4	L11	Q85
5559	Z4	L11	Q86
5560	Z4	L11	Q87
5561	Z4	L11	Q88
5562	Z4	L11	Q89
5563	Z4	L11	Q90
5564	Z4	L11	Q91
5565	Z4	L11	Q92
5566	Z4	L11	Q93
5567	Z4	L11	Q94
5568	Z4	L11	Q95
5569	Z4	L11	Q96
5570	Z4	L11	Q97
5571	Z4	L11	Q98
5572	Z4	L11	Q99
5573	Z4	L11	Q100
5574	Z4	L11	Q101
5575	Z4	L11	Q102
5576	Z4	L11	Q103
5577	Z4	L12	Q40
5578	Z4	L12	Q41
5579	Z4	L12	Q42
5580	Z4	L12	Q43
5581	Z4	L12	Q44
5582	Z4	L12	Q45
5583	Z4	L12	Q46
5584	Z4	L12	Q47
5585	Z4	L12	Q48
5586	Z4	L12	Q49
5587	Z4	L12	Q50
5588	Z4	L12	Q51
5589	Z4	L12	Q52
5590	Z4	L12	Q53
5591	Z4	L12	Q54
5592	Z4	L12	Q55
5593	Z4	L12	Q56
5594	Z4	L12	Q57
5595	Z4	L12	Q58
5596	Z4	L12	Q59
5597	Z4	L12	Q60
5598	Z4	L12	Q61
5599	Z4	L12	Q62
5600	Z4	L12	Q63

[Table 1-34]

5601	Z4	L12	Q64
5602	Z4	L12	Q65
5603	Z4	L12	Q66
5604	Z4	L12	Q67
5605	Z4	L12	Q68
5606	Z4	L12	Q69
5607	Z4	L12	Q70
5608	Z4	L12	Q71
5609	Z4	L12	Q72
5610	Z4	L12	Q73
5611	Z4	L12	Q74
5612	Z4	L12	Q75
5613	Z4	L12	Q76
5614	Z4	L12	Q77
5615	Z4	L12	Q78
5616	Z4	L12	Q79
5617	Z4	L12	Q80
5618	Z4	L12	Q81
5619	Z4	L12	Q82
5620	Z4	L12	Q83
5621	Z4	L12	Q84
5622	Z4	L12	Q85
5623	Z4	L12	Q86
5624	Z4	L12	Q87
5625	Z4	L12	Q88
5626	Z4	L12	Q89
5627	Z4	L12	Q90
5628	Z4	L12	Q91
5629	Z4	L12	Q92
5630	Z4	L12	Q93
5631	Z4	L12	Q94
5632	Z4	L12	Q95
5633	Z4	L12	Q96
5634	Z4	L12	Q97
5635	Z4	L12	Q98
5636	Z4	L12	Q99
5637	Z4	L12	Q100
5638	Z4	L12	Q101
5639	Z4	L12	Q102
5640	Z4	L12	Q103
5641	Z4	L13	Q40
5642	Z4	L13	Q41
5643	Z4	L13	Q42
5644	Z4	L13	Q43
5645	Z4	L13	Q44
5646	Z4	L13	Q45
5647	Z4	L13	Q46
5648	Z4	L13	Q47
5649	Z4	L13	Q48
5650	Z4	L13	Q49
5651	Z4	L13	Q50
5652	Z4	L13	Q51
5653	Z4	L13	Q52
5654	Z4	L13	Q53
5655	Z4	L13	Q54
5656	Z4	L13	Q55
5657	Z4	L13	Q56
5658	Z4	L13	Q57
5659	Z4	L13	Q58
5660	Z4	L13	Q59
5661	Z4	L13	Q60
5662	Z4	L13	Q61
5663	Z4	L13	Q62
5664	Z4	L13	Q63
5665	Z4	L13	Q64
5666	Z4	L13	Q65
5667	Z4	L13	Q66
5668	Z4	L13	Q67
5669	Z4	L13	Q68
5670	Z4	L13	Q69
5671	Z4	L13	Q70
5672	Z4	L13	Q71
5673	Z4	L13	Q72
5674	Z4	L13	Q73
5675	Z4	L13	Q74
5676	Z4	L13	Q75
5677	Z4	L13	Q76
5678	Z4	L13	Q77
5679	Z4	L13	Q78
5680	Z4	L13	Q79
5681	Z4	L13	Q80
5682	Z4	L13	Q81
5683	Z4	L13	Q82
5684	Z4	L13	Q83
5685	Z4	L13	Q84
5686	Z4	L13	Q85
5687	Z4	L13	Q86
5688	Z4	L13	Q87
5689	Z4	L13	Q88
5690	Z4	L13	Q89
5691	Z4	L13	Q90
5692	Z4	L13	Q91
5693	Z4	L13	Q92
5694	Z4	L13	Q93
5695	Z4	L13	Q94
5696	Z4	L13	Q95
5697	Z4	L13	Q96
5698	Z4	L13	Q97
5699	Z4	L13	Q98
5700	Z4	L13	Q99
5701	Z4	L13	Q100
5702	Z4	L13	Q101
5703	Z4	L13	Q102
5704	Z4	L13	Q103
5705	Z4	L14	Q40
5706	Z4	L14	Q41
5707	Z4	L14	Q42
5708	Z4	L14	Q43
5709	Z4	L14	Q44
5710	Z4	L14	Q45
5711	Z4	L14	Q46
5712	Z4	L14	Q47
5713	Z4	L14	Q48
5714	Z4	L14	Q49
5715	Z4	L14	Q50
5716	Z4	L14	Q51
5717	Z4	L14	Q52
5718	Z4	L14	Q53
5719	Z4	L14	Q54
5720	Z4	L14	Q55
5721	Z4	L14	Q56
5722	Z4	L14	Q57
5723	Z4	L14	Q58
5724	Z4	L14	Q59
5725	Z4	L14	Q60
5726	Z4	L14	Q61
5727	Z4	L14	Q62
5728	Z4	L14	Q63
5729	Z4	L14	Q64
5730	Z4	L14	Q65
5731	Z4	L14	Q66
5732	Z4	L14	Q67
5733	Z4	L14	Q68
5734	Z4	L14	Q69
5735	Z4	L14	Q70
5736	Z4	L14	Q71
5737	Z4	L14	Q72
5738	Z4	L14	Q73
5739	Z4	L14	Q74
5740	Z4	L14	Q75
5741	Z4	L14	Q76
5742	Z4	L14	Q77
5743	Z4	L14	Q78
5744	Z4	L14	Q79
5745	Z4	L14	Q80
5746	Z4	L14	Q81
5747	Z4	L14	Q82
5748	Z4	L14	Q83
5749	Z4	L14	Q84
5750	Z4	L14	Q85
5751	Z4	L14	Q86
5752	Z4	L14	Q87
5753	Z4	L14	Q88
5754	Z4	L14	Q89
5755	Z4	L14	Q90
5756	Z4	L14	Q91
5757	Z4	L14	Q92
5758	Z4	L14	Q93
5759	Z4	L14	Q94
5760	Z4	L14	Q95
5761	Z4	L14	Q96
5762	Z4	L14	Q97
5763	Z4	L14	Q98
5764	Z4	L14	Q99
5765	Z4	L14	Q100
5766	Z4	L14	Q101
5767	Z4	L14	Q102
5768	Z4	L14	Q103
5769	Z1	L15	Q1
5770	Z1	L15	Q2
5771	Z1	L15	Q3
5772	Z1	L15	Q4
5773	Z1	L15	Q5
5774	Z1	L15	Q6
5775	Z1	L15	Q7
5776	Z1	L15	Q8
5777	Z1	L15	Q9
5778	Z1	L15	Q10
5779	Z1	L15	Q11
5780	Z1	L15	Q12
5781	Z1	L15	Q13
5782	Z1	L15	Q14
5783	Z1	L15	Q15
5784	Z1	L15	Q16
5785	Z1	L15	Q17
5786	Z1	L15	Q18
5787	Z1	L15	Q19
5788	Z1	L15	Q20
5789	Z1	L15	Q21
5790	Z1	L15	Q22
5791	Z1	L15	Q23
5792	Z1	L15	Q24
5793	Z1	L15	Q25
5794	Z1	L15	Q26
5795	Z1	L15	Q27
5796	Z1	L15	Q28
5797	Z1	L15	Q29
5798	Z1	L15	Q30
5799	Z1	L15	Q31
5800	Z1	L15	Q32
5801	Z1	L15	Q33

[Table 1-35]

5802	Z1	L15	Q34
5803	Z1	L15	Q35
5804	Z1	L15	Q36
5805	Z1	L15	Q37
5806	Z1	L15	Q38
5807	Z1	L15	Q39
5808	Z1	L15	Q40
5809	Z1	L15	Q41
5810	Z1	L15	Q42
5811	Z1	L15	Q43
5812	Z1	L15	Q44
5813	Z1	L15	Q45
5814	Z1	L15	Q46
5815	Z1	L15	Q47
5816	Z1	L15	Q48
5817	Z1	L15	Q49
5818	Z1	L15	Q50
5819	Z1	L15	Q51
5820	Z1	L15	Q52
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5837	Z1	L15	Q69
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5840	Z1	L15	Q72
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5843	Z1	L15	Q75
5844	Z1	L15	Q76
5845	Z1	L15	Q77
5846	Z1	L15	Q78
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5863	Z1	L15	Q95
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5866	Z1	L15	Q98
5867	Z1	L15	Q99
5868	Z1	L15	Q100

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5870	Z1	L15	Q102
5871	Z1	L15	Q103
5872	Z1	L16	Q1
5873	Z1	L16	Q2
5874	Z1	L16	Q3
5875	Z1	L16	Q4
5876	Z1	L16	Q5
5877	Z1	L16	Q6
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5893	Z1	L16	Q22
5894	Z1	L16	Q23
5895	Z1	L16	Q24
5896	Z1	L16	Q25
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5905	Z1	L16	Q34
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5907	Z1	L16	Q36
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5935	Z1	L16	Q64

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5971	Z1	L16	Q100
5972	Z1	L16	Q101
5973	Z1	L16	Q102
5974	Z1	L16	Q103
5975	Z1	L17	Q1
5976	Z1	L17	Q2
5977	Z1	L17	Q3
5978	Z1	L17	Q4
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5997	Z1	L17	Q23
5998	Z1	L17	Q24
5999	Z1	L17	Q25
6000	Z1	L17	Q26
6001	Z1	L17	Q27
6002	Z1	L17	Q28

[Table 1-36]

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6005	Z1	L17	Q31
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6007	Z1	L17	Q33
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6009	Z1	L17	Q35
6010	Z1	L17	Q36
6011	Z1	L17	Q37
6012	Z1	L17	Q38
6013	Z1	L17	Q39
6014	Z1	L17	Q40
6015	Z1	L17	Q41
6016	Z1	L17	Q42
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6018	Z1	L17	Q44
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6074	Z1	L17	Q100
6075	Z1	L17	Q101
6076	Z1	L17	Q102
6077	Z1	L17	Q103
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6079	Z1	L18	Q2
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6111	Z1	L18	Q34
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6139	Z1	L18	Q62
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6177	Z1	L18	Q100
6178	Z1	L18	Q101
6179	Z1	L18	Q102
6180	Z1	L18	Q103
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6183	Z1	L19	Q3
6184	Z1	L19	Q4
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6196	Z1	L19	Q16
6197	Z1	L19	Q17
6198	Z1	L19	Q18
6199	Z1	L19	Q19
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6203	Z1	L19	Q23

[Table 1-37]

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6219	Z1	L19	Q39
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6221	Z1	L19	Q41
6222	Z1	L19	Q42
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6236	Z1	L19	Q56
6237	Z1	L19	Q57
6238	Z1	L19	Q58
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6280	Z1	L19	Q100
6281	Z1	L19	Q101
6282	Z1	L19	Q102
6283	Z1	L19	Q103
6284	Z1	L20	Q1
6285	Z1	L20	Q2
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6289	Z1	L20	Q6
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6292	Z1	L20	Q9
6293	Z1	L20	Q10
6294	Z1	L20	Q11
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6298	Z1	L20	Q15
6299	Z1	L20	Q16
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6301	Z1	L20	Q18
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6335	Z1	L20	Q52
6336	Z1	L20	Q53
6337	Z1	L20	Q54

6338	Z1	L20	Q55
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6340	Z1	L20	Q57
6341	Z1	L20	Q58
6342	Z1	L20	Q59
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6383	Z1	L20	Q100
6384	Z1	L20	Q101
6385	Z1	L20	Q102
6386	Z1	L20	Q103
6387	Z1	L21	Q1
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6389	Z1	L21	Q3
6390	Z1	L21	Q4
6391	Z1	L21	Q5
6392	Z1	L21	Q6
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6399	Z1	L21	Q13
6400	Z1	L21	Q14
6401	Z1	L21	Q15
6402	Z1	L21	Q16
6403	Z1	L21	Q17
6404	Z1	L21	Q18

[Table 1-38]

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6443	Z1	L21	Q57
6444	Z1	L21	Q58
6445	Z1	L21	Q59
6446	Z1	L21	Q60
6447	Z1	L21	Q61
6448	Z1	L21	Q62
6449	Z1	L21	Q63
6450	Z1	L21	Q64
6451	Z1	L21	Q65
6452	Z1	L21	Q66
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6455	Z1	L21	Q69
6456	Z1	L21	Q70
6457	Z1	L21	Q71
6458	Z1	L21	Q72
6459	Z1	L21	Q73
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6461	Z1	L21	Q75
6462	Z1	L21	Q76
6463	Z1	L21	Q77
6464	Z1	L21	Q78
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6466	Z1	L21	Q80
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6468	Z1	L21	Q82
6469	Z1	L21	Q83
6470	Z1	L21	Q84
6471	Z1	L21	Q85

6472	Z1	L21	Q86
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6474	Z1	L21	Q88
6475	Z1	L21	Q89
6476	Z1	L21	Q90
6477	Z1	L21	Q91
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6492	Z1	L22	Q3
6493	Z1	L22	Q4
6494	Z1	L22	Q5
6495	Z1	L22	Q6
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6535	Z1	L22	Q46
6536	Z1	L22	Q47
6537	Z1	L22	Q48
6538	Z1	L22	Q49

6539	Z1	L22	Q50
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6558	Z1	L22	Q69
6559	Z1	L22	Q70
6560	Z1	L22	Q71
6561	Z1	L22	Q72
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6589	Z1	L22	Q100
6590	Z1	L22	Q101
6591	Z1	L22	Q102
6592	Z1	L22	Q103
6593	Z1	L23	Q1
6594	Z1	L23	Q2
6595	Z1	L23	Q3
6596	Z1	L23	Q4
6597	Z1	L23	Q5
6598	Z1	L23	Q6
6599	Z1	L23	Q7
6600	Z1	L23	Q8
6601	Z1	L23	Q9
6602	Z1	L23	Q10
6603	Z1	L23	Q11
6604	Z1	L23	Q12
6605	Z1	L23	Q13

[Table 1-39]

6606	Z1	L23	Q14
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6608	Z1	L23	Q16
6609	Z1	L23	Q17
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6641	Z1	L23	Q49
6642	Z1	L23	Q50
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6644	Z1	L23	Q52
6645	Z1	L23	Q53
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6649	Z1	L23	Q57
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6672	Z1	L23	Q80

6673	Z1	L23	Q81
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6675	Z1	L23	Q83
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6678	Z1	L23	Q86
6679	Z1	L23	Q87
6680	Z1	L23	Q88
6681	Z1	L23	Q89
6682	Z1	L23	Q90
6683	Z1	L23	Q91
6684	Z1	L23	Q92
6685	Z1	L23	Q93
6686	Z1	L23	Q94
6687	Z1	L23	Q95
6688	Z1	L23	Q96
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6692	Z1	L23	Q100
6693	Z1	L23	Q101
6694	Z1	L23	Q102
6695	Z1	L23	Q103
6696	Z1	L24	Q1
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6698	Z1	L24	Q3
6699	Z1	L24	Q4
6700	Z1	L24	Q5
6701	Z1	L24	Q6
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6703	Z1	L24	Q8
6704	Z1	L24	Q9
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6708	Z1	L24	Q13
6709	Z1	L24	Q14
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6718	Z1	L24	Q23
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6736	Z1	L24	Q41
6737	Z1	L24	Q42
6738	Z1	L24	Q43
6739	Z1	L24	Q44

6740	Z1	L24	Q45
6741	Z1	L24	Q46
6742	Z1	L24	Q47
6743	Z1	L24	Q48
6744	Z1	L24	Q49
6745	Z1	L24	Q50
6746	Z1	L24	Q51
6747	Z1	L24	Q52
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6752	Z1	L24	Q57
6753	Z1	L24	Q58
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6764	Z1	L24	Q69
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6768	Z1	L24	Q73
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6771	Z1	L24	Q76
6772	Z1	L24	Q77
6773	Z1	L24	Q78
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6787	Z1	L24	Q92
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6796	Z1	L24	Q101
6797	Z1	L24	Q102
6798	Z1	L24	Q103
6799	Z1	L25	Q1
6800	Z1	L25	Q2
6801	Z1	L25	Q3
6802	Z1	L25	Q4
6803	Z1	L25	Q5
6804	Z1	L25	Q6
6805	Z1	L25	Q7
6806	Z1	L25	Q8

[Table 1-40]

6807	Z1	L25	Q9
6808	Z1	L25	Q10
6809	Z1	L25	Q11
6810	Z1	L25	Q12
6811	Z1	L25	Q13
6812	Z1	L25	Q14
6813	Z1	L25	Q15
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6831	Z1	L25	Q33
6832	Z1	L25	Q34
6833	Z1	L25	Q35
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6835	Z1	L25	Q37
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6837	Z1	L25	Q39
6838	Z1	L25	Q40
6839	Z1	L25	Q41
6840	Z1	L25	Q42
6841	Z1	L25	Q43
6842	Z1	L25	Q44
6843	Z1	L25	Q45
6844	Z1	L25	Q46
6845	Z1	L25	Q47
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6847	Z1	L25	Q49
6848	Z1	L25	Q50
6849	Z1	L25	Q51
6850	Z1	L25	Q52
6851	Z1	L25	Q53
6852	Z1	L25	Q54
6853	Z1	L25	Q55
6854	Z1	L25	Q56
6855	Z1	L25	Q57
6856	Z1	L25	Q58
6857	Z1	L25	Q59
6858	Z1	L25	Q60
6859	Z1	L25	Q61
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6867	Z1	L25	Q69
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6873	Z1	L25	Q75

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6877	Z1	L25	Q79
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6880	Z1	L25	Q82
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6882	Z1	L25	Q84
6883	Z1	L25	Q85
6884	Z1	L25	Q86
6885	Z1	L25	Q87
6886	Z1	L25	Q88
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6896	Z1	L25	Q98
6897	Z1	L25	Q99
6898	Z1	L25	Q100
6899	Z1	L25	Q101
6900	Z1	L25	Q102
6901	Z1	L25	Q103
6902	Z1	L26	Q1
6903	Z1	L26	Q2
6904	Z1	L26	Q3
6905	Z1	L26	Q4
6906	Z1	L26	Q5
6907	Z1	L26	Q6
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6937	Z1	L26	Q36
6938	Z1	L26	Q37
6939	Z1	L26	Q38
6940	Z1	L26	Q39

6941	Z1	L26	Q40
6942	Z1	L26	Q41
6943	Z1	L26	Q42
6944	Z1	L26	Q43
6945	Z1	L26	Q44
6946	Z1	L26	Q45
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6998	Z1	L26	Q97
6999	Z1	L26	Q98
7000	Z1	L26	Q99
7001	Z1	L26	Q100
7002	Z1	L26	Q101
7003	Z1	L26	Q102
7004	Z1	L26	Q103
7005	Z1	L27	Q1
7006	Z1	L27	Q2
7007	Z1	L27	Q3

[Table 1-41]

7008	Z1	L27	Q4
7009	Z1	L27	Q5
7010	Z1	L27	Q6
7011	Z1	L27	Q7
7012	Z1	L27	Q8
7013	Z1	L27	Q9
7014	Z1	L27	Q10
7015	Z1	L27	Q11
7016	Z1	L27	Q12
7017	Z1	L27	Q13
7018	Z1	L27	Q14
7019	Z1	L27	Q15
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7022	Z1	L27	Q18
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7053	Z1	L27	Q49
7054	Z1	L27	Q50
7055	Z1	L27	Q51
7056	Z1	L27	Q52
7057	Z1	L27	Q53
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7059	Z1	L27	Q55
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7062	Z1	L27	Q58
7063	Z1	L27	Q59
7064	Z1	L27	Q60
7065	Z1	L27	Q61
7066	Z1	L27	Q62
7067	Z1	L27	Q63
7068	Z1	L27	Q64
7069	Z1	L27	Q65
7070	Z1	L27	Q66
7071	Z1	L27	Q67
7072	Z1	L27	Q68
7073	Z1	L27	Q69
7074	Z1	L27	Q70

7075	Z1	L27	Q71
7076	Z1	L27	Q72
7077	Z1	L27	Q73
7078	Z1	L27	Q74
7079	Z1	L27	Q75
7080	Z1	L27	Q76
7081	Z1	L27	Q77
7082	Z1	L27	Q78
7083	Z1	L27	Q79
7084	Z1	L27	Q80
7085	Z1	L27	Q81
7086	Z1	L27	Q82
7087	Z1	L27	Q83
7088	Z1	L27	Q84
7089	Z1	L27	Q85
7090	Z1	L27	Q86
7091	Z1	L27	Q87
7092	Z1	L27	Q88
7093	Z1	L27	Q89
7094	Z1	L27	Q90
7095	Z1	L27	Q91
7096	Z1	L27	Q92
7097	Z1	L27	Q93
7098	Z1	L27	Q94
7099	Z1	L27	Q95
7100	Z1	L27	Q96
7101	Z1	L27	Q97
7102	Z1	L27	Q98
7103	Z1	L27	Q99
7104	Z1	L27	Q100
7105	Z1	L27	Q101
7106	Z1	L27	Q102
7107	Z1	L27	Q103
7108	Z1	L28	Q1
7109	Z1	L28	Q2
7110	Z1	L28	Q3
7111	Z1	L28	Q4
7112	Z1	L28	Q5
7113	Z1	L28	Q6
7114	Z1	L28	Q7
7115	Z1	L28	Q8
7116	Z1	L28	Q9
7117	Z1	L28	Q10
7118	Z1	L28	Q11
7119	Z1	L28	Q12
7120	Z1	L28	Q13
7121	Z1	L28	Q14
7122	Z1	L28	Q15
7123	Z1	L28	Q16
7124	Z1	L28	Q17
7125	Z1	L28	Q18
7126	Z1	L28	Q19
7127	Z1	L28	Q20
7128	Z1	L28	Q21
7129	Z1	L28	Q22
7130	Z1	L28	Q23
7131	Z1	L28	Q24
7132	Z1	L28	Q25
7133	Z1	L28	Q26
7134	Z1	L28	Q27
7135	Z1	L28	Q28
7136	Z1	L28	Q29
7137	Z1	L28	Q30
7138	Z1	L28	Q31
7139	Z1	L28	Q32
7140	Z1	L28	Q33
7141	Z1	L28	Q34

7142	Z1	L28	Q35
7143	Z1	L28	Q36
7144	Z1	L28	Q37
7145	Z1	L28	Q38
7146	Z1	L28	Q39
7147	Z1	L28	Q40
7148	Z1	L28	Q41
7149	Z1	L28	Q42
7150	Z1	L28	Q43
7151	Z1	L28	Q44
7152	Z1	L28	Q45
7153	Z1	L28	Q46
7154	Z1	L28	Q47
7155	Z1	L28	Q48
7156	Z1	L28	Q49
7157	Z1	L28	Q50
7158	Z1	L28	Q51
7159	Z1	L28	Q52
7160	Z1	L28	Q53
7161	Z1	L28	Q54
7162	Z1	L28	Q55
7163	Z1	L28	Q56
7164	Z1	L28	Q57
7165	Z1	L28	Q58
7166	Z1	L28	Q59
7167	Z1	L28	Q60
7168	Z1	L28	Q61
7169	Z1	L28	Q62
7170	Z1	L28	Q63
7171	Z1	L28	Q64
7172	Z1	L28	Q65
7173	Z1	L28	Q66
7174	Z1	L28	Q67
7175	Z1	L28	Q68
7176	Z1	L28	Q69
7177	Z1	L28	Q70
7178	Z1	L28	Q71
7179	Z1	L28	Q72
7180	Z1	L28	Q73
7181	Z1	L28	Q74
7182	Z1	L28	Q75
7183	Z1	L28	Q76
7184	Z1	L28	Q77
7185	Z1	L28	Q78
7186	Z1	L28	Q79
7187	Z1	L28	Q80
7188	Z1	L28	Q81
7189	Z1	L28	Q82
7190	Z1	L28	Q83
7191	Z1	L28	Q84
7192	Z1	L28	Q85
7193	Z1	L28	Q86
7194	Z1	L28	Q87
7195	Z1	L28	Q88
7196	Z1	L28	Q89
7197	Z1	L28	Q90
7198	Z1	L28	Q91
7199	Z1	L28	Q92
7200	Z1	L28	Q93
7201	Z1	L28	Q94
7202	Z1	L28	Q95
7203	Z1	L28	Q96
7204	Z1	L28	Q97
7205	Z1	L28	Q98
7206	Z1	L28	Q99
7207	Z1	L28	Q100
7208	Z1	L28	Q101

[Table 1-42]

7209	Z1	L28	Q102
7210	Z1	L28	Q103
7211	Z1	L29	Q1
7212	Z1	L29	Q2
7213	Z1	L29	Q3
7214	Z1	L29	Q4
7215	Z1	L29	Q5
7216	Z1	L29	Q6
7217	Z1	L29	Q7
7218	Z1	L29	Q8
7219	Z1	L29	Q9
7220	Z1	L29	Q10
7221	Z1	L29	Q11
7222	Z1	L29	Q12
7223	Z1	L29	Q13
7224	Z1	L29	Q14
7225	Z1	L29	Q15
7226	Z1	L29	Q16
7227	Z1	L29	Q17
7228	Z1	L29	Q18
7229	Z1	L29	Q19
7230	Z1	L29	Q20
7231	Z1	L29	Q21
7232	Z1	L29	Q22
7233	Z1	L29	Q23
7234	Z1	L29	Q24
7235	Z1	L29	Q25
7236	Z1	L29	Q26
7237	Z1	L29	Q27
7238	Z1	L29	Q28
7239	Z1	L29	Q29
7240	Z1	L29	Q30
7241	Z1	L29	Q31
7242	Z1	L29	Q32
7243	Z1	L29	Q33
7244	Z1	L29	Q34
7245	Z1	L29	Q35
7246	Z1	L29	Q36
7247	Z1	L29	Q37
7248	Z1	L29	Q38
7249	Z1	L29	Q39
7250	Z1	L29	Q40
7251	Z1	L29	Q41
7252	Z1	L29	Q42
7253	Z1	L29	Q43
7254	Z1	L29	Q44
7255	Z1	L29	Q45
7256	Z1	L29	Q46
7257	Z1	L29	Q47
7258	Z1	L29	Q48
7259	Z1	L29	Q49
7260	Z1	L29	Q50
7261	Z1	L29	Q51
7262	Z1	L29	Q52
7263	Z1	L29	Q53
7264	Z1	L29	Q54
7265	Z1	L29	Q55
7266	Z1	L29	Q56
7267	Z1	L29	Q57
7268	Z1	L29	Q58
7269	Z1	L29	Q59
7270	Z1	L29	Q60
7271	Z1	L29	Q61
7272	Z1	L29	Q62
7273	Z1	L29	Q63
7274	Z1	L29	Q64
7275	Z1	L29	Q65
7276	Z1	L29	Q66
7277	Z1	L29	Q67
7278	Z1	L29	Q68
7279	Z1	L29	Q69
7280	Z1	L29	Q70
7281	Z1	L29	Q71
7282	Z1	L29	Q72
7283	Z1	L29	Q73
7284	Z1	L29	Q74
7285	Z1	L29	Q75
7286	Z1	L29	Q76
7287	Z1	L29	Q77
7288	Z1	L29	Q78
7289	Z1	L29	Q79
7290	Z1	L29	Q80
7291	Z1	L29	Q81
7292	Z1	L29	Q82
7293	Z1	L29	Q83
7294	Z1	L29	Q84
7295	Z1	L29	Q85
7296	Z1	L29	Q86
7297	Z1	L29	Q87
7298	Z1	L29	Q88
7299	Z1	L29	Q89
7300	Z1	L29	Q90
7301	Z1	L29	Q91
7302	Z1	L29	Q92
7303	Z1	L29	Q93
7304	Z1	L29	Q94
7305	Z1	L29	Q95
7306	Z1	L29	Q96
7307	Z1	L29	Q97
7308	Z1	L29	Q98
7309	Z1	L29	Q99
7310	Z1	L29	Q100
7311	Z1	L29	Q101
7312	Z1	L29	Q102
7313	Z1	L29	Q103
7314	Z1	L30	Q1
7315	Z1	L30	Q2
7316	Z1	L30	Q3
7317	Z1	L30	Q4
7318	Z1	L30	Q5
7319	Z1	L30	Q6
7320	Z1	L30	Q7
7321	Z1	L30	Q8
7322	Z1	L30	Q9
7323	Z1	L30	Q10
7324	Z1	L30	Q11
7325	Z1	L30	Q12
7326	Z1	L30	Q13
7327	Z1	L30	Q14
7328	Z1	L30	Q15
7329	Z1	L30	Q16
7330	Z1	L30	Q17
7331	Z1	L30	Q18
7332	Z1	L30	Q19
7333	Z1	L30	Q20
7334	Z1	L30	Q21
7335	Z1	L30	Q22
7336	Z1	L30	Q23
7337	Z1	L30	Q24
7338	Z1	L30	Q25
7339	Z1	L30	Q26
7340	Z1	L30	Q27
7341	Z1	L30	Q28
7342	Z1	L30	Q29
7343	Z1	L30	Q30
7344	Z1	L30	Q31
7345	Z1	L30	Q32
7346	Z1	L30	Q33
7347	Z1	L30	Q34
7348	Z1	L30	Q35
7349	Z1	L30	Q36
7350	Z1	L30	Q37
7351	Z1	L30	Q38
7352	Z1	L30	Q39
7353	Z1	L30	Q40
7354	Z1	L30	Q41
7355	Z1	L30	Q42
7356	Z1	L30	Q43
7357	Z1	L30	Q44
7358	Z1	L30	Q45
7359	Z1	L30	Q46
7360	Z1	L30	Q47
7361	Z1	L30	Q48
7362	Z1	L30	Q49
7363	Z1	L30	Q50
7364	Z1	L30	Q51
7365	Z1	L30	Q52
7366	Z1	L30	Q53
7367	Z1	L30	Q54
7368	Z1	L30	Q55
7369	Z1	L30	Q56
7370	Z1	L30	Q57
7371	Z1	L30	Q58
7372	Z1	L30	Q59
7373	Z1	L30	Q60
7374	Z1	L30	Q61
7375	Z1	L30	Q62
7376	Z1	L30	Q63
7377	Z1	L30	Q64
7378	Z1	L30	Q65
7379	Z1	L30	Q66
7380	Z1	L30	Q67
7381	Z1	L30	Q68
7382	Z1	L30	Q69
7383	Z1	L30	Q70
7384	Z1	L30	Q71
7385	Z1	L30	Q72
7386	Z1	L30	Q73
7387	Z1	L30	Q74
7388	Z1	L30	Q75
7389	Z1	L30	Q76
7390	Z1	L30	Q77
7391	Z1	L30	Q78
7392	Z1	L30	Q79
7393	Z1	L30	Q80
7394	Z1	L30	Q81
7395	Z1	L30	Q82
7396	Z1	L30	Q83
7397	Z1	L30	Q84
7398	Z1	L30	Q85
7399	Z1	L30	Q86
7400	Z1	L30	Q87
7401	Z1	L30	Q88
7402	Z1	L30	Q89
7403	Z1	L30	Q90
7404	Z1	L30	Q91
7405	Z1	L30	Q92
7406	Z1	L30	Q93
7407	Z1	L30	Q94
7408	Z1	L30	Q95
7409	Z1	L30	Q96

[Table 1-43]

7410	Z1	L30	Q97
7411	Z1	L30	Q98
7412	Z1	L30	Q99
7413	Z1	L30	Q100
7414	Z1	L30	Q101
7415	Z1	L30	Q102
7416	Z1	L30	Q103
7417	Z1	L31	Q1
7418	Z1	L31	Q2
7419	Z1	L31	Q3
7420	Z1	L31	Q4
7421	Z1	L31	Q5
7422	Z1	L31	Q6
7423	Z1	L31	Q7
7424	Z1	L31	Q8
7425	Z1	L31	Q9
7426	Z1	L31	Q10
7427	Z1	L31	Q11
7428	Z1	L31	Q12
7429	Z1	L31	Q13
7430	Z1	L31	Q14
7431	Z1	L31	Q15
7432	Z1	L31	Q16
7433	Z1	L31	Q17
7434	Z1	L31	Q18
7435	Z1	L31	Q19
7436	Z1	L31	Q20
7437	Z1	L31	Q21
7438	Z1	L31	Q22
7439	Z1	L31	Q23
7440	Z1	L31	Q24
7441	Z1	L31	Q25
7442	Z1	L31	Q26
7443	Z1	L31	Q27
7444	Z1	L31	Q28
7445	Z1	L31	Q29
7446	Z1	L31	Q30
7447	Z1	L31	Q31
7448	Z1	L31	Q32
7449	Z1	L31	Q33
7450	Z1	L31	Q34
7451	Z1	L31	Q35
7452	Z1	L31	Q36
7453	Z1	L31	Q37
7454	Z1	L31	Q38
7455	Z1	L31	Q39
7456	Z1	L31	Q40
7457	Z1	L31	Q41
7458	Z1	L31	Q42
7459	Z1	L31	Q43
7460	Z1	L31	Q44
7461	Z1	L31	Q45
7462	Z1	L31	Q46
7463	Z1	L31	Q47
7464	Z1	L31	Q48
7465	Z1	L31	Q49
7466	Z1	L31	Q50
7467	Z1	L31	Q51
7468	Z1	L31	Q52
7469	Z1	L31	Q53
7470	Z1	L31	Q54
7471	Z1	L31	Q55
7472	Z1	L31	Q56
7473	Z1	L31	Q57
7474	Z1	L31	Q58
7475	Z1	L31	Q59
7476	Z1	L31	Q60

7477	Z1	L31	Q61
7478	Z1	L31	Q62
7479	Z1	L31	Q63
7480	Z1	L31	Q64
7481	Z1	L31	Q65
7482	Z1	L31	Q66
7483	Z1	L31	Q67
7484	Z1	L31	Q68
7485	Z1	L31	Q69
7486	Z1	L31	Q70
7487	Z1	L31	Q71
7488	Z1	L31	Q72
7489	Z1	L31	Q73
7490	Z1	L31	Q74
7491	Z1	L31	Q75
7492	Z1	L31	Q76
7493	Z1	L31	Q77
7494	Z1	L31	Q78
7495	Z1	L31	Q79
7496	Z1	L31	Q80
7497	Z1	L31	Q81
7498	Z1	L31	Q82
7499	Z1	L31	Q83
7500	Z1	L31	Q84
7501	Z1	L31	Q85
7502	Z1	L31	Q86
7503	Z1	L31	Q87
7504	Z1	L31	Q88
7505	Z1	L31	Q89
7506	Z1	L31	Q90
7507	Z1	L31	Q91
7508	Z1	L31	Q92
7509	Z1	L31	Q93
7510	Z1	L31	Q94
7511	Z1	L31	Q95
7512	Z1	L31	Q96
7513	Z1	L31	Q97
7514	Z1	L31	Q98
7515	Z1	L31	Q99
7516	Z1	L31	Q100
7517	Z1	L31	Q101
7518	Z1	L31	Q102
7519	Z1	L31	Q103
7520	Z1	L32	Q1
7521	Z1	L32	Q2
7522	Z1	L32	Q3
7523	Z1	L32	Q4
7524	Z1	L32	Q5
7525	Z1	L32	Q6
7526	Z1	L32	Q7
7527	Z1	L32	Q8
7528	Z1	L32	Q9
7529	Z1	L32	Q10
7530	Z1	L32	Q11
7531	Z1	L32	Q12
7532	Z1	L32	Q13
7533	Z1	L32	Q14
7534	Z1	L32	Q15
7535	Z1	L32	Q16
7536	Z1	L32	Q17
7537	Z1	L32	Q18
7538	Z1	L32	Q19
7539	Z1	L32	Q20
7540	Z1	L32	Q21
7541	Z1	L32	Q22
7542	Z1	L32	Q23
7543	Z1	L32	Q24

7544	Z1	L32	Q25
7545	Z1	L32	Q26
7546	Z1	L32	Q27
7547	Z1	L32	Q28
7548	Z1	L32	Q29
7549	Z1	L32	Q30
7550	Z1	L32	Q31
7551	Z1	L32	Q32
7552	Z1	L32	Q33
7553	Z1	L32	Q34
7554	Z1	L32	Q35
7555	Z1	L32	Q36
7556	Z1	L32	Q37
7557	Z1	L32	Q38
7558	Z1	L32	Q39
7559	Z1	L32	Q40
7560	Z1	L32	Q41
7561	Z1	L32	Q42
7562	Z1	L32	Q43
7563	Z1	L32	Q44
7564	Z1	L32	Q45
7565	Z1	L32	Q46
7566	Z1	L32	Q47
7567	Z1	L32	Q48
7568	Z1	L32	Q49
7569	Z1	L32	Q50
7570	Z1	L32	Q51
7571	Z1	L32	Q52
7572	Z1	L32	Q53
7573	Z1	L32	Q54
7574	Z1	L32	Q55
7575	Z1	L32	Q56
7576	Z1	L32	Q57
7577	Z1	L32	Q58
7578	Z1	L32	Q59
7579	Z1	L32	Q60
7580	Z1	L32	Q61
7581	Z1	L32	Q62
7582	Z1	L32	Q63
7583	Z1	L32	Q64
7584	Z1	L32	Q65
7585	Z1	L32	Q66
7586	Z1	L32	Q67
7587	Z1	L32	Q68
7588	Z1	L32	Q69
7589	Z1	L32	Q70
7590	Z1	L32	Q71
7591	Z1	L32	Q72
7592	Z1	L32	Q73
7593	Z1	L32	Q74
7594	Z1	L32	Q75
7595	Z1	L32	Q76
7596	Z1	L32	Q77
7597	Z1	L32	Q78
7598	Z1	L32	Q79
7599	Z1	L32	Q80
7600	Z1	L32	Q81
7601	Z1	L32	Q82
7602	Z1	L32	Q83
7603	Z1	L32	Q84
7604	Z1	L32	Q85
7605	Z1	L32	Q86
7606	Z1	L32	Q87
7607	Z1	L32	Q88
7608	Z1	L32	Q89
7609	Z1	L32	Q90
7610	Z1	L32	Q91

[Table 1-44]

7611	Z1	L32	Q92
7612	Z1	L32	Q93
7613	Z1	L32	Q94
7614	Z1	L32	Q95
7615	Z1	L32	Q96
7616	Z1	L32	Q97
7617	Z1	L32	Q98
7618	Z1	L32	Q99
7619	Z1	L32	Q100
7620	Z1	L32	Q101
7621	Z1	L32	Q102
7622	Z1	L32	Q103
7623	Z1	L33	Q1
7624	Z1	L33	Q2
7625	Z1	L33	Q3
7626	Z1	L33	Q4
7627	Z1	L33	Q5
7628	Z1	L33	Q6
7629	Z1	L33	Q7
7630	Z1	L33	Q8
7631	Z1	L33	Q9
7632	Z1	L33	Q10
7633	Z1	L33	Q11
7634	Z1	L33	Q12
7635	Z1	L33	Q13
7636	Z1	L33	Q14
7637	Z1	L33	Q15
7638	Z1	L33	Q16
7639	Z1	L33	Q17
7640	Z1	L33	Q18
7641	Z1	L33	Q19
7642	Z1	L33	Q20
7643	Z1	L33	Q21
7644	Z1	L33	Q22
7645	Z1	L33	Q23
7646	Z1	L33	Q24
7647	Z1	L33	Q25
7648	Z1	L33	Q26
7649	Z1	L33	Q27
7650	Z1	L33	Q28
7651	Z1	L33	Q29
7652	Z1	L33	Q30
7653	Z1	L33	Q31
7654	Z1	L33	Q32
7655	Z1	L33	Q33
7656	Z1	L33	Q34
7657	Z1	L33	Q35
7658	Z1	L33	Q36
7659	Z1	L33	Q37
7660	Z1	L33	Q38
7661	Z1	L33	Q39
7662	Z1	L33	Q40
7663	Z1	L33	Q41
7664	Z1	L33	Q42
7665	Z1	L33	Q43
7666	Z1	L33	Q44
7667	Z1	L33	Q45
7668	Z1	L33	Q46
7669	Z1	L33	Q47
7670	Z1	L33	Q48
7671	Z1	L33	Q49
7672	Z1	L33	Q50
7673	Z1	L33	Q51
7674	Z1	L33	Q52
7675	Z1	L33	Q53
7676	Z1	L33	Q54
7677	Z1	L33	Q55

7678	Z1	L33	Q56
7679	Z1	L33	Q57
7680	Z1	L33	Q58
7681	Z1	L33	Q59
7682	Z1	L33	Q60
7683	Z1	L33	Q61
7684	Z1	L33	Q62
7685	Z1	L33	Q63
7686	Z1	L33	Q64
7687	Z1	L33	Q65
7688	Z1	L33	Q66
7689	Z1	L33	Q67
7690	Z1	L33	Q68
7691	Z1	L33	Q69
7692	Z1	L33	Q70
7693	Z1	L33	Q71
7694	Z1	L33	Q72
7695	Z1	L33	Q73
7696	Z1	L33	Q74
7697	Z1	L33	Q75
7698	Z1	L33	Q76
7699	Z1	L33	Q77
7700	Z1	L33	Q78
7701	Z1	L33	Q79
7702	Z1	L33	Q80
7703	Z1	L33	Q81
7704	Z1	L33	Q82
7705	Z1	L33	Q83
7706	Z1	L33	Q84
7707	Z1	L33	Q85
7708	Z1	L33	Q86
7709	Z1	L33	Q87
7710	Z1	L33	Q88
7711	Z1	L33	Q89
7712	Z1	L33	Q90
7713	Z1	L33	Q91
7714	Z1	L33	Q92
7715	Z1	L33	Q93
7716	Z1	L33	Q94
7717	Z1	L33	Q95
7718	Z1	L33	Q96
7719	Z1	L33	Q97
7720	Z1	L33	Q98
7721	Z1	L33	Q99
7722	Z1	L33	Q100
7723	Z1	L33	Q101
7724	Z1	L33	Q102
7725	Z1	L33	Q103
7726	Z1	L34	Q1
7727	Z1	L34	Q2
7728	Z1	L34	Q3
7729	Z1	L34	Q4
7730	Z1	L34	Q5
7731	Z1	L34	Q6
7732	Z1	L34	Q7
7733	Z1	L34	Q8
7734	Z1	L34	Q9
7735	Z1	L34	Q10
7736	Z1	L34	Q11
7737	Z1	L34	Q12
7738	Z1	L34	Q13
7739	Z1	L34	Q14
7740	Z1	L34	Q15
7741	Z1	L34	Q16
7742	Z1	L34	Q17
7743	Z1	L34	Q18
7744	Z1	L34	Q19

7745	Z1	L34	Q20
7746	Z1	L34	Q21
7747	Z1	L34	Q22
7748	Z1	L34	Q23
7749	Z1	L34	Q24
7750	Z1	L34	Q25
7751	Z1	L34	Q26
7752	Z1	L34	Q27
7753	Z1	L34	Q28
7754	Z1	L34	Q29
7755	Z1	L34	Q30
7756	Z1	L34	Q31
7757	Z1	L34	Q32
7758	Z1	L34	Q33
7759	Z1	L34	Q34
7760	Z1	L34	Q35
7761	Z1	L34	Q36
7762	Z1	L34	Q37
7763	Z1	L34	Q38
7764	Z1	L34	Q39
7765	Z1	L34	Q40
7766	Z1	L34	Q41
7767	Z1	L34	Q42
7768	Z1	L34	Q43
7769	Z1	L34	Q44
7770	Z1	L34	Q45
7771	Z1	L34	Q46
7772	Z1	L34	Q47
7773	Z1	L34	Q48
7774	Z1	L34	Q49
7775	Z1	L34	Q50
7776	Z1	L34	Q51
7777	Z1	L34	Q52
7778	Z1	L34	Q53
7779	Z1	L34	Q54
7780	Z1	L34	Q55
7781	Z1	L34	Q56
7782	Z1	L34	Q57
7783	Z1	L34	Q58
7784	Z1	L34	Q59
7785	Z1	L34	Q60
7786	Z1	L34	Q61
7787	Z1	L34	Q62
7788	Z1	L34	Q63
7789	Z1	L34	Q64
7790	Z1	L34	Q65
7791	Z1	L34	Q66
7792	Z1	L34	Q67
7793	Z1	L34	Q68
7794	Z1	L34	Q69
7795	Z1	L34	Q70
7796	Z1	L34	Q71
7797	Z1	L34	Q72
7798	Z1	L34	Q73
7799	Z1	L34	Q74
7800	Z1	L34	Q75
7801	Z1	L34	Q76
7802	Z1	L34	Q77
7803	Z1	L34	Q78
7804	Z1	L34	Q79
7805	Z1	L34	Q80
7806	Z1	L34	Q81
7807	Z1	L34	Q82
7808	Z1	L34	Q83
7809	Z1	L34	Q84
7810	Z1	L34	Q85
7811	Z1	L34	Q86

[Table 1-45]

7812	Z1	L34	Q87
7813	Z1	L34	Q88
7814	Z1	L34	Q89
7815	Z1	L34	Q90
7816	Z1	L34	Q91
7817	Z1	L34	Q92
7818	Z1	L34	Q93
7819	Z1	L34	Q94
7820	Z1	L34	Q95
7821	Z1	L34	Q96
7822	Z1	L34	Q97
7823	Z1	L34	Q98
7824	Z1	L34	Q99
7825	Z1	L34	Q100
7826	Z1	L34	Q101
7827	Z1	L34	Q102
7828	Z1	L34	Q103
7829	Z1	L35	Q1
7830	Z1	L35	Q2
7831	Z1	L35	Q3
7832	Z1	L35	Q4
7833	Z1	L35	Q5
7834	Z1	L35	Q6
7835	Z1	L35	Q7
7836	Z1	L35	Q8
7837	Z1	L35	Q9
7838	Z1	L35	Q10
7839	Z1	L35	Q11
7840	Z1	L35	Q12
7841	Z1	L35	Q13
7842	Z1	L35	Q14
7843	Z1	L35	Q15
7844	Z1	L35	Q16
7845	Z1	L35	Q17
7846	Z1	L35	Q18
7847	Z1	L35	Q19
7848	Z1	L35	Q20
7849	Z1	L35	Q21
7850	Z1	L35	Q22
7851	Z1	L35	Q23
7852	Z1	L35	Q24
7853	Z1	L35	Q25
7854	Z1	L35	Q26
7855	Z1	L35	Q27
7856	Z1	L35	Q28
7857	Z1	L35	Q29
7858	Z1	L35	Q30
7859	Z1	L35	Q31
7860	Z1	L35	Q32
7861	Z1	L35	Q33
7862	Z1	L35	Q34
7863	Z1	L35	Q35
7864	Z1	L35	Q36
7865	Z1	L35	Q37
7866	Z1	L35	Q38
7867	Z1	L35	Q39
7868	Z1	L35	Q40
7869	Z1	L35	Q41
7870	Z1	L35	Q42
7871	Z1	L35	Q43
7872	Z1	L35	Q44
7873	Z1	L35	Q45
7874	Z1	L35	Q46
7875	Z1	L35	Q47
7876	Z1	L35	Q48
7877	Z1	L35	Q49
7878	Z1	L35	Q50

7879	Z1	L35	Q51
7880	Z1	L35	Q52
7881	Z1	L35	Q53
7882	Z1	L35	Q54
7883	Z1	L35	Q55
7884	Z1	L35	Q56
7885	Z1	L35	Q57
7886	Z1	L35	Q58
7887	Z1	L35	Q59
7888	Z1	L35	Q60
7889	Z1	L35	Q61
7890	Z1	L35	Q62
7891	Z1	L35	Q63
7892	Z1	L35	Q64
7893	Z1	L35	Q65
7894	Z1	L35	Q66
7895	Z1	L35	Q67
7896	Z1	L35	Q68
7897	Z1	L35	Q69
7898	Z1	L35	Q70
7899	Z1	L35	Q71
7900	Z1	L35	Q72
7901	Z1	L35	Q73
7902	Z1	L35	Q74
7903	Z1	L35	Q75
7904	Z1	L35	Q76
7905	Z1	L35	Q77
7906	Z1	L35	Q78
7907	Z1	L35	Q79
7908	Z1	L35	Q80
7909	Z1	L35	Q81
7910	Z1	L35	Q82
7911	Z1	L35	Q83
7912	Z1	L35	Q84
7913	Z1	L35	Q85
7914	Z1	L35	Q86
7915	Z1	L35	Q87
7916	Z1	L35	Q88
7917	Z1	L35	Q89
7918	Z1	L35	Q90
7919	Z1	L35	Q91
7920	Z1	L35	Q92
7921	Z1	L35	Q93
7922	Z1	L35	Q94
7923	Z1	L35	Q95
7924	Z1	L35	Q96
7925	Z1	L35	Q97
7926	Z1	L35	Q98
7927	Z1	L35	Q99
7928	Z1	L35	Q100
7929	Z1	L35	Q101
7930	Z1	L35	Q102
7931	Z1	L35	Q103
7932	Z1	L36	Q1
7933	Z1	L36	Q2
7934	Z1	L36	Q3
7935	Z1	L36	Q4
7936	Z1	L36	Q5
7937	Z1	L36	Q6
7938	Z1	L36	Q7
7939	Z1	L36	Q8
7940	Z1	L36	Q9
7941	Z1	L36	Q10
7942	Z1	L36	Q11
7943	Z1	L36	Q12
7944	Z1	L36	Q13
7945	Z1	L36	Q14

7946	Z1	L36	Q15
7947	Z1	L36	Q16
7948	Z1	L36	Q17
7949	Z1	L36	Q18
7950	Z1	L36	Q19
7951	Z1	L36	Q20
7952	Z1	L36	Q21
7953	Z1	L36	Q22
7954	Z1	L36	Q23
7955	Z1	L36	Q24
7956	Z1	L36	Q25
7957	Z1	L36	Q26
7958	Z1	L36	Q27
7959	Z1	L36	Q28
7960	Z1	L36	Q29
7961	Z1	L36	Q30
7962	Z1	L36	Q31
7963	Z1	L36	Q32
7964	Z1	L36	Q33
7965	Z1	L36	Q34
7966	Z1	L36	Q35
7967	Z1	L36	Q36
7968	Z1	L36	Q37
7969	Z1	L36	Q38
7970	Z1	L36	Q39
7971	Z1	L36	Q40
7972	Z1	L36	Q41
7973	Z1	L36	Q42
7974	Z1	L36	Q43
7975	Z1	L36	Q44
7976	Z1	L36	Q45
7977	Z1	L36	Q46
7978	Z1	L36	Q47
7979	Z1	L36	Q48
7980	Z1	L36	Q49
7981	Z1	L36	Q50
7982	Z1	L36	Q51
7983	Z1	L36	Q52
7984	Z1	L36	Q53
7985	Z1	L36	Q54
7986	Z1	L36	Q55
7987	Z1	L36	Q56
7988	Z1	L36	Q57
7989	Z1	L36	Q58
7990	Z1	L36	Q59
7991	Z1	L36	Q60
7992	Z1	L36	Q61
7993	Z1	L36	Q62
7994	Z1	L36	Q63
7995	Z1	L36	Q64
7996	Z1	L36	Q65
7997	Z1	L36	Q66
7998	Z1	L36	Q67
7999	Z1	L36	Q68
8000	Z1	L36	Q69
8001	Z1	L36	Q70
8002	Z1	L36	Q71
8003	Z1	L36	Q72
8004	Z1	L36	Q73
8005	Z1	L36	Q74
8006	Z1	L36	Q75
8007	Z1	L36	Q76
8008	Z1	L36	Q77
8009	Z1	L36	Q78
8010	Z1	L36	Q79
8011	Z1	L36	Q80
8012	Z1	L36	Q81

[Table 1-46]

8013	Z1	L36	Q82
8014	Z1	L36	Q83
8015	Z1	L36	Q84
8016	Z1	L36	Q85
8017	Z1	L36	Q86
8018	Z1	L36	Q87
8019	Z1	L36	Q88
8020	Z1	L36	Q89
8021	Z1	L36	Q90
8022	Z1	L36	Q91
8023	Z1	L36	Q92
8024	Z1	L36	Q93
8025	Z1	L36	Q94
8026	Z1	L36	Q95
8027	Z1	L36	Q96
8028	Z1	L36	Q97
8029	Z1	L36	Q98
8030	Z1	L36	Q99
8031	Z1	L36	Q100
8032	Z1	L36	Q101
8033	Z1	L36	Q102
8034	Z1	L36	Q103
8035	Z2	L15	Q1
8036	Z2	L15	Q2
8037	Z2	L15	Q3
8038	Z2	L15	Q4
8039	Z2	L15	Q5
8040	Z2	L15	Q6
8041	Z2	L15	Q7
8042	Z2	L15	Q8
8043	Z2	L15	Q9
8044	Z2	L15	Q10
8045	Z2	L15	Q11
8046	Z2	L15	Q12
8047	Z2	L15	Q13
8048	Z2	L15	Q14
8049	Z2	L15	Q15
8050	Z2	L15	Q16
8051	Z2	L15	Q17
8052	Z2	L15	Q18
8053	Z2	L15	Q19
8054	Z2	L15	Q20
8055	Z2	L15	Q21
8056	Z2	L15	Q22
8057	Z2	L15	Q23
8058	Z2	L15	Q24
8059	Z2	L15	Q25
8060	Z2	L15	Q26
8061	Z2	L15	Q27
8062	Z2	L15	Q28
8063	Z2	L15	Q29
8064	Z2	L15	Q30
8065	Z2	L15	Q31
8066	Z2	L15	Q32
8067	Z2	L15	Q33
8068	Z2	L15	Q34
8069	Z2	L15	Q35
8070	Z2	L15	Q36
8071	Z2	L15	Q37
8072	Z2	L15	Q38
8073	Z2	L15	Q39
8074	Z2	L15	Q40
8075	Z2	L15	Q41
8076	Z2	L15	Q42
8077	Z2	L15	Q43
8078	Z2	L15	Q44
8079	Z2	L15	Q45

8080	Z2	L15	Q46
8081	Z2	L15	Q47
8082	Z2	L15	Q48
8083	Z2	L15	Q49
8084	Z2	L15	Q50
8085	Z2	L15	Q51
8086	Z2	L15	Q52
8087	Z2	L15	Q53
8088	Z2	L15	Q54
8089	Z2	L15	Q55
8090	Z2	L15	Q56
8091	Z2	L15	Q57
8092	Z2	L15	Q58
8093	Z2	L15	Q59
8094	Z2	L15	Q60
8095	Z2	L15	Q61
8096	Z2	L15	Q62
8097	Z2	L15	Q63
8098	Z2	L15	Q64
8099	Z2	L15	Q65
8100	Z2	L15	Q66
8101	Z2	L15	Q67
8102	Z2	L15	Q68
8103	Z2	L15	Q69
8104	Z2	L15	Q70
8105	Z2	L15	Q71
8106	Z2	L15	Q72
8107	Z2	L15	Q73
8108	Z2	L15	Q74
8109	Z2	L15	Q75
8110	Z2	L15	Q76
8111	Z2	L15	Q77
8112	Z2	L15	Q78
8113	Z2	L15	Q79
8114	Z2	L15	Q80
8115	Z2	L15	Q81
8116	Z2	L15	Q82
8117	Z2	L15	Q83
8118	Z2	L15	Q84
8119	Z2	L15	Q85
8120	Z2	L15	Q86
8121	Z2	L15	Q87
8122	Z2	L15	Q88
8123	Z2	L15	Q89
8124	Z2	L15	Q90
8125	Z2	L15	Q91
8126	Z2	L15	Q92
8127	Z2	L15	Q93
8128	Z2	L15	Q94
8129	Z2	L15	Q95
8130	Z2	L15	Q96
8131	Z2	L15	Q97
8132	Z2	L15	Q98
8133	Z2	L15	Q99
8134	Z2	L15	Q100
8135	Z2	L15	Q101
8136	Z2	L15	Q102
8137	Z2	L15	Q103
8138	Z2	L16	Q1
8139	Z2	L16	Q2
8140	Z2	L16	Q3
8141	Z2	L16	Q4
8142	Z2	L16	Q5
8143	Z2	L16	Q6
8144	Z2	L16	Q7
8145	Z2	L16	Q8
8146	Z2	L16	Q9

8147	Z2	L16	Q10
8148	Z2	L16	Q11
8149	Z2	L16	Q12
8150	Z2	L16	Q13
8151	Z2	L16	Q14
8152	Z2	L16	Q15
8153	Z2	L16	Q16
8154	Z2	L16	Q17
8155	Z2	L16	Q18
8156	Z2	L16	Q19
8157	Z2	L16	Q20
8158	Z2	L16	Q21
8159	Z2	L16	Q22
8160	Z2	L16	Q23
8161	Z2	L16	Q24
8162	Z2	L16	Q25
8163	Z2	L16	Q26
8164	Z2	L16	Q27
8165	Z2	L16	Q28
8166	Z2	L16	Q29
8167	Z2	L16	Q30
8168	Z2	L16	Q31
8169	Z2	L16	Q32
8170	Z2	L16	Q33
8171	Z2	L16	Q34
8172	Z2	L16	Q35
8173	Z2	L16	Q36
8174	Z2	L16	Q37
8175	Z2	L16	Q38
8176	Z2	L16	Q39
8177	Z2	L16	Q40
8178	Z2	L16	Q41
8179	Z2	L16	Q42
8180	Z2	L16	Q43
8181	Z2	L16	Q44
8182	Z2	L16	Q45
8183	Z2	L16	Q46
8184	Z2	L16	Q47
8185	Z2	L16	Q48
8186	Z2	L16	Q49
8187	Z2	L16	Q50
8188	Z2	L16	Q51
8189	Z2	L16	Q52
8190	Z2	L16	Q53
8191	Z2	L16	Q54
8192	Z2	L16	Q55
8193	Z2	L16	Q56
8194	Z2	L16	Q57
8195	Z2	L16	Q58
8196	Z2	L16	Q59
8197	Z2	L16	Q60
8198	Z2	L16	Q61
8199	Z2	L16	Q62
8200	Z2	L16	Q63
8201	Z2	L16	Q64
8202	Z2	L16	Q65
8203	Z2	L16	Q66
8204	Z2	L16	Q67
8205	Z2	L16	Q68
8206	Z2	L16	Q69
8207	Z2	L16	Q70
8208	Z2	L16	Q71
8209	Z2	L16	Q72
8210	Z2	L16	Q73
8211	Z2	L16	Q74
8212	Z2	L16	Q75
8213	Z2	L16	Q76

[Table 1-47]

8214	Z2	L16	Q77
8215	Z2	L16	Q78
8216	Z2	L16	Q79
8217	Z2	L16	Q80
8218	Z2	L16	Q81
8219	Z2	L16	Q82
8220	Z2	L16	Q83
8221	Z2	L16	Q84
8222	Z2	L16	Q85
8223	Z2	L16	Q86
8224	Z2	L16	Q87
8225	Z2	L16	Q88
8226	Z2	L16	Q89
8227	Z2	L16	Q90
8228	Z2	L16	Q91
8229	Z2	L16	Q92
8230	Z2	L16	Q93
8231	Z2	L16	Q94
8232	Z2	L16	Q95
8233	Z2	L16	Q96
8234	Z2	L16	Q97
8235	Z2	L16	Q98
8236	Z2	L16	Q99
8237	Z2	L16	Q100
8238	Z2	L16	Q101
8239	Z2	L16	Q102
8240	Z2	L16	Q103
8241	Z2	L17	Q1
8242	Z2	L17	Q2
8243	Z2	L17	Q3
8244	Z2	L17	Q4
8245	Z2	L17	Q5
8246	Z2	L17	Q6
8247	Z2	L17	Q7
8248	Z2	L17	Q8
8249	Z2	L17	Q9
8250	Z2	L17	Q10
8251	Z2	L17	Q11
8252	Z2	L17	Q12
8253	Z2	L17	Q13
8254	Z2	L17	Q14
8255	Z2	L17	Q15
8256	Z2	L17	Q16
8257	Z2	L17	Q17
8258	Z2	L17	Q18
8259	Z2	L17	Q19
8260	Z2	L17	Q20
8261	Z2	L17	Q21
8262	Z2	L17	Q22
8263	Z2	L17	Q23
8264	Z2	L17	Q24
8265	Z2	L17	Q25
8266	Z2	L17	Q26
8267	Z2	L17	Q27
8268	Z2	L17	Q28
8269	Z2	L17	Q29
8270	Z2	L17	Q30
8271	Z2	L17	Q31
8272	Z2	L17	Q32
8273	Z2	L17	Q33
8274	Z2	L17	Q34
8275	Z2	L17	Q35
8276	Z2	L17	Q36
8277	Z2	L17	Q37
8278	Z2	L17	Q38
8279	Z2	L17	Q39
8280	Z2	L17	Q40

8281	Z2	L17	Q41
8282	Z2	L17	Q42
8283	Z2	L17	Q43
8284	Z2	L17	Q44
8285	Z2	L17	Q45
8286	Z2	L17	Q46
8287	Z2	L17	Q47
8288	Z2	L17	Q48
8289	Z2	L17	Q49
8290	Z2	L17	Q50
8291	Z2	L17	Q51
8292	Z2	L17	Q52
8293	Z2	L17	Q53
8294	Z2	L17	Q54
8295	Z2	L17	Q55
8296	Z2	L17	Q56
8297	Z2	L17	Q57
8298	Z2	L17	Q58
8299	Z2	L17	Q59
8300	Z2	L17	Q60
8301	Z2	L17	Q61
8302	Z2	L17	Q62
8303	Z2	L17	Q63
8304	Z2	L17	Q64
8305	Z2	L17	Q65
8306	Z2	L17	Q66
8307	Z2	L17	Q67
8308	Z2	L17	Q68
8309	Z2	L17	Q69
8310	Z2	L17	Q70
8311	Z2	L17	Q71
8312	Z2	L17	Q72
8313	Z2	L17	Q73
8314	Z2	L17	Q74
8315	Z2	L17	Q75
8316	Z2	L17	Q76
8317	Z2	L17	Q77
8318	Z2	L17	Q78
8319	Z2	L17	Q79
8320	Z2	L17	Q80
8321	Z2	L17	Q81
8322	Z2	L17	Q82
8323	Z2	L17	Q83
8324	Z2	L17	Q84
8325	Z2	L17	Q85
8326	Z2	L17	Q86
8327	Z2	L17	Q87
8328	Z2	L17	Q88
8329	Z2	L17	Q89
8330	Z2	L17	Q90
8331	Z2	L17	Q91
8332	Z2	L17	Q92
8333	Z2	L17	Q93
8334	Z2	L17	Q94
8335	Z2	L17	Q95
8336	Z2	L17	Q96
8337	Z2	L17	Q97
8338	Z2	L17	Q98
8339	Z2	L17	Q99
8340	Z2	L17	Q100
8341	Z2	L17	Q101
8342	Z2	L17	Q102
8343	Z2	L17	Q103
8344	Z2	L18	Q1
8345	Z2	L18	Q2
8346	Z2	L18	Q3
8347	Z2	L18	Q4

8348	Z2	L18	Q5
8349	Z2	L18	Q6
8350	Z2	L18	Q7
8351	Z2	L18	Q8
8352	Z2	L18	Q9
8353	Z2	L18	Q10
8354	Z2	L18	Q11
8355	Z2	L18	Q12
8356	Z2	L18	Q13
8357	Z2	L18	Q14
8358	Z2	L18	Q15
8359	Z2	L18	Q16
8360	Z2	L18	Q17
8361	Z2	L18	Q18
8362	Z2	L18	Q19
8363	Z2	L18	Q20
8364	Z2	L18	Q21
8365	Z2	L18	Q22
8366	Z2	L18	Q23
8367	Z2	L18	Q24
8368	Z2	L18	Q25
8369	Z2	L18	Q26
8370	Z2	L18	Q27
8371	Z2	L18	Q28
8372	Z2	L18	Q29
8373	Z2	L18	Q30
8374	Z2	L18	Q31
8375	Z2	L18	Q32
8376	Z2	L18	Q33
8377	Z2	L18	Q34
8378	Z2	L18	Q35
8379	Z2	L18	Q36
8380	Z2	L18	Q37
8381	Z2	L18	Q38
8382	Z2	L18	Q39
8383	Z2	L18	Q40
8384	Z2	L18	Q41
8385	Z2	L18	Q42
8386	Z2	L18	Q43
8387	Z2	L18	Q44
8388	Z2	L18	Q45
8389	Z2	L18	Q46
8390	Z2	L18	Q47
8391	Z2	L18	Q48
8392	Z2	L18	Q49
8393	Z2	L18	Q50
8394	Z2	L18	Q51
8395	Z2	L18	Q52
8396	Z2	L18	Q53
8397	Z2	L18	Q54
8398	Z2	L18	Q55
8399	Z2	L18	Q56
8400	Z2	L18	Q57
8401	Z2	L18	Q58
8402	Z2	L18	Q59
8403	Z2	L18	Q60
8404	Z2	L18	Q61
8405	Z2	L18	Q62
8406	Z2	L18	Q63
8407	Z2	L18	Q64
8408	Z2	L18	Q65
8409	Z2	L18	Q66
8410	Z2	L18	Q67
8411	Z2	L18	Q68
8412	Z2	L18	Q69
8413	Z2	L18	Q70
8414	Z2	L18	Q71

[Table 1-48]

8415	Z2	L18	Q72
8416	Z2	L18	Q73
8417	Z2	L18	Q74
8418	Z2	L18	Q75
8419	Z2	L18	Q76
8420	Z2	L18	Q77
8421	Z2	L18	Q78
8422	Z2	L18	Q79
8423	Z2	L18	Q80
8424	Z2	L18	Q81
8425	Z2	L18	Q82
8426	Z2	L18	Q83
8427	Z2	L18	Q84
8428	Z2	L18	Q85
8429	Z2	L18	Q86
8430	Z2	L18	Q87
8431	Z2	L18	Q88
8432	Z2	L18	Q89
8433	Z2	L18	Q90
8434	Z2	L18	Q91
8435	Z2	L18	Q92
8436	Z2	L18	Q93
8437	Z2	L18	Q94
8438	Z2	L18	Q95
8439	Z2	L18	Q96
8440	Z2	L18	Q97
8441	Z2	L18	Q98
8442	Z2	L18	Q99
8443	Z2	L18	Q100
8444	Z2	L18	Q101
8445	Z2	L18	Q102
8446	Z2	L18	Q103
8447	Z2	L19	Q1
8448	Z2	L19	Q2
8449	Z2	L19	Q3
8450	Z2	L19	Q4
8451	Z2	L19	Q5
8452	Z2	L19	Q6
8453	Z2	L19	Q7
8454	Z2	L19	Q8
8455	Z2	L19	Q9
8456	Z2	L19	Q10
8457	Z2	L19	Q11
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8459	Z2	L19	Q13
8460	Z2	L19	Q14
8461	Z2	L19	Q15
8462	Z2	L19	Q16
8463	Z2	L19	Q17
8464	Z2	L19	Q18
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8469	Z2	L19	Q23
8470	Z2	L19	Q24
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8477	Z2	L19	Q31
8478	Z2	L19	Q32
8479	Z2	L19	Q33
8480	Z2	L19	Q34
8481	Z2	L19	Q35

8482	Z2	L19	Q36
8483	Z2	L19	Q37
8484	Z2	L19	Q38
8485	Z2	L19	Q39
8486	Z2	L19	Q40
8487	Z2	L19	Q41
8488	Z2	L19	Q42
8489	Z2	L19	Q43
8490	Z2	L19	Q44
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8493	Z2	L19	Q47
8494	Z2	L19	Q48
8495	Z2	L19	Q49
8496	Z2	L19	Q50
8497	Z2	L19	Q51
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8502	Z2	L19	Q56
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8504	Z2	L19	Q58
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8508	Z2	L19	Q62
8509	Z2	L19	Q63
8510	Z2	L19	Q64
8511	Z2	L19	Q65
8512	Z2	L19	Q66
8513	Z2	L19	Q67
8514	Z2	L19	Q68
8515	Z2	L19	Q69
8516	Z2	L19	Q70
8517	Z2	L19	Q71
8518	Z2	L19	Q72
8519	Z2	L19	Q73
8520	Z2	L19	Q74
8521	Z2	L19	Q75
8522	Z2	L19	Q76
8523	Z2	L19	Q77
8524	Z2	L19	Q78
8525	Z2	L19	Q79
8526	Z2	L19	Q80
8527	Z2	L19	Q81
8528	Z2	L19	Q82
8529	Z2	L19	Q83
8530	Z2	L19	Q84
8531	Z2	L19	Q85
8532	Z2	L19	Q86
8533	Z2	L19	Q87
8534	Z2	L19	Q88
8535	Z2	L19	Q89
8536	Z2	L19	Q90
8537	Z2	L19	Q91
8538	Z2	L19	Q92
8539	Z2	L19	Q93
8540	Z2	L19	Q94
8541	Z2	L19	Q95
8542	Z2	L19	Q96
8543	Z2	L19	Q97
8544	Z2	L19	Q98
8545	Z2	L19	Q99
8546	Z2	L19	Q100
8547	Z2	L19	Q101
8548	Z2	L19	Q102

8549	Z2	L19	Q103
8550	Z2	L20	Q1
8551	Z2	L20	Q2
8552	Z2	L20	Q3
8553	Z2	L20	Q4
8554	Z2	L20	Q5
8555	Z2	L20	Q6
8556	Z2	L20	Q7
8557	Z2	L20	Q8
8558	Z2	L20	Q9
8559	Z2	L20	Q10
8560	Z2	L20	Q11
8561	Z2	L20	Q12
8562	Z2	L20	Q13
8563	Z2	L20	Q14
8564	Z2	L20	Q15
8565	Z2	L20	Q16
8566	Z2	L20	Q17
8567	Z2	L20	Q18
8568	Z2	L20	Q19
8569	Z2	L20	Q20
8570	Z2	L20	Q21
8571	Z2	L20	Q22
8572	Z2	L20	Q23
8573	Z2	L20	Q24
8574	Z2	L20	Q25
8575	Z2	L20	Q26
8576	Z2	L20	Q27
8577	Z2	L20	Q28
8578	Z2	L20	Q29
8579	Z2	L20	Q30
8580	Z2	L20	Q31
8581	Z2	L20	Q32
8582	Z2	L20	Q33
8583	Z2	L20	Q34
8584	Z2	L20	Q35
8585	Z2	L20	Q36
8586	Z2	L20	Q37
8587	Z2	L20	Q38
8588	Z2	L20	Q39
8589	Z2	L20	Q40
8590	Z2	L20	Q41
8591	Z2	L20	Q42
8592	Z2	L20	Q43
8593	Z2	L20	Q44
8594	Z2	L20	Q45
8595	Z2	L20	Q46
8596	Z2	L20	Q47
8597	Z2	L20	Q48
8598	Z2	L20	Q49
8599	Z2	L20	Q50
8600	Z2	L20	Q51
8601	Z2	L20	Q52
8602	Z2	L20	Q53
8603	Z2	L20	Q54
8604	Z2	L20	Q55
8605	Z2	L20	Q56
8606	Z2	L20	Q57
8607	Z2	L20	Q58
8608	Z2	L20	Q59
8609	Z2	L20	Q60
8610	Z2	L20	Q61
8611	Z2	L20	Q62
8612	Z2	L20	Q63
8613	Z2	L20	Q64
8614	Z2	L20	Q65
8615	Z2	L20	Q66

DEMANDE OU BREVET VOLUMINEUX

LA PRÉSENTE PARTIE DE CETTE DEMANDE OU CE BREVET COMPREND PLUS D'UN TOME.

CECI EST LE TOME 1 DE 2
CONTENANT LES PAGES 1 À 323

NOTE : Pour les tomes additionels, veuillez contacter le Bureau canadien des brevets

JUMBO APPLICATIONS/PATENTS

THIS SECTION OF THE APPLICATION/PATENT CONTAINS MORE THAN ONE VOLUME

THIS IS VOLUME 1 OF 2
CONTAINING PAGES 1 TO 323

NOTE: For additional volumes, please contact the Canadian Patent Office

NOM DU FICHIER / FILE NAME :

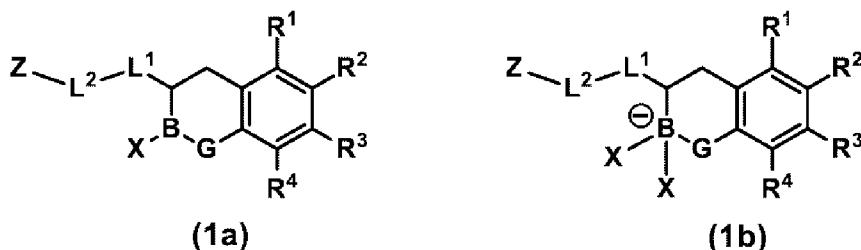
NOTE POUR LE TOME / VOLUME NOTE:

[Claims]

[Claim 1]

A compound represented by formula (1a) or (1b):

[Chemical Formula 827]



5

or a pharmaceutically acceptable salt thereof,
wherein

G is an oxygen atom, a sulfur atom, or $\text{-NR}^{\text{a1}}\text{-}$,

X is a hydroxyl group, an optionally substituted C_{1-6}
10 alkoxy group, or $\text{-NR}^{\text{a2}}\text{R}^{\text{b1}}$,

R^{a1} , R^{a2} , and R^{b1} are the same or different, each
independently

- 1) a hydrogen atom,
- 2) a C_{1-6} alkyl group,
- 15 3) a C_{3-10} alicyclic group,
- 4) C_{6-10} aryl
- 5) 5- or 6-membered heteroaryl,
- 6) a 4- to 10-membered non-aryl heterocycle,
- 7) a C_{1-6} alkylcarbonyl group,
- 20 8) a C_{3-10} alicyclic carbonyl group,
- 9) a C_{6-10} arylcarbonyl group,
- 10) a 5- or 6-membered heteroarylcarbonyl group,
- 11) a C_{1-6} alkylsulfonyl group,
- 12) a C_{3-10} alicyclic sulfonyl group,
- 25 13) a C_{6-10} arylsulfonyl group,
- 14) a 5- or 6-membered heteroarylsulfonyl group, or
- 15) -OR^{c1} ,

(wherein each substituent from 2) to 14) is optionally
substituted),

30 wherein R^{a2} and R^{b1} together may form an optionally
substituted 4- to 10-membered nitrogen-containing non-aryl

heterocycle,

R^{c1} is

- 1) a hydrogen atom,
- 2) a C₁₋₆ alkyl group,
- 5 3) a C₃₋₁₀ alicyclic group,
- 4) C₆₋₁₀ aryl,
- 5) 5- or 6-membered heteroaryl, or
- 6) a 4- to 10-membered non-aryl heterocycle,
- (wherein each substituent from 2) to 6) is optionally
- 10 substituted),

L¹ is a single bond, an oxygen atom, a sulfur atom, -SO-, -SO₂-, -NR^d-, -NR^dC(=O)-, or -NR^dSO₂-,

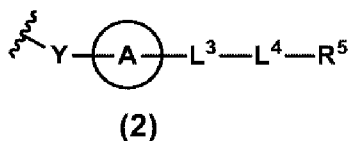
L² is a single bond or an optionally substituted C₁₋₆ alkylene group,

15 Z is

- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 3) a cyano group,
- 4) a carboxyl group,
- 20 5) a C₃₋₁₀ alicyclic group,
- 6) C₆₋₁₀ aryl,
- 7) 5- or 6-membered heteroaryl,
- 8) a 4- to 10-membered non-aryl heterocycle,
- 9) a C₁₋₆ alkoxy group,
- 25 10) a C₃₋₁₀ alicyclic oxy group,
- 11) a C₆₋₁₀ aryloxy group,
- 12) a 5- or 6-membered heteroaryloxy group,
- 13) a 4- to 10-membered non-aryl heterocyclyl oxy group,
- 14) a C₁₋₆ alkylthio group,
- 30 15) a C₃₋₁₀ alicyclic thio group,
- 16) a C₆₋₁₀ arylthio group,
- 17) a 5- or 6-membered heteroarylthio group,
- 18) a 4- to 10-membered non-aryl heterocyclyl thio group,
- (wherein each substituent from 5) to 18) is optionally
- 35 substituted),
- 19) -SO₂-NR^{e1}R^{f1},

- 20) $-\text{NR}^{\text{e}1}-\text{C}(=\text{O})\text{OR}^{\text{f}1}$,
 21) $-\text{NR}^{\text{g}1}-\text{C}(=\text{O})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 22) $-\text{NR}^{\text{e}1}-\text{C}(=\text{S})\text{R}^{\text{f}1}$,
 23) $-\text{NR}^{\text{e}1}-\text{C}(=\text{S})\text{OR}^{\text{f}1}$,
 5 24) $-\text{NR}^{\text{g}1}-\text{C}(=\text{S})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 25) $-\text{NR}^{\text{g}1}-\text{C}^{\text{e}1}(=\text{NR}^{\text{f}1})$,
 26) $-\text{NR}^{\text{g}1}-\text{C}^{\text{e}1}(=\text{N}-\text{OR}^{\text{f}1})$,
 27) $-\text{NR}^{\text{h}1}-\text{C}(=\text{NR}^{\text{g}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 28) $-\text{NR}^{\text{h}1}-\text{C}(=\text{N}-\text{OR}^{\text{g}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 10 29) $-\text{NR}^{\text{i}1}-\text{C}(=\text{NR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 30) $-\text{NR}^{\text{i}1}-\text{C}(=\text{N}-\text{OR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 31) $-\text{NR}^{\text{e}1}-\text{SO}_2-\text{R}^{\text{f}1}$,
 32) $-\text{NR}^{\text{g}1}-\text{SO}_2-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 33) $-\text{C}(=\text{O})\text{OR}^{\text{e}1}$,
 15 34) $-\text{C}(=\text{S})\text{OR}^{\text{e}1}$,
 35) $-\text{C}(=\text{S})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 36) $-\text{C}(=\text{S})\text{NR}^{\text{e}1}\text{OR}^{\text{f}1}$,
 37) $-\text{C}(=\text{S})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 38) $-\text{C}(=\text{NR}^{\text{e}1})\text{R}^{\text{f}1}$,
 20 39) $-\text{C}(=\text{N}-\text{OR}^{\text{e}1})\text{R}^{\text{f}1}$,
 40) $-\text{C}(=\text{NR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 41) $-\text{C}(=\text{N}-\text{OR}^{\text{h}1})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 42) $-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 43) $-\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 25 44) $-\text{NR}^{\text{e}1}\text{OR}^{\text{f}1}$,
 45) $-\text{NR}^{\text{e}1}-\text{C}(=\text{O})\text{R}^{\text{f}1}$,
 46) $-\text{C}(=\text{O})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 47) $-\text{C}(=\text{O})\text{NR}^{\text{e}1}\text{OR}^{\text{f}1}$,
 48) $-\text{C}(=\text{O})\text{NR}^{\text{g}1}-\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 30 49) $-\text{C}(=\text{O})\text{R}^{\text{e}1}$,
 50) $-\text{C}(=\text{NR}^{\text{g}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$, or
 51) $-\text{C}(=\text{N}-\text{OR}^{\text{h}1})\text{NR}^{\text{e}1}\text{R}^{\text{f}1}$,
 one of R^1 , R^2 , and R^3 is a group represented by formula
 (2):

[Chemical Formula 828]



wherein

Y is an oxygen atom, a sulfur atom, or $\text{-NR}^j\text{-}$,

5 ring A is an optionally substituted 4- to 20-membered non-aryl heterocycle,

 L^3 is -C(=O)- , -S(=O)- , or $\text{-S(=O)}_2\text{-}$, L^4 is

- 1) a single bond,
 - 10 2) a C_{1-6} alkylene group,
 - 3) a C_{3-10} cycloalkylene group,
 - 4) a C_{6-10} arylene group,
 - 5) a 5- or 6-membered heteroarylene group,
 - 6) a 4- to 10-membered non-aryl heterocyclylene group, or
 - 15 7) $\text{-C(=N-OR}^{h1}\text{)-}$,
- (wherein each substituent from 2) to 6) is optionally substituted), and

 R^5 is

- 1) a hydrogen atom,
 - 20 2) a C_{1-6} alkyl group,
 - 3) a C_{3-10} alicyclic group,
 - 4) a 4- to 10-membered non-aryl heterocycle,
 - 5) C_{6-10} aryl,
 - 6) 5- or 6-membered heteroaryl,
 - 25 7) a C_{1-6} alkylthio group,
- (wherein each substituent from 2) to 7) is optionally substituted), or
- 8) $\text{-NR}^{e1}\text{OH}$,

the remaining two (without the structure of formula (2) among R^1 , R^2 , and R^3) are the same or different, each

30 independently a hydrogen atom, a halogen atom, an optionally substituted C_{1-6} alkyl group, an optionally substituted C_{1-6} alkoxy group, an optionally substituted C_{1-6}

alkylthio group, an optionally substituted 5- or 6-membered heteroaryl, or $-NR^{a3}R^{b2}$,

R^d , R^{e1} , R^{e2} , R^{f1} , R^{f2} , R^{g1} , R^{g2} , R^{h1} , R^{h2} , R^{i1} , R^{i2} , and R^j are the same or different, each independently a hydrogen atom, an optionally substituted C_{1-6} alkyl group, an optionally substituted C_{3-10} alicyclic group, optionally substituted C_{6-10} aryl, optionally substituted 5- or 6-membered heteroaryl, or an optionally substituted 4- to 10-membered non-aryl heterocycle,

a combination of R^{e1} and R^{f1} or R^{e2} and R^{f2} , when attached to the same nitrogen atom, together may form an optionally substituted 4- to 10-membered nitrogen-containing non-aryl heterocycle,

R^4 is

- 1) $-C(=O)R^8$,
- 2) $-SO_2-L^6-R^8$,
(wherein R^8 in 1) and 2) is $-NR^{a5}R^{b4}$, $-NR^{a5}-L^7-B(OR^{m1})_2$, $-OR^{m1}$, or an optionally substituted C_{1-6} alkyl group, and L^6 is a single bond or $-NR^{a6}-$),
- 3) $-NR^{a4}R^{b3}$,
- 4) $-B(OR^{m1})_2$,
- 5) $-PO(OR^{m1})(OR^{m2})$,
- 6) optionally substituted 5-membered heteroaryl,
- 7) an optionally substituted 5-membered non-aryl heterocycle, or
- 8) a bioisostere of one of 1) to 7),
(wherein the formulas of 2), 4), 5), and 6) include a carboxylic acid isostere, and 8) may include them in duplicates),

R^{a3} , R^{a4} , R^{a5} , R^{a6} , R^{b2} , R^{b3} , and R^{b4} are the same or different, each independently having the same definition as R^{a1} , R^{a2} , and R^{b1} , wherein a combination of R^{a3} and R^{b2} , R^{a4} and R^{b3} , or R^{a5} and R^{b4} , when attached to the same nitrogen atom, together may form an optionally substituted 4- to 10-membered nitrogen-containing non-aryl heterocycle,

R^{m1} is

- 1) a hydrogen atom,
 - 2) a C₁₋₆ alkyl group,
 - 3) a C₃₋₁₀ alicyclic group,
 - 4) C₆₋₁₀ aryl,
 - 5) 5- or 6-membered heteroaryl, or
 - 6) a 4- to 10-membered non-aryl heterocycle,
- (wherein each substituent from 2) to 6) is optionally substituted),

wherein if R^{m1} is attached to a boron atom via an oxygen atom, two R^{m1}, as C₂₋₄ alkylene, together with the boron atom and two oxygen atoms, may form a 5- to 7-membered non-aryl heterocycle (wherein an alkylene moiety is optionally substituted in the non-aryl heterocycle),

R^{m2} is a hydrogen atom, an optionally substituted C₁₋₆ alkyl group, or an optionally substituted C₃₋₁₀ alicyclic group, and

L⁷ is an optionally substituted C₁₋₃ alkylene group.

[Claim 2]

The compound or the pharmaceutically acceptable salt thereof according to claim 1, wherein

L¹ is a single bond, a sulfur atom, -NR^dC(=O)-, or -NR^dSO₂-,

L² is a single bond or an optionally substituted C₁₋₆ alkylene group, and

Z is

- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 3) a C₃₋₁₀ alicyclic group,
- 4) C₆₋₁₀ aryl,
- 5) 5- or 6-membered heteroaryl,
- 6) a 4- to 10-membered non-aryl heterocycle,
- 7) -C(=N-OR^{e1})R^{f1}, or
- 8) -NR^{e1}R^{f1}.

[Claim 3]

The compound or the pharmaceutically acceptable salt thereof according to claim 1 or 2, wherein

Z-L²-L¹ is a hydrogen atom, an optionally substituted C₁₋₆ alkyl group, or an optionally substituted C₁₋₆ alkylthio group.

[Claim 4]

5 The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 3, wherein Z-L²-L¹ is a hydrogen atom.

[Claim 5]

10 The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 4, wherein G is an oxygen atom.

[Claim 6]

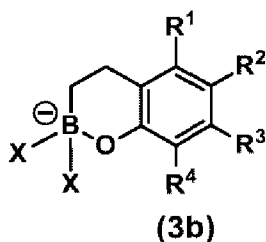
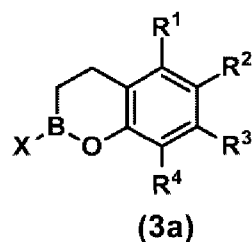
15 The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 5, wherein X is a hydroxyl group or an optionally substituted C₁₋₆ alkoxy group.

[Claim 7]

20 The compound or the pharmaceutically acceptable salt thereof according to any one of the preceding claims, wherein X is a hydroxyl group.

[Claim 8]

25 The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 7, wherein the compounds of formulas (1a) and (1b) are represented by formulas (3a) and (3b), respectively:



30 wherein X, R¹, R², and R³ are defined the same as any one of claims 1 to 7, and

R⁴ is selected from the group consisting of

1) $-\text{COOR}^{\text{m1}}$ (wherein R^{m1} is a hydrogen atom, a C_{1-6} alkyl group, a C_{3-10} alicyclic group, C_{6-10} aryl, 5- or 6-membered heteroaryl, or a 4- to 10-membered non-aryl heterocycle, wherein the C_{1-6} alkyl group, the C_{3-10} alicyclic group, the C_{6-10} aryl, the 5- or 6-membered heteroaryl, and the 4- to 10-membered non-aryl heterocycle are each optionally substituted), and
 2) a bioisostere of 1).

[Claim 9]

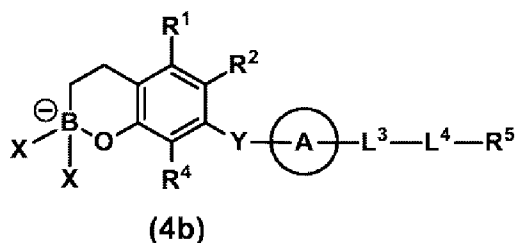
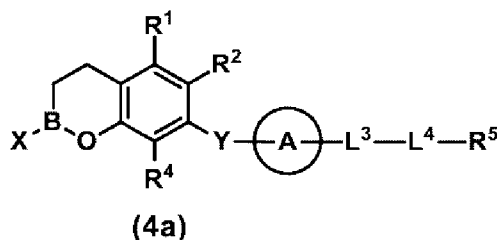
The compound or the pharmaceutically acceptable salt thereof according to claim 8, wherein R^4 is

1) $-\text{COOH}$ (i.e., a carboxyl group), or
 2) a carboxylic acid isostere.

[Claim 10]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 9, wherein the compounds of formulas (1a) and (1b) or the compounds of formulas (3a) and (3b) are represented by formulas (4a) and (4b), respectively:

[Chemical Formula 830]



wherein X, R^4 , Y, ring A, L^3 , L^4 , and R^5 are defined the same as any one of claims 1 to 9, and

R^1 and R^2 are the same or different, each independently a hydrogen atom, a halogen atom, a C_{1-6} alkyl group, or a C_{1-6} alkoxy group (wherein the C_{1-6} alkyl group and the C_{1-6} alkoxy group are optionally substituted with 1 to 5 halogen atoms).

[Claim 11]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 10, wherein

ring A is an optionally substituted 4- to 10-membered non-aryl heterocycle.

[Claim 12]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 11, wherein ring A is an optionally substituted 4- to 7-membered non-aryl heterocycle.

[Claim 13]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 12, wherein Y is an oxygen atom or a sulfur atom.

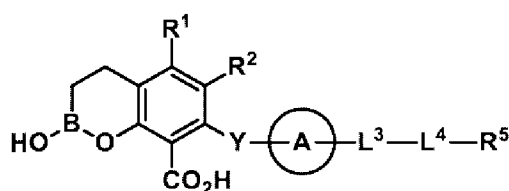
[Claim 14]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 13, wherein Y is an oxygen atom.

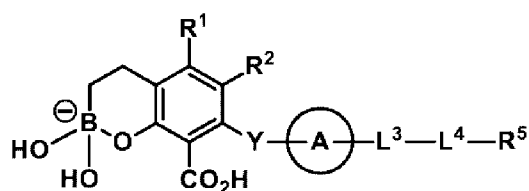
[Claim 15]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 14, wherein the compounds of formulas (1a) and (1b), the compounds of formulas (3a) and (3b), or the compounds of formulas (4a) and (4b) are represented by formulas (5a) and (5b), respectively:

[Chemical Formula 831]



(5a)



(5b)

wherein ring A is an optionally substituted 4- to 6-membered nitrogen-containing non-aryl heterocycle.

[Claim 16]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 15, wherein L³ is -C(=O)- or -S(=O)₂-.

[Claim 17]

The compound or the pharmaceutically acceptable salt thereof according to any one claims 1 to 16, wherein L^3 is $-C(=O)-$.

[Claim 18]

5 The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 17, wherein L^4 is a single bond, $-C(=N-OR^{h1})-$, or an optionally substituted C_{1-6} alkylene group, wherein R^{h1} is an optionally substituted C_{1-6} alkyl group.

10 [Claim 19]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 18, wherein R^1 and R^2 are the same or different, each independently selected from the group consisting of

- 15 1) a hydrogen atom,
2) a halogen atom,
3) a C_{1-6} alkyl group,
4) a C_{1-6} alkoxy group, and
5) a C_{1-6} alkylthio group,

20 (wherein each substituent from 3) to 5) is optionally substituted).

[Claim 20]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 19, wherein R^1 and R^2 are the same or different, each independently selected from the group consisting of

- 25 1) a hydrogen atom,
2) a halogen atom, and
3) an optionally substituted C_{1-6} alkyl group.

30 [Claim 21]

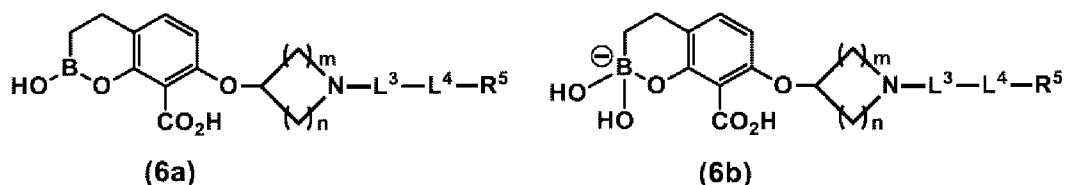
The compound or the pharmaceutically acceptable salt thereof according to any one claims 1 to 20, wherein R^1 and R^2 are both hydrogen atoms.

[Claim 22]

35 The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 21, wherein the

compounds of formulas (1a) and (1b), the compounds of formulas (3a) and (3b), the compounds of formulas (4a) and (4b), or the compounds of formulas (5a) and (5b) are represented by formulas (6a) and (6b), respectively:

5 [Chemical Formula 832]



wherein L^3 , L^4 , and R^5 are defined the same as any one of claims 1 to 18,

m is an integer 1, 2, or 3,

10 n is an integer 1, 2, or 3, and

$m + n$ is 2, 3, or 4.

[Claim 23]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 22, wherein m is 1 or 2, n is 1 or 2, and $m + n$ is 2 or 3.

[Claim 24]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 23, wherein m is 1 and n is 1.

20 [Claim 25]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 24, wherein L^4 is a single bond, or a C_{1-6} alkylene group optionally substituted with $-NR^{21}R^{22}$ or $=NOR^{23}$, wherein R^{21} , R^{22} , and R^{23} are each independently a hydrogen atom, an optionally substituted C_{1-6} alkyl group, or an optionally substituted 4- to 10-membered non-aryl heterocyclyl carbonyl group.

[Claim 26]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 25, wherein L^4 is a single bond, $-CH_2-$, $-CH(NH_2)-$, or $-CH(NH_2)-CH_2-$, wherein if an amino group is present in L^4 , carbon that

attaches to the amino group attaches to L³.

[Claim 27]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 25, wherein L⁴ is a single bond, -CH₂-, -CMe(NH₂)-, -CH(NHMe)-, -CD(NH₂)- (wherein D represents a heavy hydrogen atom), -CH(NH₂)-, or -CH₂CH₂-.

[Claim 28]

The compound or the pharmaceutically acceptable salt thereof according to claim 27, wherein L⁴ is a single bond, -CH₂-, or -CH(NH₂)-.

[Claim 29]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 28, wherein R⁵ is a hydrogen atom, an optionally substituted C₁₋₆ alkyl group, an optionally substituted 4- to 10-membered non-aryl heterocycle, optionally substituted C₆₋₁₀ aryl, optionally substituted 5- or 6-membered heteroaryl, an optionally substituted C₁₋₆ alkylthio group, or -NR^{e1}OH, wherein R^{e1} is a hydrogen atom or an optionally substituted C₁₋₆ alkyl group.

[Claim 30]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 29, wherein R⁵ is optionally substituted 5- or 6-membered heteroaryl or optionally substituted C₆₋₁₀ aryl.

[Claim 31]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 29, wherein R⁵ is optionally substituted 5- or 6-membered heteroaryl.

[Claim 32]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 28, wherein R⁵ is an optionally substituted 4- to 10-membered non-aryl heterocycle.

[Claim 33]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 28, wherein L^4 is a single bond, and R^5 is $-NR^{e1}OH$, wherein R^{e1} is a hydrogen atom or an optionally substituted C_{1-6} alkyl group.

5 [Claim 34]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 24, wherein L^4 is

- 1) $-(CH_2)_p-CR^{10}(NHR^{11})-$,
- 10 2) $-(CH_2)_q-CR^{12}R^{13}-$, or
- 3) $-(CH_2)_p-CR^{10}(NHR^{11})-(CH_2)_q-CR^{12}R^{13}-$ (wherein p and q are independently 0 or 1),

R^{10} is

- 1) a hydrogen atom,
- 15 2) a carboxyl group, or
- 3) $-C(=O)NR^{10a}R^{10b}$,

R^{11} is

- 1) a hydrogen atom,
 - 2) $-C(=O)R^{11a}$, or
 - 20 3) an optionally substituted 5- or 6-membered non-aryl heterocyclyl carbonyl group,
- wherein if R^{10} is $-C(=O)NR^{10a}R^{10b}$, R^{10b} and R^{11} together may form $-CH_2CH_2-$,

R^{12} is

- 25 1) a hydrogen atom, or
- 2) an optionally substituted C_{1-4} alkyl group,

R^{13} is

- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 30 3) an optionally substituted C_{1-4} alkyl group,
- 4) a sulfanyl group,
- 5) a carboxyl group,
- 6) an optionally substituted C_{1-4} alkylthio group,
- 7) $-NR^{13a}R^{13b}$,
- 35 8) $-NR^{13a}-C(=O)R^{13b}$,
- 9) an optionally substituted 5- or 6-membered non-aryl

heterocyclyl carbonylamino group,

10) $-NR^{13a}-C(=O)NR^{13b}R^{13c}$,

11) $-C(=O)NR^{13a}R^{13b}$,

12) $-C(=O)NR^{13a}OR^{13b}$,

5 13) $-S(=O)_2-R^{13a}$,

14) $-S(=O)_2-NR^{13a}R^{13b}$,

15) $-C(=O)NR^{13a}-S(=O)_2-R^{13b}$, or

16) $-C(=O)NR^{13a}-S(=O)_2-NR^{13b}R^{13c}$, and

10 R^{10a} , R^{10b} , R^{11a} , R^{13a} , R^{13b} , and R^{13c} are each independently a hydrogen atom or an optionally substituted C_{1-4} alkyl group.

[Claim 35]

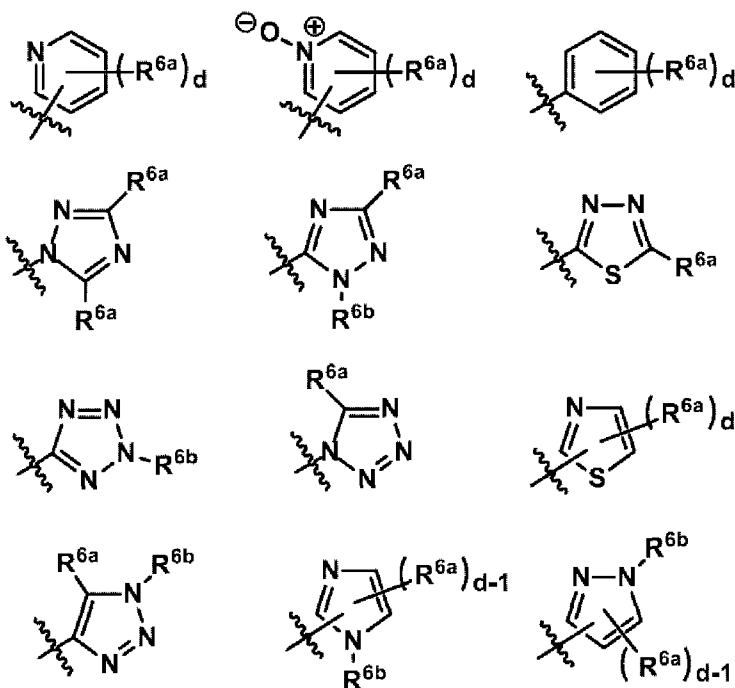
The compound or the pharmaceutically acceptable salt thereof according to claim 34, wherein R^5 is a hydrogen atom or an optionally substituted C_{1-4} alkyl group.

[Claim 36]

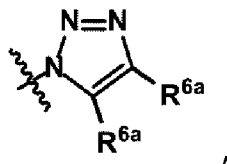
The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 31, wherein

R^5 is selected from the group consisting of

20 [Chemical Formula 833]



[Chemical Formula 834]



subscript d is the number of substitutable positions on a ring of R⁵,

5 each R^{6a} is independently selected from the group consisting of

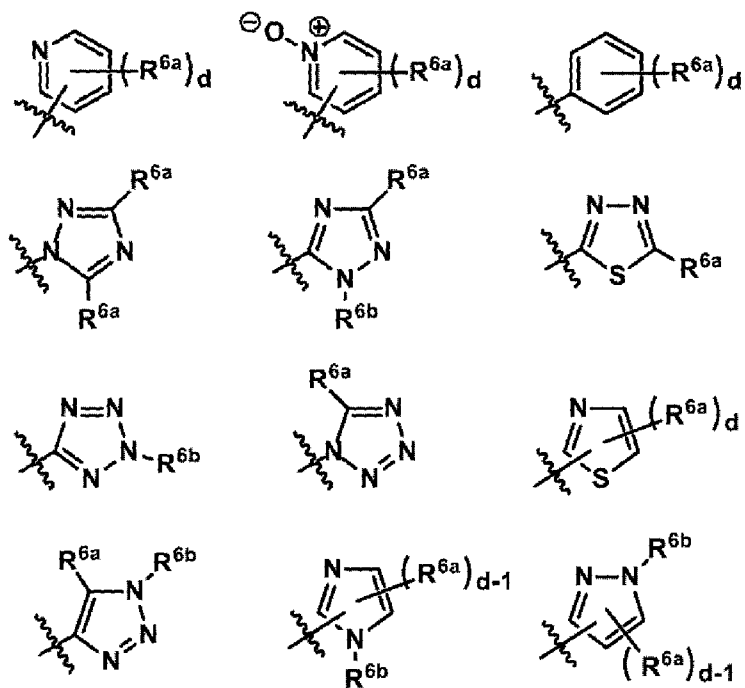
- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 3) a cyano group,
- 10 4) a nitro group,
- 5) halogen,
- 6) a C₁₋₄ alkyl group,
- 7) a C₃₋₁₀ alicyclic group,
- 8) a C₁₋₄ alkoxy group,
- 15 9) a C₃₋₁₀ alicyclic oxy group,
- 10) a C₆₋₁₀ aryloxy group,
- 11) a 5- or 6-membered heteroaryloxy group,
- 12) a 4- to 10-membered non-aryl heterocyclyl oxy group,
(wherein each substituent from 6) to 12) is optionally
- 20 substituted),
- 13) -SO₂-NR^{e2}R^{f2},
- 14) -NR^{g2}-CR^{e2}(=NR^{f2}),
- 15) -NR^{g2}-CR^{e2}(=N-OR^{f2}),
- 16) -NR^{h2}-C(=NR^{g2})NR^{e2}R^{f2},
- 25 17) -NR^{h2}-C(=N-OR^{g2})NR^{e2}R^{f2},
- 18) -NRⁱ²-C(=NR^{h2})NR^{g2}-NR^{e2}R^{f2},
- 19) -NRⁱ²-C(=N-OR^{h2})NR^{g2}-NR^{e2}R^{f2},
- 20) -C(=NR^{e2})R^{f2},
- 21) -C(=N-OR^{e2})R^{f2},
- 30 22) -C(=NR^{h2})-NR^{e2}R^{f2},
- 23) -C(=NR^{h2})NR^{g2}-NR^{e2}R^{f2},
- 24) -C(=N-OR^{h2})NR^{g2}-NR^{e2}R^{f2},
- 25) -NR^{e2}R^{f2},

- 26) $-\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 27) $-\text{NR}^{\text{e}2}\text{OR}^{\text{f}2}$,
 28) $-\text{NR}^{\text{e}2}-\text{C}(=\text{O})\text{R}^{\text{f}2}$,
 29) $-\text{C}(=\text{O})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 5 30) $-\text{C}(=\text{O})\text{NR}^{\text{e}2}\text{OR}^{\text{f}2}$,
 31) $-\text{C}(=\text{O})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 32) $-\text{C}(=\text{O})\text{R}^{\text{e}2}$,
 33) $-\text{C}(=\text{O})\text{OR}^{\text{e}2}$, and
 34) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$, and
 10 each R^{6b} is independently selected from the group
 consisting of
 1) a hydrogen atom,
 2) a hydroxyl group,
 3) a C_{1-4} alkyl group
 15 (wherein the alkyl group is optionally substituted)
 4) a C_{3-10} alicyclic group
 (wherein the alicyclic group is optionally substituted),
 5) $-\text{C}(=\text{NR}^{\text{e}2})\text{R}^{\text{f}2}$,
 6) $-\text{C}(=\text{N}-\text{OR}^{\text{e}2})\text{R}^{\text{f}2}$,
 20 7) $-\text{SO}_2-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 8) $-\text{C}(=\text{NR}^{\text{h}2})-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 9) $-\text{C}(=\text{NR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 10) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 11) $-\text{C}(=\text{O})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 25 12) $-\text{C}(=\text{O})\text{NR}^{\text{e}2}\text{OR}^{\text{f}2}$,
 13) $-\text{C}(=\text{O})\text{NR}^{\text{g}2}-\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$,
 14) $-\text{C}(=\text{O})\text{R}^{\text{e}2}$, and
 15) $-\text{C}(=\text{N}-\text{OR}^{\text{h}2})\text{NR}^{\text{e}2}\text{R}^{\text{f}2}$.

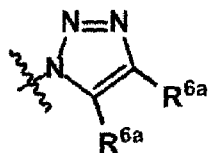
[Claim 37]

- 30 The compound or the pharmaceutically acceptable salt
 thereof according to any one of claims 1 to 31 and 36,
 wherein R^5 is 5- or 6-membered aryl or heteroaryl selected
 from the group consisting of

[Chemical Formula 835]



[Chemical Formula 836]



5

subscript d is the number of substitutable positions on a ring of R^5 ,

each R^{6a} is independently selected from the group consisting of

- 10 1) a hydrogen atom,
2) a hydroxyl group,
3) halogen,
4) a C_{1-4} alkyl group

- (wherein the alkyl group is optionally substituted with
15 $NR^{e2}R^{f2}$, a 5- or 6-membered non-aryl heterocycle, $-C(=O)OR^{f2}$,
or a hydroxyl group),
5) a C_{1-4} alkoxy group
6) $-NR^{e2}R^{f2}$, and

7) $-C(=O)OR^{e2}$, and

each R^{6b} is independently selected from the group consisting of

1) a hydrogen atom,

5 2) a hydroxyl group, and

3) a C_{1-4} alkyl group

(wherein the alkyl group is optionally substituted with $NR^{e2}R^{f2}$, $-C(=O)NR^{e2}R^{f2}$, $-C(=O)OR^{f2}$, or a hydroxyl group).

[Claim 38]

10 The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 31, 36, and 37, wherein R^{e2} and R^{f2} are the same or different, each independently a hydrogen atom, an optionally substituted C_{1-6} alkyl group, or an optionally substituted C_{3-10}
15 alicyclic group.

[Claim 39]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 31 and 36 to 38, wherein R^{e2} and R^{f2} are the same or different, each
20 independently a hydrogen atom or an optionally substituted C_{1-6} alkyl group.

[Claim 40]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 31 and 36 to 39, wherein R^{e2} and R^{f2} are hydrogen atoms.
25

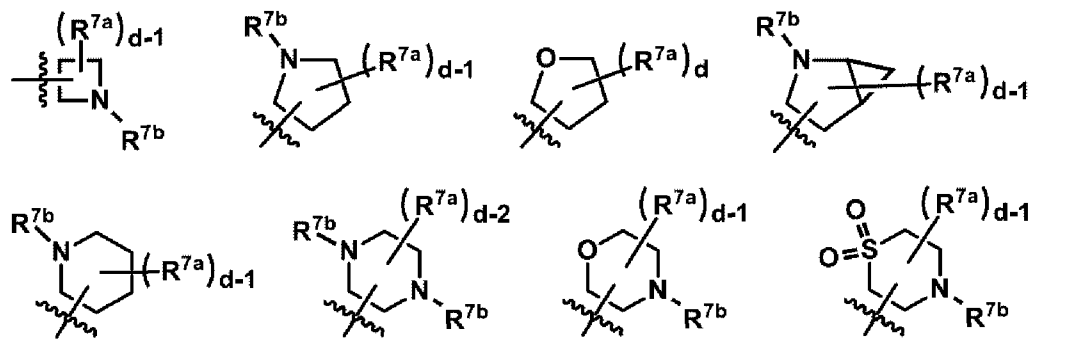
[Claim 41]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 36 to 39, wherein R^{6a} is $-NR^{e2}R^{f2}$, and one of R^{e2} and R^{f2} is a hydrogen atom and
30 the other is a C_{1-4} alkyl group (wherein the alkyl group is optionally substituted with an amino group or a hydroxyl group).

[Claim 42]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 29 and 32, wherein R^5 is a 4- to 6-membered non-aryl heterocycle
35

selected from the group consisting of
[Chemical Formula 837]



subscript d is the number of substitutable positions on
5 a ring of R⁵,

each R^{7a} is independently selected from the group
consisting of

- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 10 3) a cyano group,
- 4) halogen,
- 5) a C₁₋₄ alkyl group,
- 6) a C₃₋₁₀ alicyclic group,
- 7) a C₁₋₄ alkoxy group,
- 15 8) a C₃₋₁₀ alicyclic oxy group,
- 9) a C₆₋₁₀ aryloxy group,
- 10) a 5- or 6-membered heteroaryloxy group,
- 11) a 4- to 10-membered non-aryl heterocyclyl oxy group,
(wherein each substituent from 5) to 11) is optionally
- 20 substituted),
- 12) -SO₂-NR^{e3}R^{f3},
- 13) -NR^{g2}-CR^{e3}(=NR^{f3}),
- 14) -NR^{g2}-CR^{e3}(=N-OR^{f3}),
- 15) -NR^{h2}-C(=NR^{g2})NR^{e3}R^{f3},
- 25 16) -NR^{h2}-C(=N-OR^{g2})NR^{e3}R^{f3},
- 17) -NRⁱ²-C(=NR^{h2})NR^{g2}-NR^{e3}R^{f3},
- 18) -NRⁱ²-C(=N-OR^{h2})NR^{g2}-NR^{e3}R^{f3},
- 19) -C(=NR^{e3})R^{f3},
- 20) -C(=N-OR^{e3})R^{f3},

- 21) $-C(=NR^{h2})-NR^{e3}R^{f3}$,
 22) $-C(=NR^{h2})NR^{g2}-NR^{e3}R^{f3}$,
 23) $-C(=N-OR^{h2})NR^{g2}-NR^{e3}R^{f3}$,
 24) $-NR^{e3}R^{f3}$,
 5 25) $-NR^{g2}-NR^{e3}R^{f3}$,
 26) $-NR^{e3}OR^{f3}$,
 27) $-NR^{e3}-C(=O)R^{f3}$,
 28) $-C(=O)NR^{e3}R^{f3}$,
 29) $-C(=O)NR^{e3}OR^{f3}$,
 10 30) $-C(=O)NR^{g2}-NR^{e3}R^{f3}$,
 31) $-C(=O)R^{e3}$,
 32) $-C(=O)OR^{e3}$, and
 33) $-C(=N-OR^{h2})NR^{e3}R^{f3}$,
 each R^{7b} is independently selected from the group
 15 consisting of
 1) a hydrogen atom,
 2) a hydroxyl group,
 3) a C_{1-4} alkyl group
 (wherein the alkyl group is optionally substituted),
 20 4) a C_{3-10} alicyclic group
 (wherein the alicyclic group is optionally substituted),
 5) $-C(=NR^{e3})R^{f3}$,
 6) $-C(=N-OR^{e3})R^{f3}$,
 7) $-SO_2-NR^{e3}R^{f3}$,
 25 8) $-C(=NR^{h2})-NR^{e3}R^{f3}$,
 9) $-C(=NR^{h2})NR^{g2}-NR^{e3}R^{f3}$,
 10) $-C(=N-OR^{h2})NR^{g2}-NR^{e3}R^{f3}$,
 11) $-C(=O)NR^{e3}R^{f3}$,
 12) $-C(=O)NR^{e3}OR^{f3}$,
 30 13) $-C(=O)NR^{g2}-NR^{e3}R^{f3}$,
 14) $-C(=O)R^{e3}$, and
 15) $-C(=N-OR^{h2})NR^{e3}R^{f3}$, and

R^{e3} and R^{f3} are defined the same as R^{e2} and R^{f2} according to claim 1.

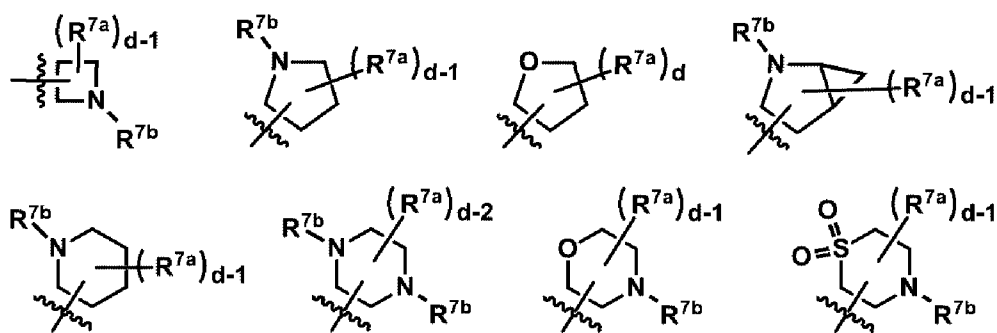
35 [Claim 43]

The compound or the pharmaceutically acceptable salt

thereof according to any one of claims 1 to 29, 32, and 42, wherein

R^5 is a 4- to 6-membered non-aryl heterocycle selected from the group consisting of

5 [Chemical Formula 838]



subscript d is the number of substitutable positions on a ring of R^5 ,

each R^{7a} is independently selected from the group
10 consisting of

- 1) a hydrogen atom,
- 2) a hydroxyl group,
- 3) halogen,
- 4) a C_{1-4} alkyl group

15 (wherein the alkyl group is optionally substituted with $NR^{e3}R^{f3}$, a 5- or 6-membered non-aryl heterocycle, $-C(=O)OR^{f3}$, or a hydroxyl group),

- 5) a C_{1-4} alkoxy group
- 6) $-NR^{e3}R^{f3}$,

20 7) $-C(=O)OR^{e3}$,
8) C_{6-10} aryl, and
9) $-C(=O)NR^{e3}R^{f3}$,

each R^{7b} is independently selected from the group consisting of

- 25 1) a hydrogen atom,
2) a hydroxyl group, and
3) a C_{1-4} alkyl group

(wherein the alkyl group is optionally substituted with $NR^{e3}R^{f3}$, $-C(=O)OR^{f3}$, or a hydroxyl group), and

R^{e3} and R^{f3} are defined the same as R^{e2} and R^{f2} according to any one of claims 38 to 40.

[Claim 44]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 24, 34, and 35, wherein

L^4 is $-\text{CH}(\text{NH}_2)-\text{CHR}^{13}-$, wherein carbon that attaches to the NH_2 attaches to L^3 ,

R^5 is a hydrogen atom, and

10 R^{13} is

1) $-\text{NH}-\text{C}(=\text{O})\text{CH}_3$,

2) $-\text{NH}-\text{C}(=\text{O})\text{NH}_2$,

3) $-\text{NH}-\text{C}(=\text{O})\text{CH}(\text{NH}_2)-\text{CH}_2\text{C}(=\text{O})\text{NH}_2$,

4) $-\text{NH}-\text{C}(=\text{O})\text{CH}_2-\text{NH}_2$,

15 5) $-\text{NH}-\text{C}(=\text{O})\text{CH}(\text{NH}_2)-\text{CH}_2\text{OH}$, or

6) a pyrrolidin-2-ylcarbonylamino group.

[Claim 45]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 24, 34, and 35, wherein L^4 is $-\text{CH}(\text{NH}_2)-\text{CR}^{12}\text{R}^{13}-$, wherein carbon that attaches to the NH_2 attaches to L^3 ,

R^5 is a hydrogen atom or methyl,

R^{12} is a hydrogen atom or methyl, and

R^{13} is a benzylthio group or a sulfanyl group.

25 [Claim 46]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 24, 34, and 35, wherein

L^4 is $-\text{CH}(\text{NH}_2)-(\text{CH}_2)_q-\text{CHR}^{13}-$, wherein q is 0 or 1, and carbon that attaches to the NH_2 attaches to L^3 ,

R^5 is a hydrogen atom, and

R^{13} is

1) a carboxyl group,

2) $-\text{C}(=\text{O})\text{NH}_2$,

35 3) $-\text{C}(=\text{O})\text{NH}(\text{CH}_3)$,

4) $-\text{C}(=\text{O})\text{N}(\text{CH}_3)_2$,

- 5) $-C(=O)NH-(CH_2)_2-OH$,
- 6) $-C(=O)NH-(CH_2)_2-NH_2$,
- 7) $-C(=O)NH-S(=O)_2-CH_3$,
- 8) $-C(=O)NHOH$,
- 5 9) $-S(=O)_2-NH_2$,
- 10) $-S(=O)_2-CH_3$, or
- 11) a hydroxyl group.

[Claim 47]

The compound or the pharmaceutically acceptable salt
 10 thereof according to any one of claims 1 to 24, 34, and 35,
 wherein

L^4 is $-CH(NHR^{11})-CH_2-$, wherein carbon that attaches to
 the NHR^{11} attaches to L^3 ,

R^5 is hydrogen, and

15 R^{11} is

- 1) $-C(=O)CH(NH_2)-CH_2C(=O)NH_2$,
- 2) $-C(=O)CH_2-NH_2$,
- 3) $-C(=O)CH(CH_3)-NH_2$,
- 4) $-C(=O)CH(NH_2)-CH_2OH$, or
- 20 5) pyrrolidin-2-ylcarbonyl.

[Claim 48]

The compound or the pharmaceutically acceptable salt
 thereof according to any one of claims 1 to 24, 34, and 35,
 wherein

25 L^4 is $-CH(NHR^{11})-CH(COOH)-$, wherein carbon that attaches
 to the NHR^{11} attaches to L^3 ,

R^5 is hydrogen, and

R^{11} is

- 1) $-C(=O)CH(NH_2)-CH_2C(=O)NH_2$,
- 30 2) $-C(=O)CH_2-NH_2$,
- 3) $-C(=O)CH(CH_3)-NH_2$,
- 4) $-C(=O)CH(NH_2)-CH_2OH$, or
- 5) pyrrolidin-2-ylcarbonyl.

[Claim 49]

35 The compound or the pharmaceutically acceptable salt
 thereof according to any one of claims 1 to 24, 34, and 35,

wherein

L^4 is $-\text{CHR}^{13}-$ or $-\text{CH}_2-\text{CHR}^{13}-$,

R^5 is hydrogen, and

R^{13} is $-\text{C}(=\text{O})\text{NH}_2$ or $-\text{C}(=\text{O})\text{NHOH}$.

5 [Claim 50]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 24, 34, and 35, wherein

L^4 is $-\text{CH}_2-\text{CR}^{10}(\text{NH}_2)-$, wherein the CH_2 attaches to L^3 ,

10 R^5 is hydrogen, and

R^{10} is a carboxy group or $-\text{C}(=\text{O})\text{NH}_2$.

[Claim 51]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 24, 34, and 35, wherein

L^4 is $-(\text{CH}_2)_p-\text{CR}^{10}(\text{NHR}^{11})-(\text{CH}_2)_q-\text{CHR}^{13}-$ or $-\text{CHR}^{13}-(\text{CH}_2)_q-\text{CR}^{10}(\text{NHR}^{11})-(\text{CH}_2)_p-$, wherein q is 0 or 1,

R^5 is hydrogen,

(1) if L^4 is $-\text{CHR}^{13}-(\text{CH}_2)_q-\text{CR}^{10}(\text{NHR}^{11})-(\text{CH}_2)_p-$,

20 carbon of the $-\text{CHR}^{13}-$ group attaches to L^3 ,

p is 0,

R^{10} is a hydrogen atom, a carboxyl group, or $-\text{C}(=\text{O})\text{NHR}^{10b}$,

R^{11} is a hydrogen atom,

25 R^{10b} is a hydrogen atom,

wherein if R^{10} is $-\text{C}(=\text{O})\text{NHR}^{10b}$, R^{10b} and R^{11} together may form $-\text{CH}_2\text{CH}_2-$, and

R^{13} is a hydrogen atom, and

(2) if L^4 is $-(\text{CH}_2)_p-\text{CR}^{10}(\text{NHR}^{11})-(\text{CH}_2)_q-\text{CHR}^{13}-$,

30 carbon of the $-(\text{CH}_2)_p-$ group attaches to L^3 ,

p is 1,

R^{10} and R^{11} are both hydrogen atoms,

R^{13} is a carboxyl group or $-\text{C}(=\text{O})\text{NR}^{13a}\text{R}^{13b}$, and

35 R^{13a} and R^{13b} are each independently a hydrogen atom or an optionally substituted C_{1-4} alkyl group.

[Claim 52]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 24, 34, and 35, wherein

L^4 is $-CR^{12}(NH_2)-$,

5 R^{12} is a hydrogen atom or a methyl group, and

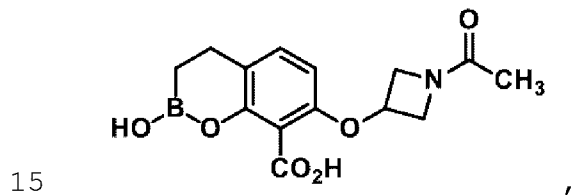
R^5 is a C_{1-4} alkyl group optionally substituted with a hydroxyl group.

[Claim 53]

The compound or the pharmaceutically acceptable salt thereof according to claim 1, represented by the following compound name or structural formula:

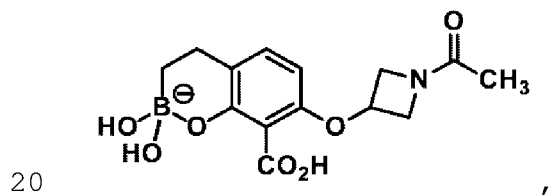
7-[(1-acetylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 839]



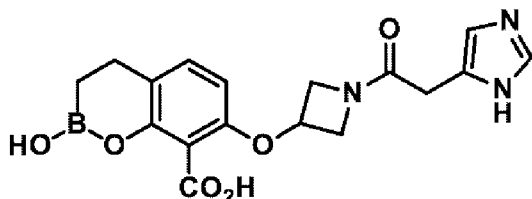
8-[(1-acetylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 840]



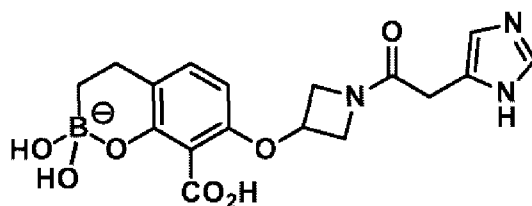
2-hydroxy-7-({1-[(1H-imidazol-5-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 841]



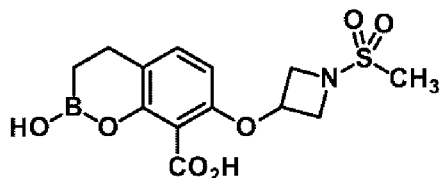
4,4-dihydroxy-8-({1-[(1H-imidazol-5-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 842]



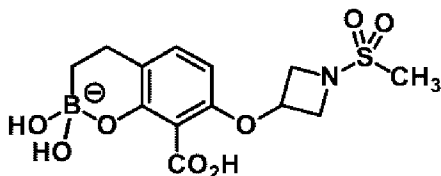
2-hydroxy-7-{{1-[(methanesulfonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

10 [Chemical Formula 843]



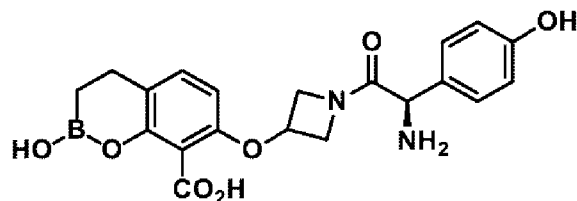
4,4-dihydroxy-8-{{1-[(methanesulfonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

15 [Chemical Formula 844]



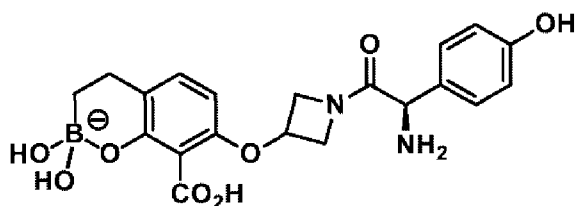
7-{{1-[(2R)-2-amino-2-(4-hydroxyphenyl)acetyl]azetidin-3-yl}oxy}-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 845]



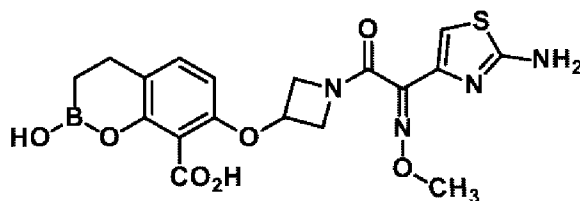
8-({1-[(2R)-2-amino-2-(4-hydroxyphenyl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 846]



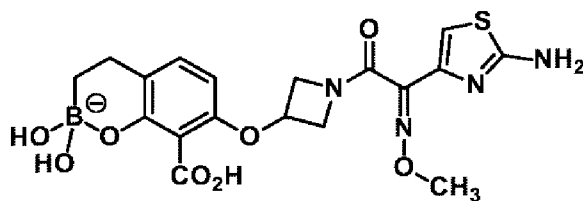
7-({1-[(2-amino-1,3-thiazol-4-yl)(methoxyimino)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 847]



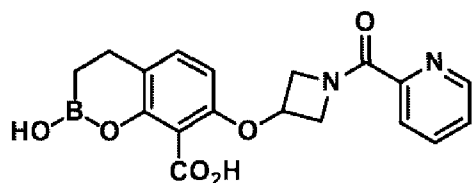
8-({1-[(2-amino-1,3-thiazol-4-yl)(methoxyimino)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 848]



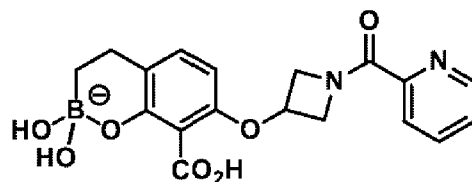
2-hydroxy-7-([1-(pyridine-2-carbonyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 849]



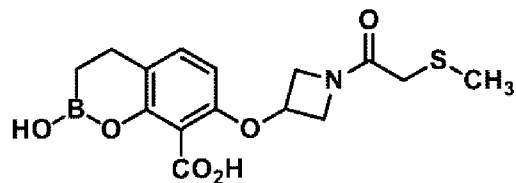
4,4-dihydroxy-8-([1-(pyridine-2-carbonyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 850]



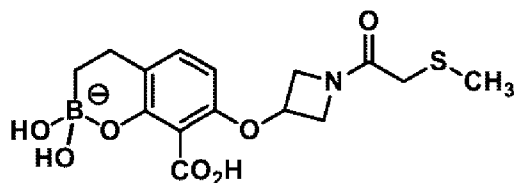
2-hydroxy-7-([1-[(methanesulfonyl)acetyl]azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

10 [Chemical Formula 851]



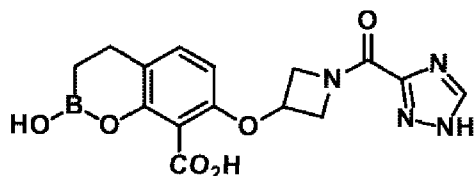
4,4-dihydroxy-8-([1-[(methanesulfonyl)acetyl]azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

15 [Chemical Formula 852]



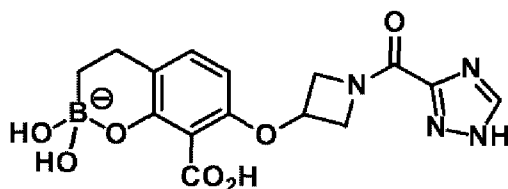
2-hydroxy-7-([1-[(1H-1,2,4-triazole-3-carbonyl)azetidin-3-yl]oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 853]



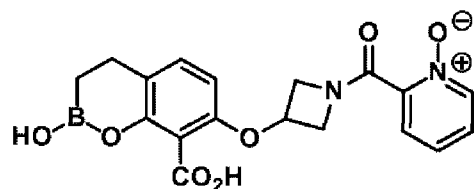
4,4-dihydroxy-8-([1-(1H-1,2,4-triazole-3-carbonyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 854]



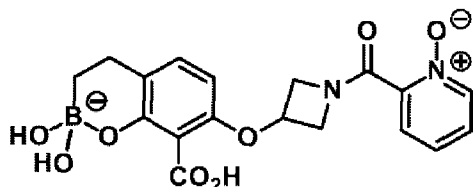
2-hydroxy-7-([1-(1-oxido-2-pyridinylcarbonyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 855]



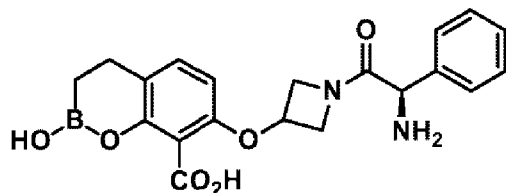
4,4-dihydroxy-8-([1-(1-oxido-2-pyridinylcarbonyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 856]



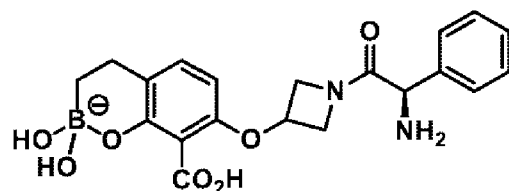
7-([1-[(2R)-2-amino-2-phenylacetyl]azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 857]



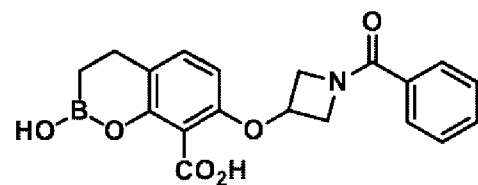
8-({1-[(2R)-2-amino-2-phenylacetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 858]



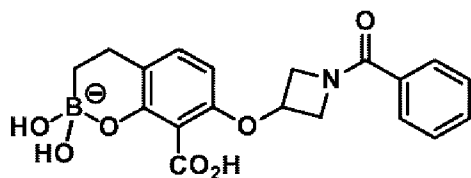
7-[(1-benzoylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

10 [Chemical Formula 859]



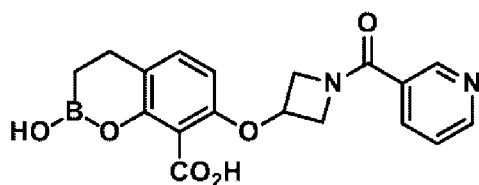
8-[(1-benzoylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

15 [Chemical Formula 860]



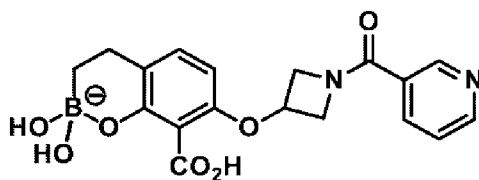
2-hydroxy-7-{[1-(pyridine-3-carbonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 861]

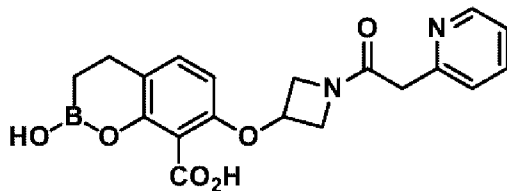


4,4-dihydroxy-8-{{1-[(pyridine-3-carbonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

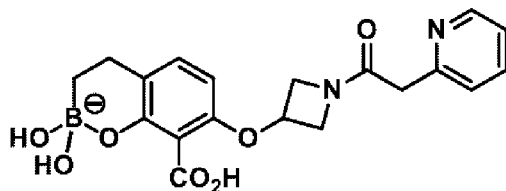
[Chemical Formula 862]



2-hydroxy-7-({1-[(pyridin-2-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid
[Chemical Formula 863]

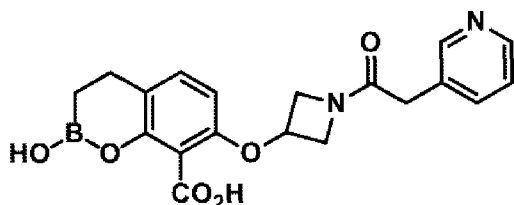


4,4-dihydroxy-8-({1-[(pyridin-2-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid
[Chemical Formula 864]



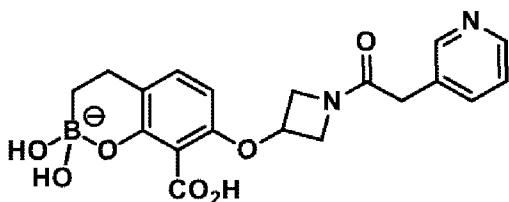
2-hydroxy-7-({1-[(pyridin-3-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 865]



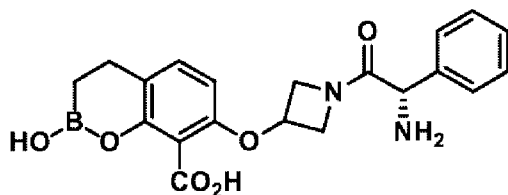
4,4-dihydroxy-8-({1-[(pyridin-3-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 866]



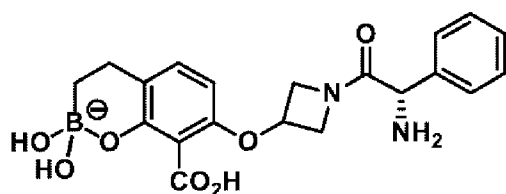
7-({1-[(2S)-2-amino-2-phenylacetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 867]



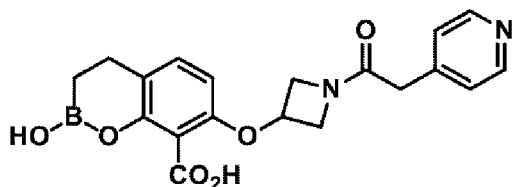
8-({1-[(2S)-2-amino-2-phenylacetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 868]



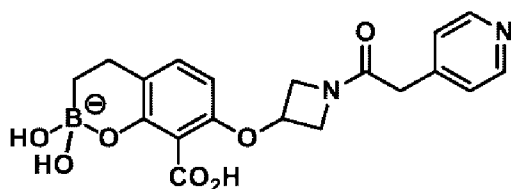
2-hydroxy-7-({1-[(pyridin-4-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 869]



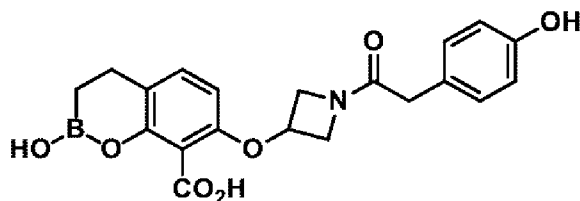
4,4-dihydroxy-8-((1-[(pyridin-4-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 870]



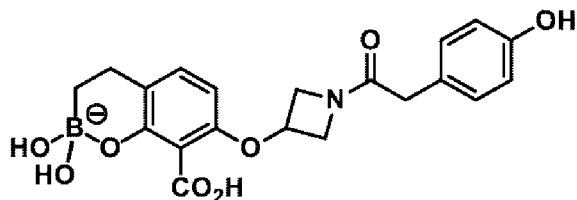
2-hydroxy-7-((1-[(4-hydroxyphenyl)acetyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 871]



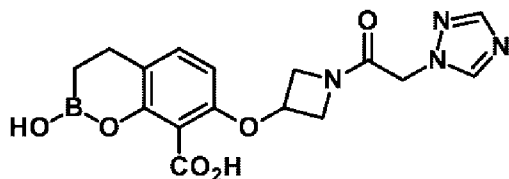
4,4-dihydroxy-8-((1-[(4-hydroxyphenyl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 872]



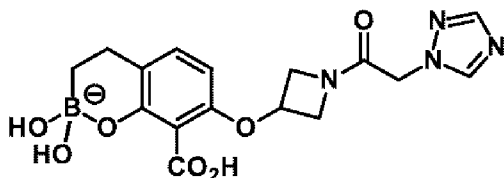
2-hydroxy-7-((1-[(1H-1,2,4-triazol-1-yl)acetyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 873]



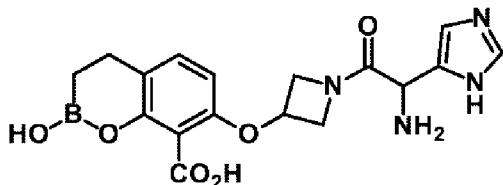
4,4-dihydroxy-8-((1-[(1H-1,2,4-triazol-1-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 874]



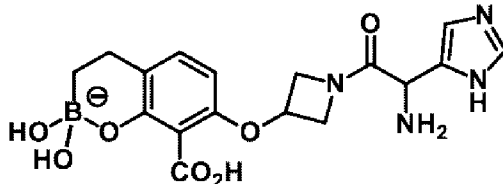
7-((1-[amino(1H-imidazol-5-yl)acetyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 875]



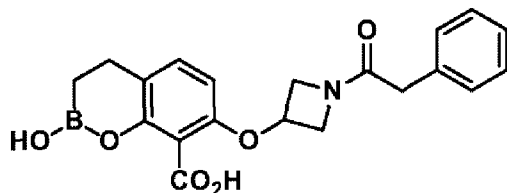
8-((1-[amino(1H-imidazol-5-yl)acetyl]azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 876]



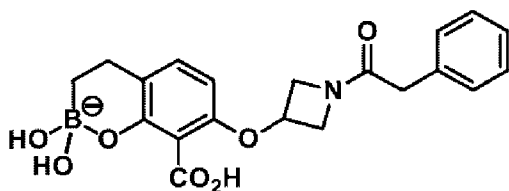
2-hydroxy-7-([1-(phenylacetyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 877]



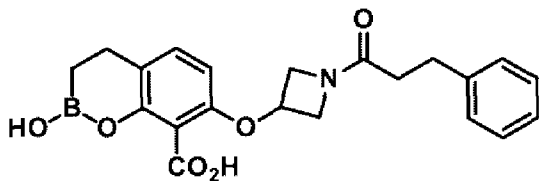
4,4-dihydroxy-8-([1-(phenylacetyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 878]



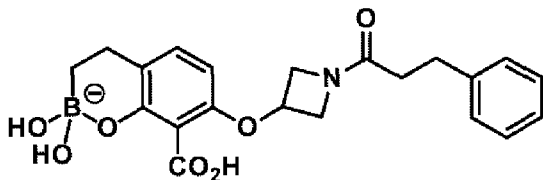
2-hydroxy-7-([1-(3-phenylpropanoyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 879]



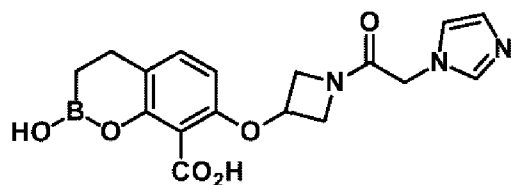
4,4-dihydroxy-8-([1-(3-phenylpropanoyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 880]



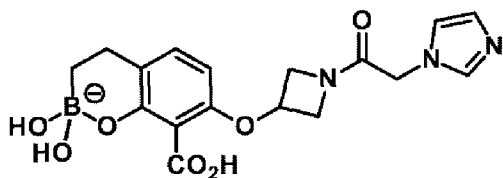
2-hydroxy-7-([1-[(1H-imidazol-1-yl)acetyl]azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 881]



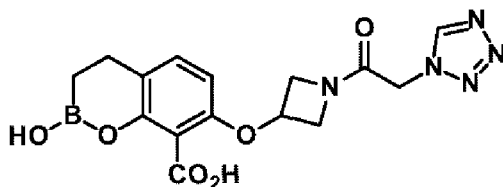
4,4-dihydroxy-8-((1-[(1H-imidazol-1-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 882]



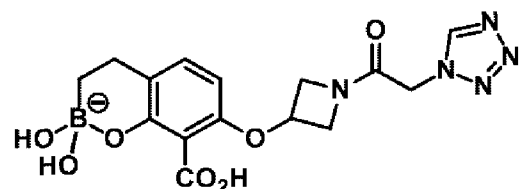
2-hydroxy-7-((1-[(1H-tetrazol-1-yl)acetyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 883]



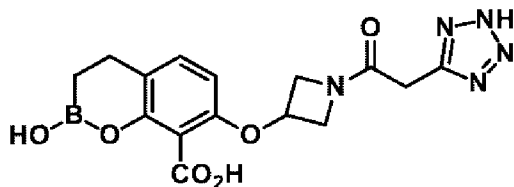
4,4-dihydroxy-8-((1-[(1H-tetrazol-1-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 884]



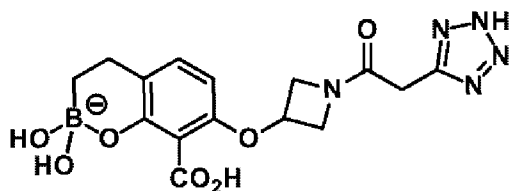
2-hydroxy-7-((1-[(2H-tetrazol-5-yl)acetyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 885]



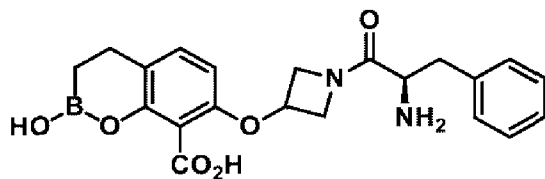
4,4-dihydroxy-8-((1-[(2H-tetrazol-5-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 886]



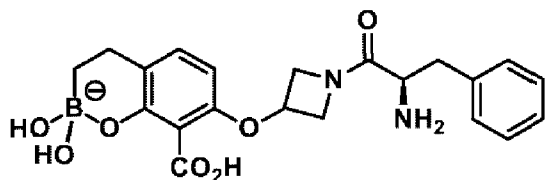
2-hydroxy-7-[(1-D-phenylalanylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

10 [Chemical Formula 887]



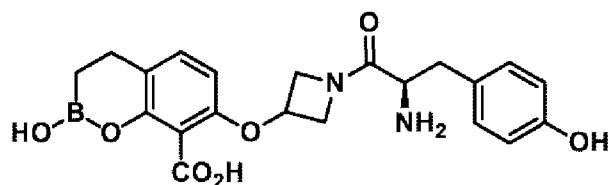
4,4-dihydroxy-8-[(1-D-phenylalanylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

15 [Chemical Formula 888]



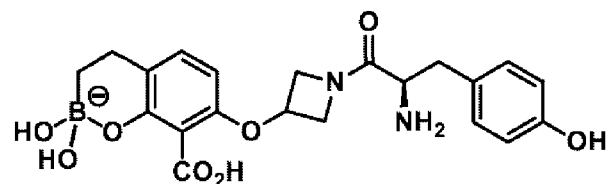
2-hydroxy-7-[(1-D-tyrosylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 889]



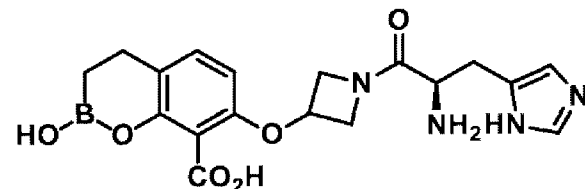
4,4-dihydroxy-8-[(1-D-tyrosylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 890]



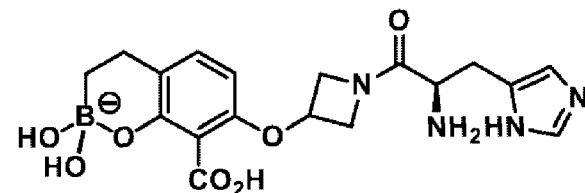
7-[(1-D-histidylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 891]



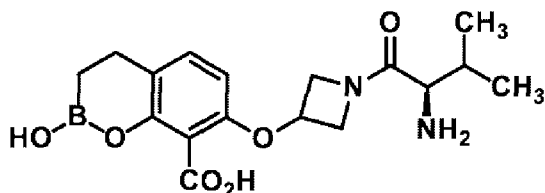
8-[(1-D-histidylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 892]



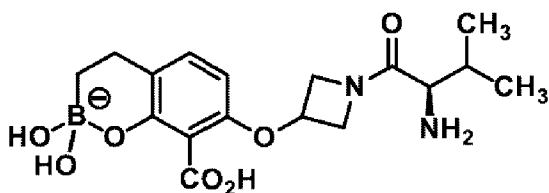
2-hydroxy-7-[(1-D-valylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 893]



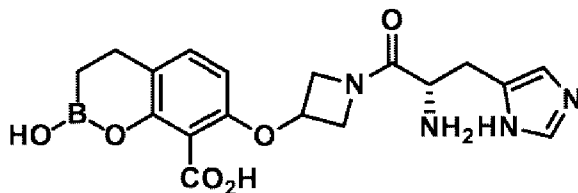
4,4-dihydroxy-8-[(1-D-valylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 894]



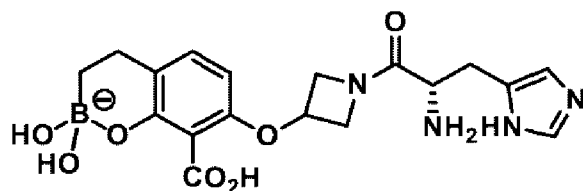
7-[(1-L-histidylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 895]



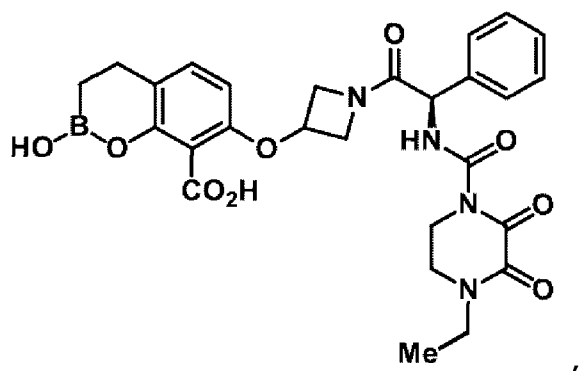
8-[(1-L-histidylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 896]



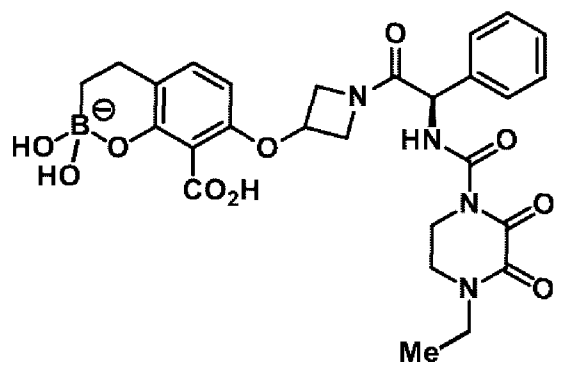
7-[(1-{(2R)-2-[(4-ethyl-2,3-dioxopiperazine-1-carbonyl)amino]-2-phenylacetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 897]



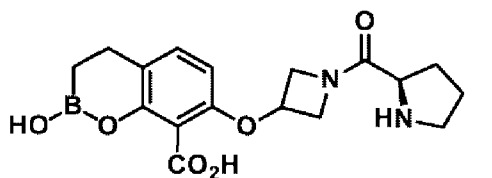
8-[(1-{(2R)-2-[(4-ethyl-2,3-dioxopiperazine-1-carbonyl)amino]-2-phenylacetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 898]



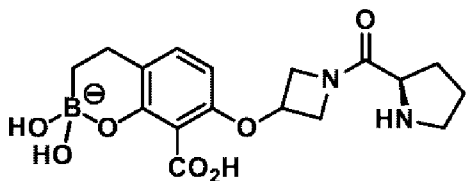
2-hydroxy-7-[(1-D-prolylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 899]



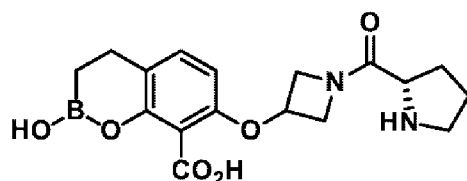
4,4-dihydroxy-8-[(1-D-prolylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 900]



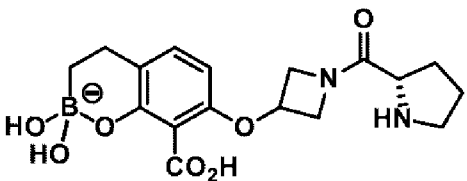
2-hydroxy-7-[(1-L-prolylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 901]



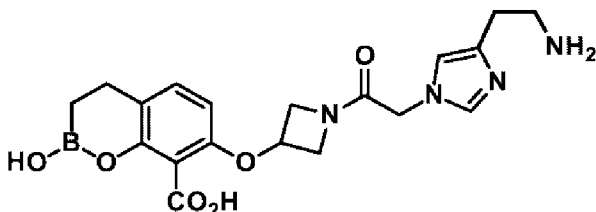
4,4-dihydroxy-8-[(1-L-prolylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 902]



7-[(1-{[4-(2-aminoethyl)-1H-imidazol-1-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

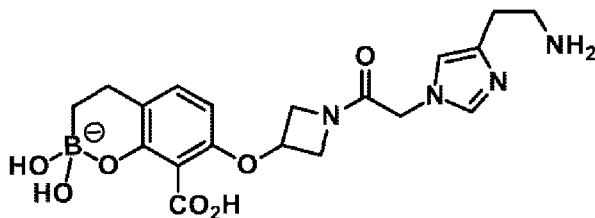
15 [Chemical Formula 903]



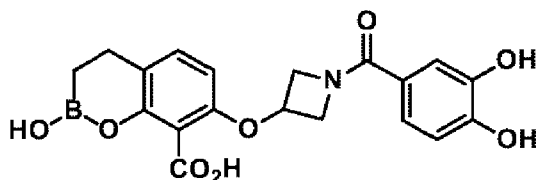
8-[(1-{[4-(2-aminoethyl)-1H-imidazol-1-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

acid

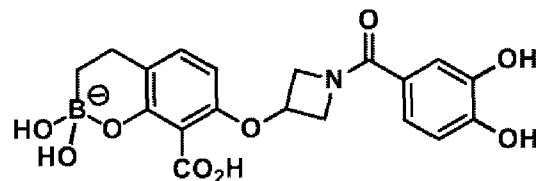
[Chemical Formula 904]



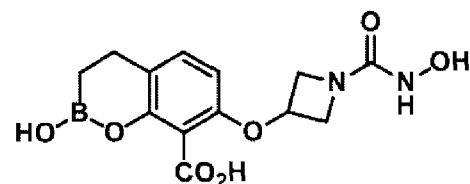
7-([1-(3,4-dihydroxybenzoyl)azetidin-3-yl]oxy)-2-hydroxy-
 3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid
 [Chemical Formula 905]



8-([1-(3,4-dihydroxybenzoyl)azetidin-3-yl]oxy)-4,4-
 dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
 triene-7-carboxylic acid
 [Chemical Formula 906]

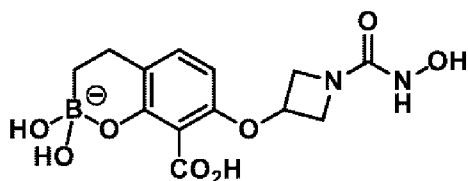


2-hydroxy-7-([1-(hydroxycarbamoyl)azetidin-3-yl]oxy)-3,4-
 dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid
 [Chemical Formula 907]



4,4-dihydroxy-8-([1-(hydroxycarbamoyl)azetidin-3-yl]oxy)-5-
 oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-
 carboxylic acid

[Chemical Formula 908]

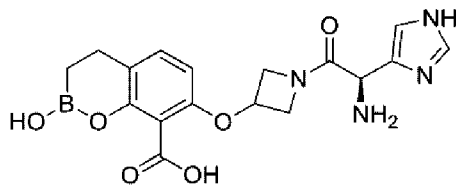


[Claim 54]

The compound or the pharmaceutically acceptable salt thereof of claim 1, represented by the following compound name or structural formula:

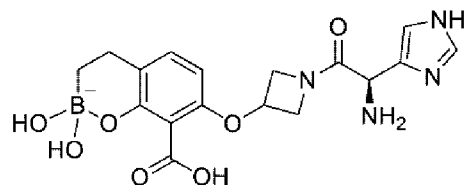
7-((1-[(2R)-2-amino-2-(1H-imidazol-4-yl)acetyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 909]



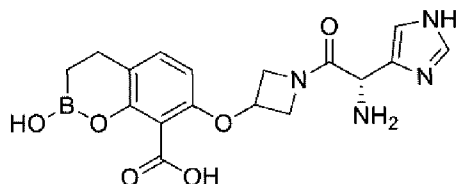
8-((1-[(2R)-2-amino-2-(1H-imidazol-4-yl)acetyl]azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 910]



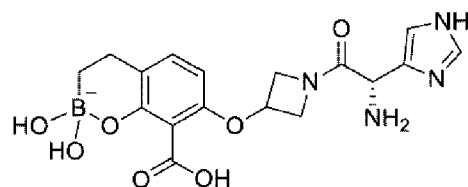
7-((1-[(2S)-2-amino-2-(1H-imidazol-4-yl)acetyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 911]



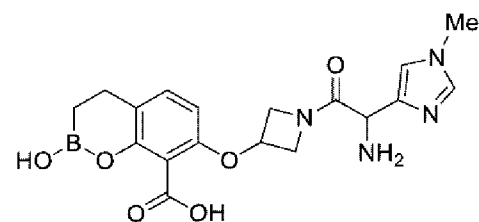
8-({1-[(2S)-2-amino-2-(1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 912]



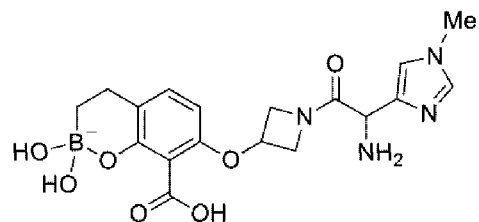
7-({1-[amino(1-methyl-1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 913]



8-({1-[amino(1-methyl-1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

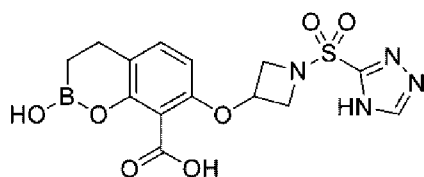
[Chemical Formula 914]



2-hydroxy-7-{[1-(4H-1,2,4-triazole-3-sulfonyl)azetidin-3-yl]oxy}-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

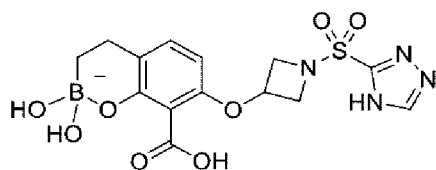
yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 915]



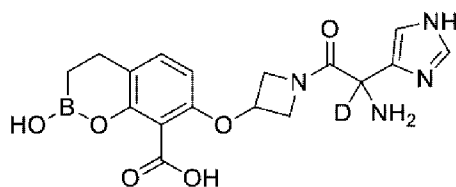
- 5 4,4-dihydroxy-8-([1-(4H-1,2,4-triazole-3-sulfonyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 916]



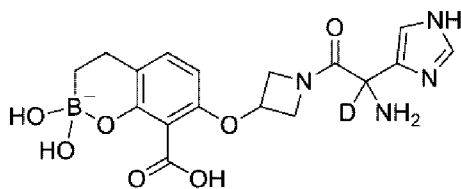
- 10 7-([1-[2-amino-2-(1H-imidazol-4-yl) (2H)ethanoyl]azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 917]



- 15 8-([1-[2-amino-2-(1H-imidazol-4-yl) (2H)ethanoyl]azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

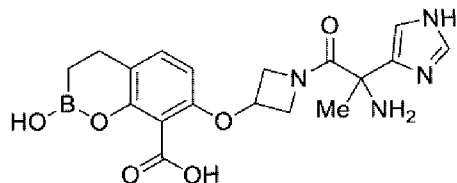
[Chemical Formula 918]



- 20 7-([1-[2-amino-2-(1H-imidazol-4-yl)propanoyl]azetidin-3-

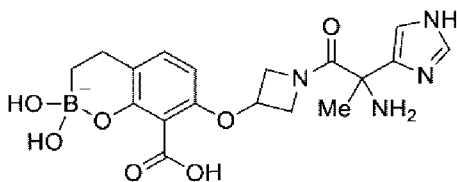
yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 919]



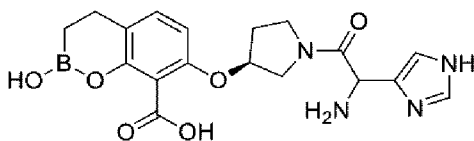
- 5 8-((1-[2-amino-2-(1H-imidazol-4-yl)propanoyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 920]



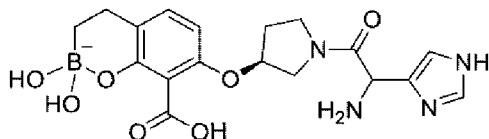
- 10 7-((3S)-1-[amino(1H-imidazol-4-yl)acetyl]pyrrolidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 921]



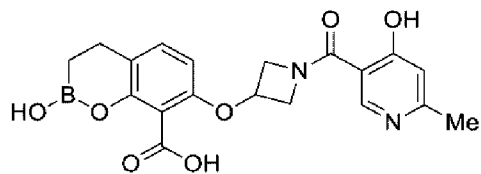
- 15 8-((3S)-1-[amino(1H-imidazol-4-yl)acetyl]pyrrolidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 922]



- 20 2-hydroxy-7-{[1-(4-hydroxy-6-methylpyridine-3-carbonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

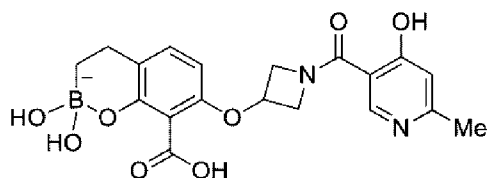
[Chemical Formula 923]



4,4-dihydroxy-8-([1-(4-hydroxy-6-methylpyridine-3-carbonyl)azetidin-3-yl]oxy)-5-oxa-4-

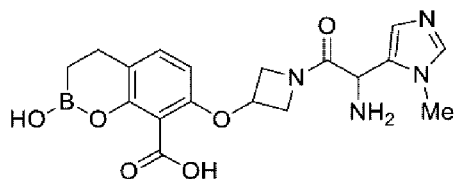
5 boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 924]



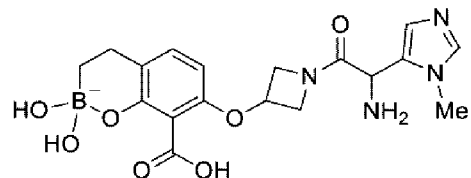
7-([1-[amino(1-methyl-1H-imidazol-5-yl)acetyl]azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 925]



8-([1-[amino(1-methyl-1H-imidazol-5-yl)acetyl]azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

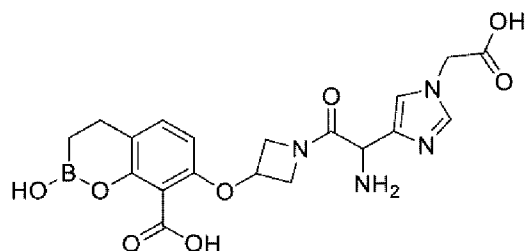
[Chemical Formula 926]



7-([1-([1-(carboxymethyl)-1H-imidazol-4-yl]acetyl)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-

benzoxaborinine-8-carboxylic acid

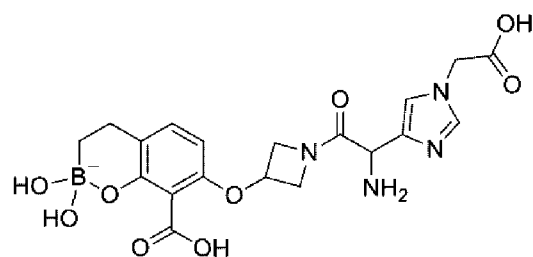
[Chemical Formula 927]



8-[(1-{amino[1-(carboxymethyl)-1H-imidazol-4-

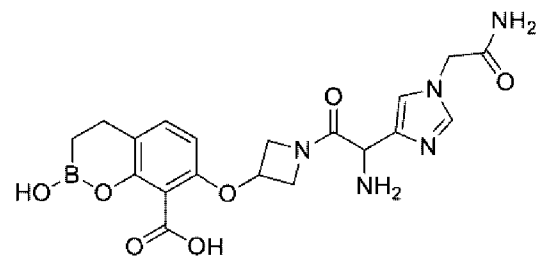
5 yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 928]



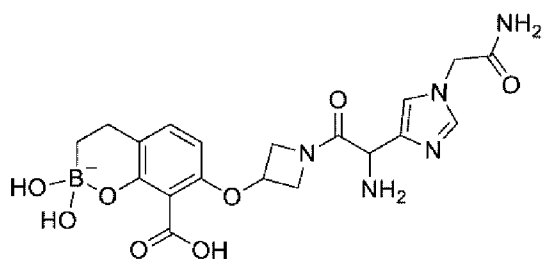
10 7-[(1-{amino[1-(2-amino-2-oxoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 929]



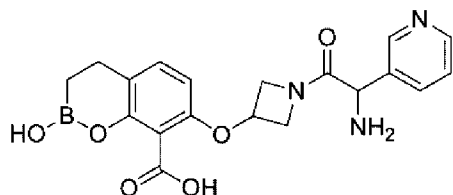
15 8-[(1-{amino[1-(2-amino-2-oxoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 930]



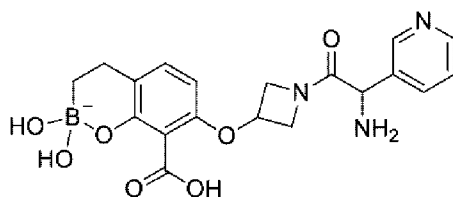
7-({1-[amino(pyridin-3-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 931]



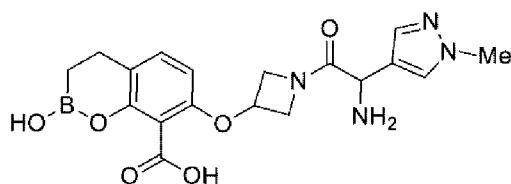
8-({1-[amino(pyridin-3-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 932]



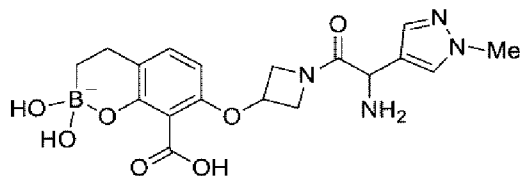
7-({1-[amino(1-methyl-1H-pyrazol-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 933]

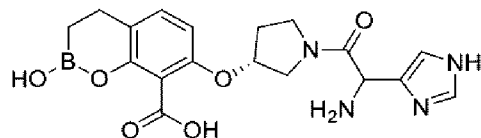


8-({1-[amino(1-methyl-1H-pyrazol-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

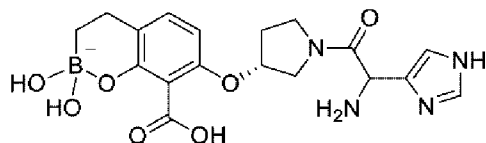
yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-
1(6),7,9-triene-7-carboxylic acid
[Chemical Formula 934]



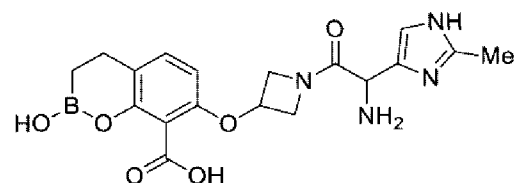
- 5 7-((3R)-1-((4-methyl-1H-imidazol-4-yl)amino)acetyl)pyrrolidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid
[Chemical Formula 935]



- 10 8-((3R)-1-((4-methyl-1H-imidazol-4-yl)amino)acetyl)pyrrolidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid
[Chemical Formula 936]

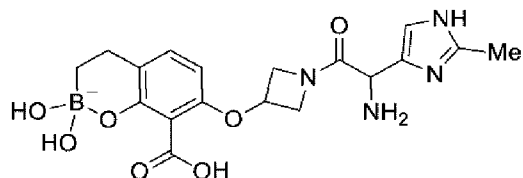


- 15 7-((1-((2-methyl-1H-imidazol-4-yl)amino)acetyl)azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid
[Chemical Formula 937]



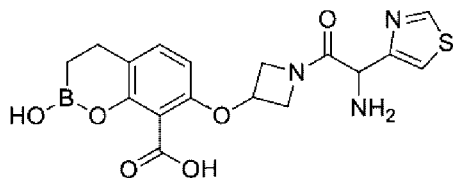
- 20 8-((1-((2-methyl-1H-imidazol-4-yl)amino)acetyl)azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 938]



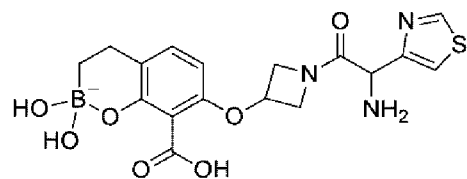
7-({1-[amino(1,3-thiazol-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 939]



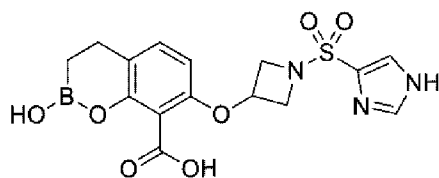
8-({1-[amino(1,3-thiazol-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 940]



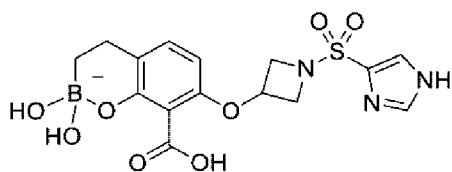
2-hydroxy-7-({1-[(1H-imidazole-4-sulfonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 941]



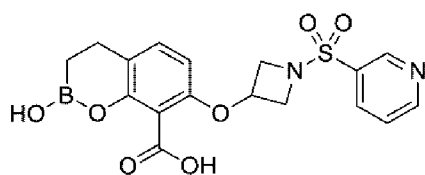
4,4-dihydroxy-8-({1-[(1H-imidazole-4-sulfonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 942]



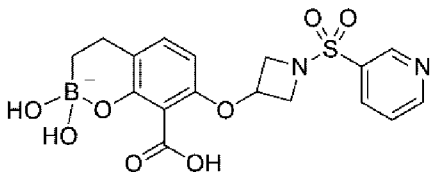
2-hydroxy-7-{[1-(pyridine-3-sulfonyl)azetidin-3-yl]oxy}-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

5 [Chemical Formula 943]



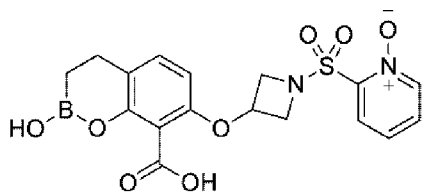
4,4-dihydroxy-8-{[1-(pyridine-3-sulfonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

10 [Chemical Formula 944]



2-hydroxy-7-{[1-(1-oxo-1λ⁵-pyridine-2-sulfonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

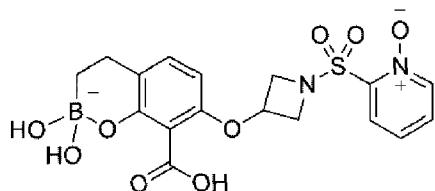
15 [Chemical Formula 945]



4,4-dihydroxy-8-{[1-(1-oxo-1λ⁵-pyridine-2-sulfonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

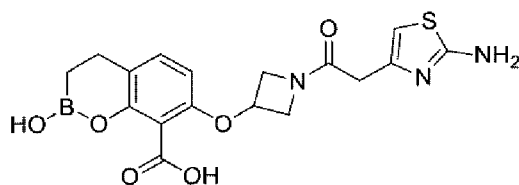
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[Chemical Formula 946]



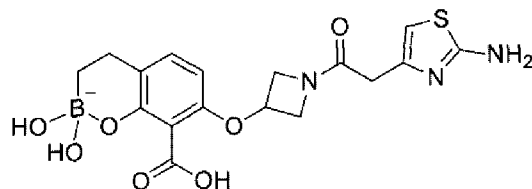
7-({1-[(2-amino-1,3-thiazol-4-yl)acetyl]azetidin-3-yl}oxy)-
2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic
5 acid

[Chemical Formula 947]



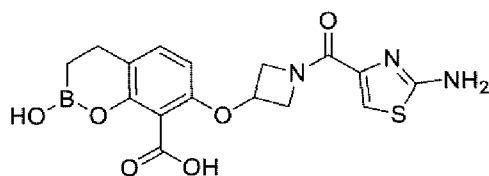
8-({1-[(2-amino-1,3-thiazol-4-yl)acetyl]azetidin-3-yl}oxy)-
4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
10 triene-7-carboxylic acid

[Chemical Formula 948]



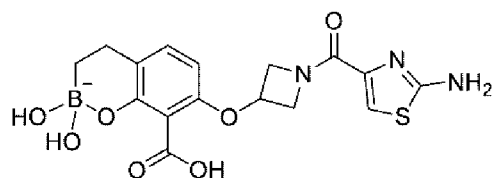
7-({1-[(2-amino-1,3-thiazole-4-carbonyl)azetidin-3-yl]oxy}-
2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic
15 acid

[Chemical Formula 949]



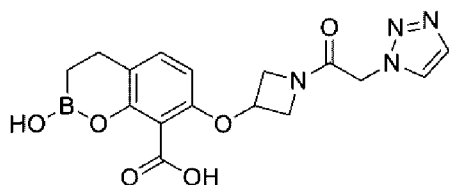
8-({1-[(2-amino-1,3-thiazole-4-carbonyl)azetidin-3-yl]oxy}-
4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
20 triene-7-carboxylic acid

[Chemical Formula 950]



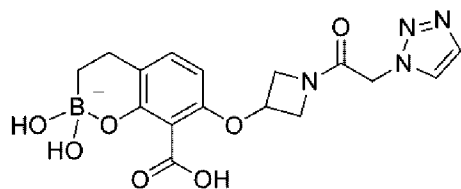
2-hydroxy-7-({1-[(1H-1,2,3-triazol-1-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 951]



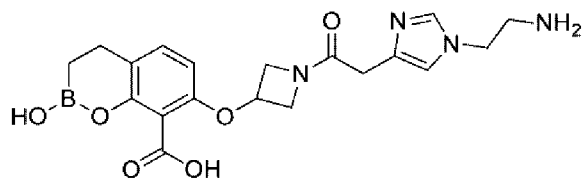
4,4-dihydroxy-8-({1-[(1H-1,2,3-triazol-1-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 952]



7-[(1-{[1-(2-aminoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

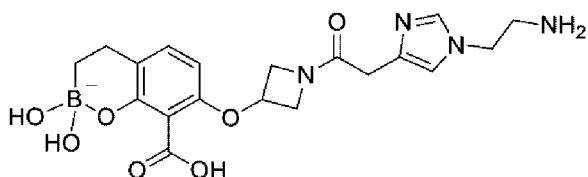
[Chemical Formula 953]



8-[(1-{[1-(2-aminoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

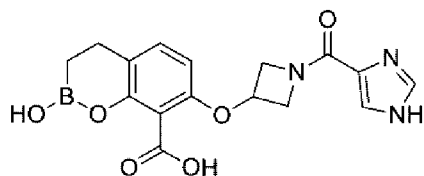
boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 954]



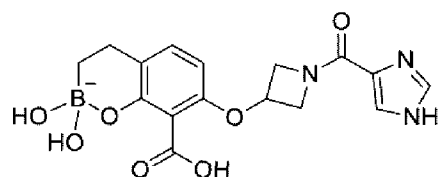
- 5 2-hydroxy-7-([1-(1H-imidazole-4-carbonyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 955]



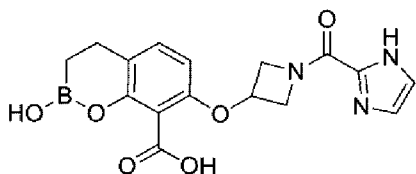
- 10 4,4-dihydroxy-8-([1-(1H-imidazole-4-carbonyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 956]



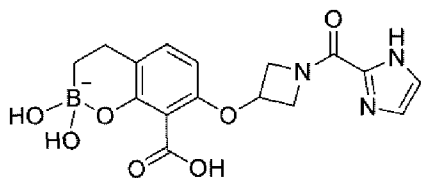
- 15 2-hydroxy-7-([1-(1H-imidazole-2-carbonyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 957]

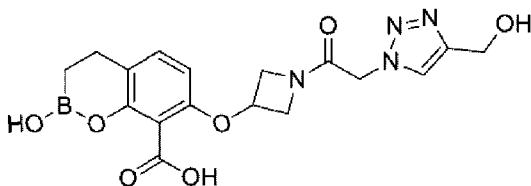


- 20 4,4-dihydroxy-8-([1-(1H-imidazole-2-carbonyl)azetidin-3-

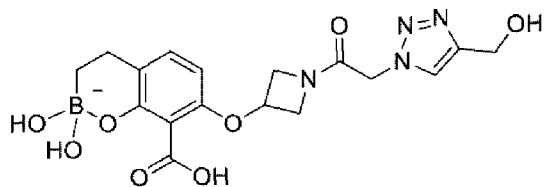
yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid
[Chemical Formula 958]



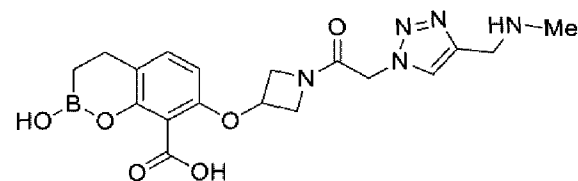
- 5 2-hydroxy-7-[(1-{[4-(hydroxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid
[Chemical Formula 959]



- 10 4,4-dihydroxy-8-[(1-{[4-(hydroxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid
[Chemical Formula 960]



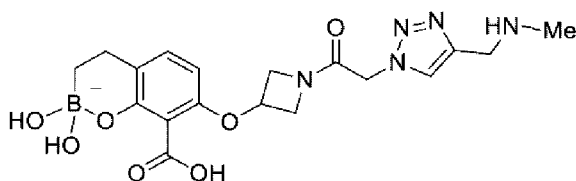
- 15 2-hydroxy-7-[[1-([4-(methylamino)methyl]-1H-1,2,3-triazol-1-yl]acetyl)azetidin-3-yl]oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid
[Chemical Formula 961]



20

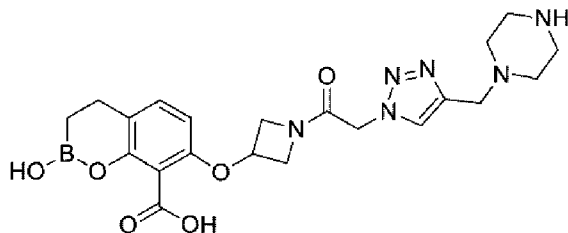
4,4-dihydroxy-8-{{1-({4-[(methylamino)methyl]-1H-1,2,3-triazol-1-yl}acetyl)azetidin-3-yl}oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

5 [Chemical Formula 962]



2-hydroxy-7-{{1-({4-[(piperazin-1-yl)methyl]-1H-1,2,3-triazol-1-yl}acetyl)azetidin-3-yl}oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

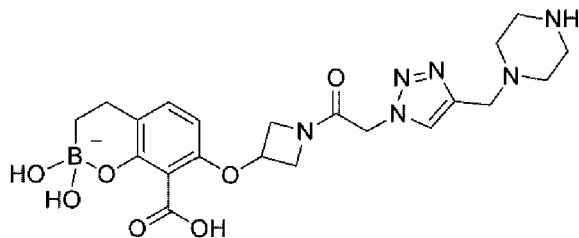
10 [Chemical Formula 963]



4,4-dihydroxy-8-{{1-({4-[(piperazin-1-yl)methyl]-1H-1,2,3-triazol-1-yl}acetyl)azetidin-3-yl}oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

15

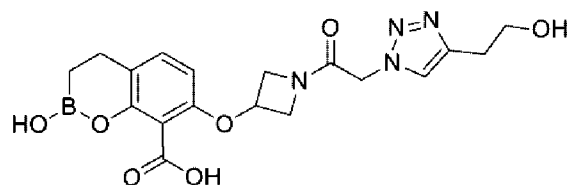
[Chemical Formula 964]



2-hydroxy-7-[(1-{[4-(2-hydroxyethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

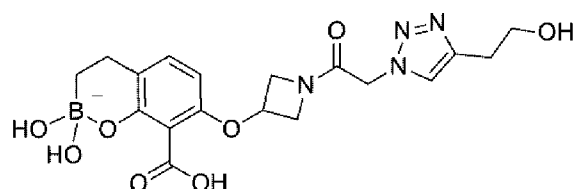
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[Chemical Formula 965]



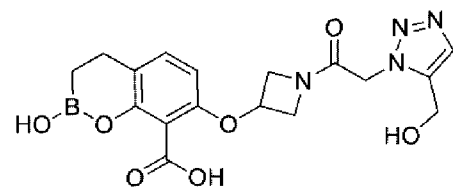
4,4-dihydroxy-8-[(1-{[4-(2-hydroxyethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 966]



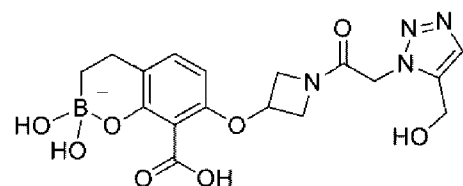
2-hydroxy-7-[(1-{[5-(hydroxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 967]



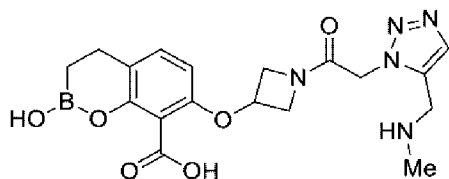
4,4-dihydroxy-8-[(1-{[5-(hydroxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 968]

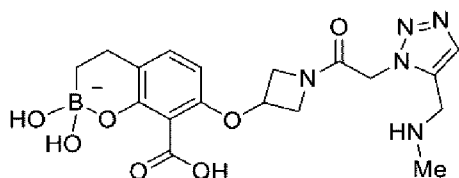


2-hydroxy-7-{[1-({5-[(methylamino)methyl]-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

1-yl}acetyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid
[Chemical Formula 969]

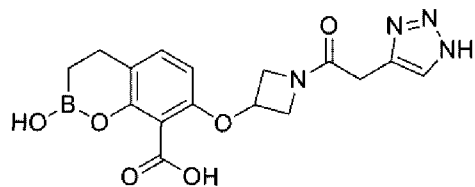


5 4,4-dihydroxy-8-{{1-({5-[(methylamino)methyl]-1H-1,2,3-triazol-1-yl}acetyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid
[Chemical Formula 970]



10

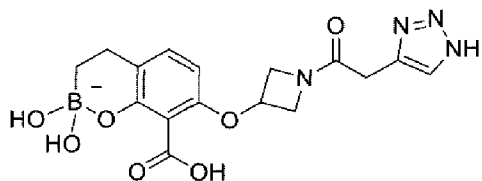
2-hydroxy-7-({1-[(1H-1,2,3-triazol-4-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid
[Chemical Formula 971]



15

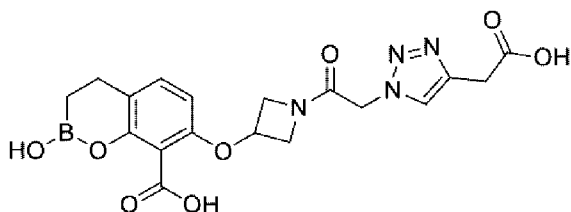
4,4-dihydroxy-8-({1-[(1H-1,2,3-triazol-4-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 972]



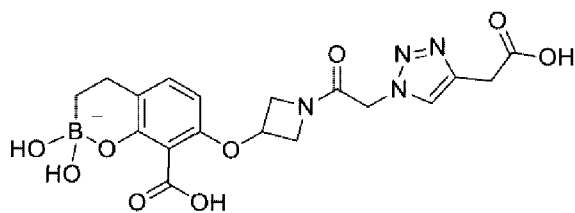
7-[(1-{[4-(carboxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 973]



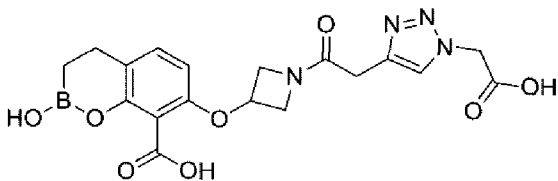
8-[(1-{[4-(carboxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 974]



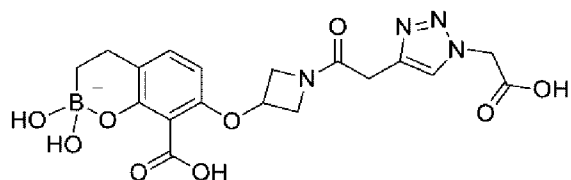
7-[(1-{[1-(carboxymethyl)-1H-1,2,3-triazol-4-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 975]



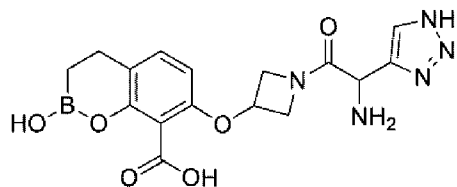
8-[(1-{[1-(carboxymethyl)-1H-1,2,3-triazol-4-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

5 [Chemical Formula 976]



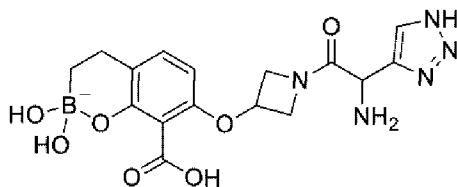
7-({1-[amino(1H-1,2,3-triazol-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

10 [Chemical Formula 977]



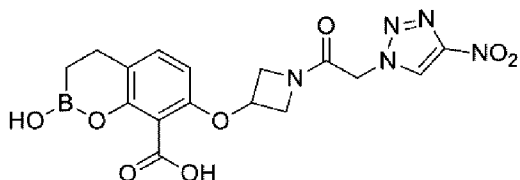
8-({1-[amino(1H-1,2,3-triazol-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

15 [Chemical Formula 978]



2-hydroxy-7-({1-[(4-nitro-1H-1,2,3-triazol-1-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

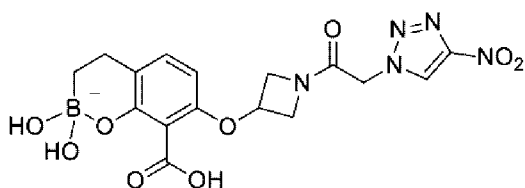
[Chemical Formula 979]



4,4-dihydroxy-8-((1-[(4-nitro-1H-1,2,3-triazol-1-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-

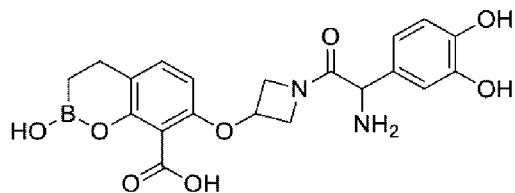
5 boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 980]



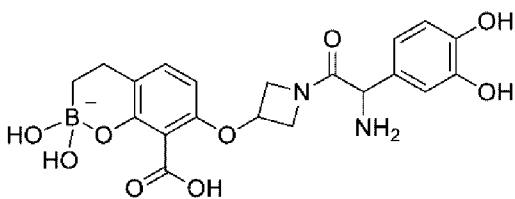
7-((1-[amino(3,4-dihydroxyphenyl)acetyl]azetidin-3-yl)oxy)-
10 2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 981]



8-((1-[amino(3,4-dihydroxyphenyl)acetyl]azetidin-3-yl)oxy)-
15 4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

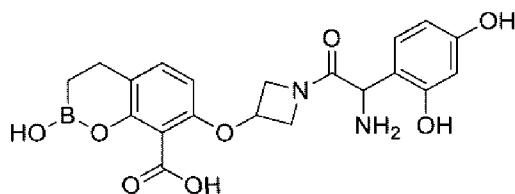
[Chemical Formula 982]



7-((1-[amino(2,4-dihydroxyphenyl)acetyl]azetidin-3-yl)oxy)-
20 2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic

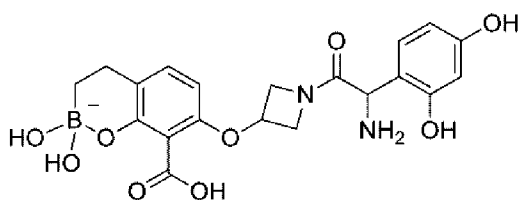
acid

[Chemical Formula 983]



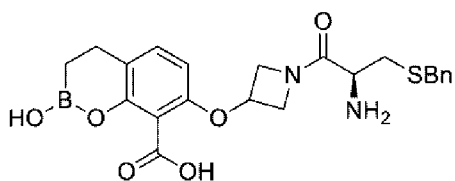
8-({1-[amino(2,4-dihydroxyphenyl)acetyl]azetidin-3-yl}oxy)-
5 4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
triene-7-carboxylic acid

[Chemical Formula 984]



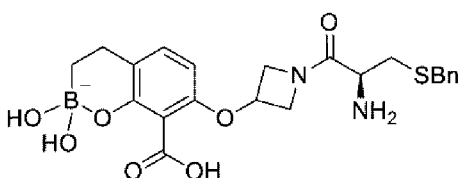
7-([1-(S-benzyl-D-cysteinyl)azetidin-3-yl]oxy)-2-hydroxy-
10 3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 985]



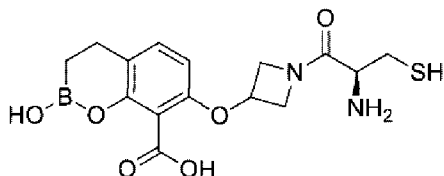
8-([1-(S-benzyl-D-cysteinyl)azetidin-3-yl]oxy)-4,4-
dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
15 triene-7-carboxylic acid

[Chemical Formula 986]



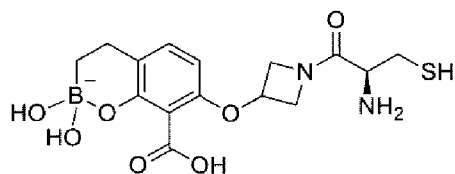
7-[(1-D-cysteinylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-
2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 987]



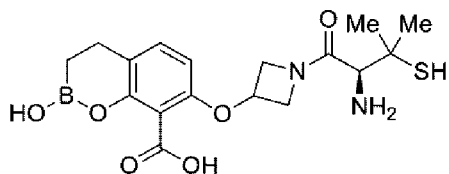
7-[(1-D-cysteinylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 988]



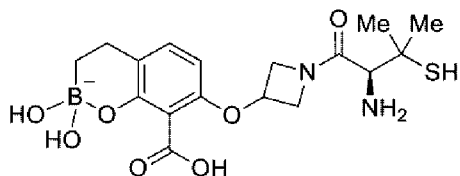
2-hydroxy-7-{[1-(3-sulfanyl-D-valyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 989]



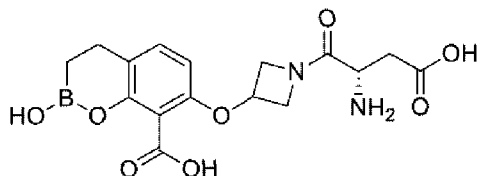
4,4-dihydroxy-8-{[1-(3-sulfanyl-D-valyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 990]



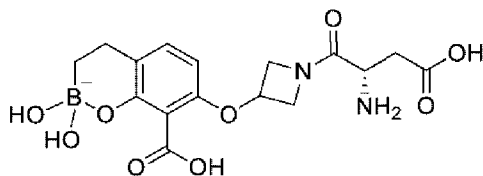
7-({1-[(2S)-2-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 991]

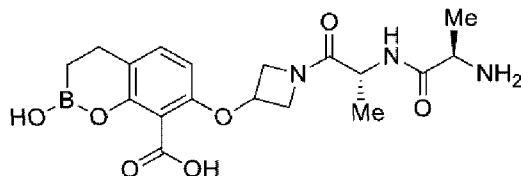


8-({1-[(2S)-2-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-
4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
5 triene-7-carboxylic acid

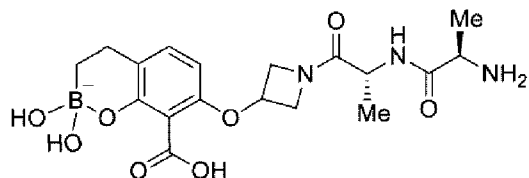
[Chemical Formula 992]



7-{[1-(D-alanyl-D-alanyl)azetidin-3-yl]oxy}-2-hydroxy-3,4-
dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid
10 [Chemical Formula 993]

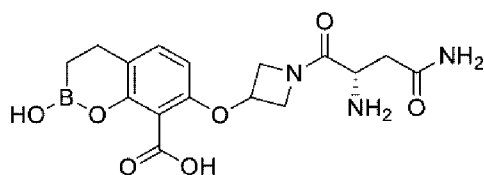


8-([1-(D-alanyl-D-alanyl)azetidin-3-yl]oxy)-4,4-dihydroxy-
5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-
carboxylic acid
15 [Chemical Formula 994]



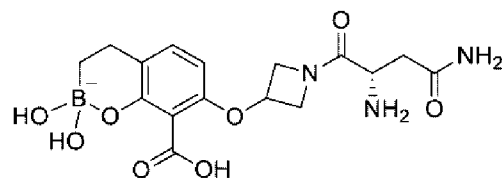
7-[(1-L-asparaginylazetidin-3-yl)oxy]-2-hydroxy-3,4-
dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 995]

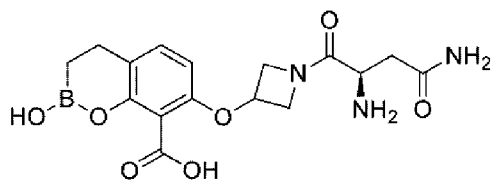


8-[(1-L-asparaginylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 996]

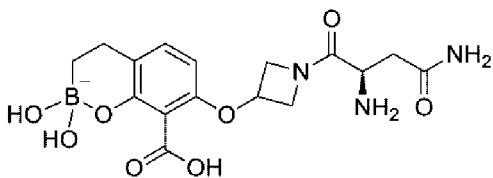


7-[(1-D-asparaginylazetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid



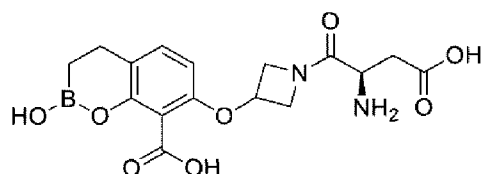
8-[(1-D-asparaginylazetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 998]



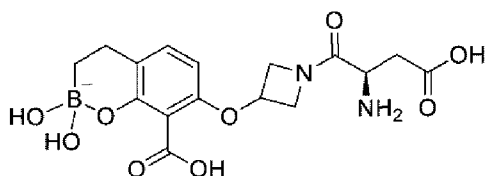
7-({1-[(2R)-2-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 999]



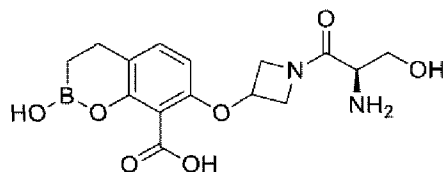
8-({1-[(2R)-2-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-
4,4-dihydroxy-5-oxa-4-boranidabicyclo[4.4.0]deca-1(6),7,9-
5 triene-7-carboxylic acid

[Chemical Formula 1000]



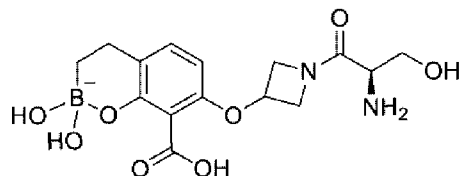
2-hydroxy-7-[(1-D-serylazetidin-3-yl)oxy]-3,4-dihydro-2H-
1,2-benzoxaborinine-8-carboxylic acid

10 [Chemical Formula 1001]



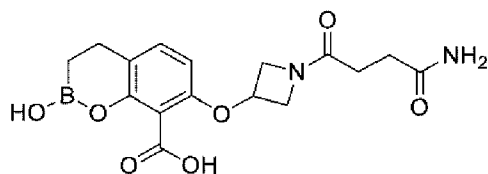
4,4-dihydroxy-8-[(1-D-serylazetidin-3-yl)oxy]-5-oxa-4-
boranidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic
acid

15 [Chemical Formula 1002]



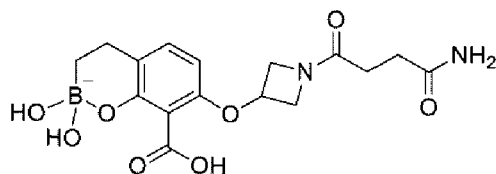
7-{[1-(4-amino-4-oxobutanoyl)azetidin-3-yl]oxy}-2-hydroxy-
3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1003]

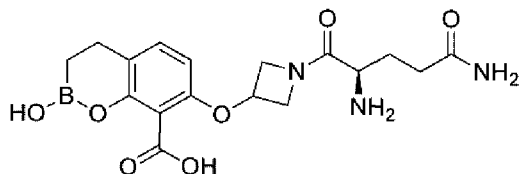


8-([1-(4-amino-4-oxobutanoyl)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1004]

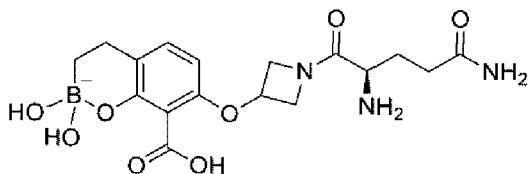


7-([1-D-glutaminylazetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborin-8-carboxylic acid



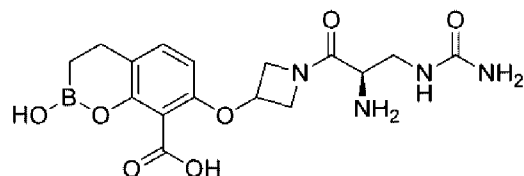
8-([1-D-glutaminylazetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1006]



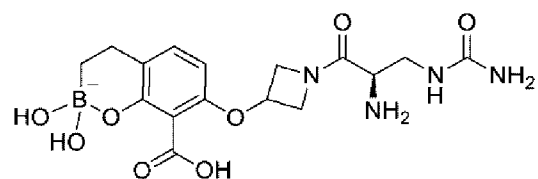
7-([1-[3-(carbamoylamino)-D-alanyl]azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborin-8-carboxylic acid

[Chemical Formula 1007]

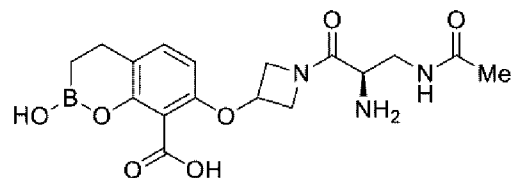


8-({1-[3-(carbamoylamino)-D-alanyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

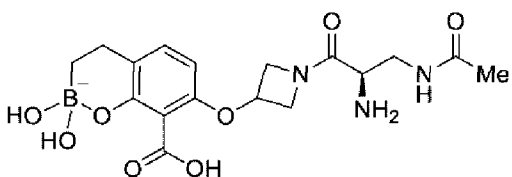
[Chemical Formula 1008]



7-([1-(3-acetamido-D-alanyl)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

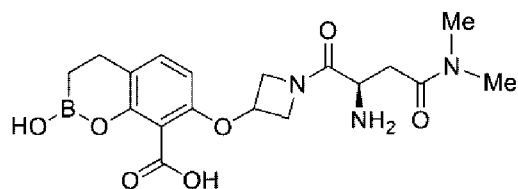


8-([1-(3-acetamido-D-alanyl)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid



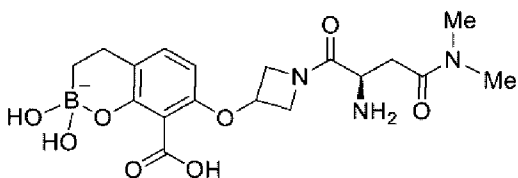
7-([1-(N,N-dimethyl-D-asparaginy]azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1011]



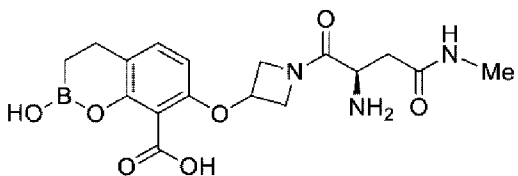
8-{[1-(N,N-dimethyl-D-asparaginy)]azetidin-3-yl}oxy-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1012]



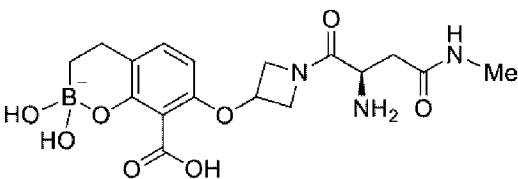
2-hydroxy-7-{[1-(N-methyl-D-asparaginy)]azetidin-3-yl}oxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1013]



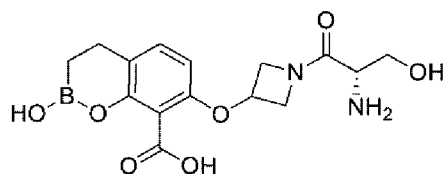
4,4-dihydroxy-8-{[1-(N-methyl-D-asparaginy)]azetidin-3-yl}oxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1014]



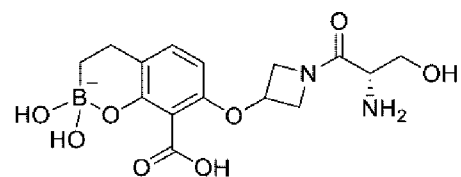
2-hydroxy-7-[(1-L-serylazetidin-3-yl)oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1015]



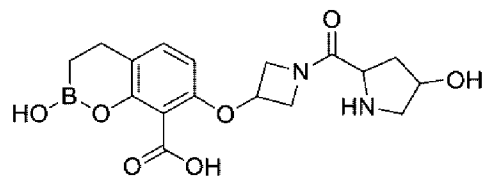
4,4-dihydroxy-8-[(1-L-serylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1016]



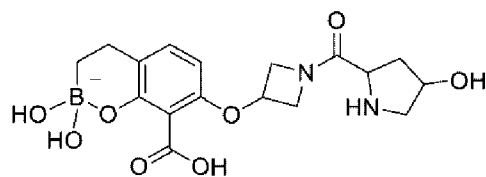
2-hydroxy-7-[[1-(4-hydroxypropyl)azetidin-3-yl]oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1017]



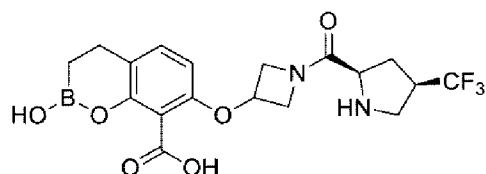
4,4-dihydroxy-8-[[1-(4-hydroxypropyl)azetidin-3-yl]oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1018]



2-hydroxy-7-((1-[(4R)-4-(trifluoromethyl)-D-propyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

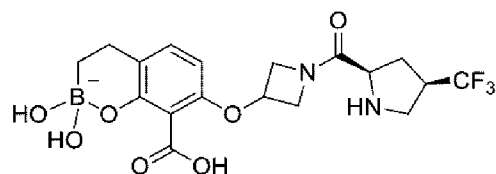
[Chemical Formula 1019]



4,4-dihydroxy-8-({1-[(4R)-4-(trifluoromethyl)-D-prolyl]azetidin-3-yl}oxy)-5-oxa-4-

5 boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

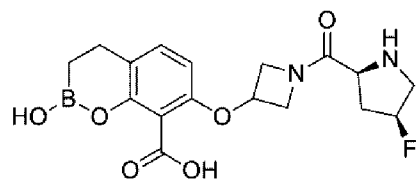
[Chemical Formula 1020]



7-({1-[(4S)-4-fluoro-L-prolyl]azetidin-3-yl}oxy)-2-hydroxy-

10 3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

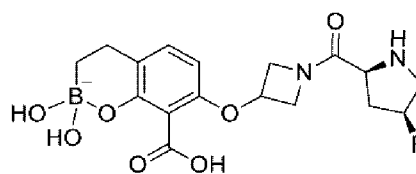
[Chemical Formula 1021]



8-({1-[(4S)-4-fluoro-L-prolyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-

15 triene-7-carboxylic acid

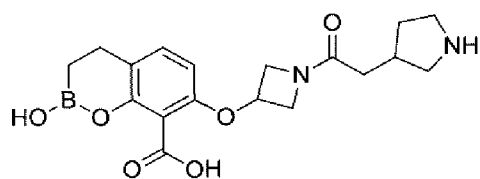
[Chemical Formula 1022]



2-hydroxy-7-({1-[(pyrrolidin-3-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic

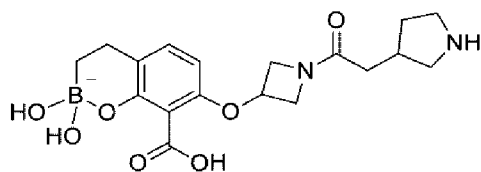
20 acid

[Chemical Formula 1023]



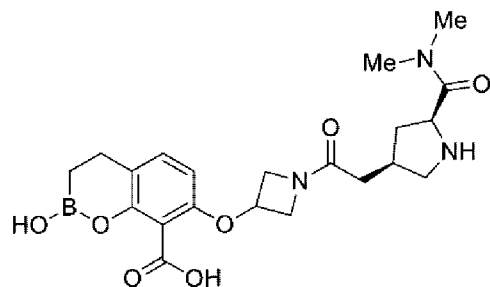
4,4-dihydroxy-8-({1-[(pyrrolidin-3-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1024]



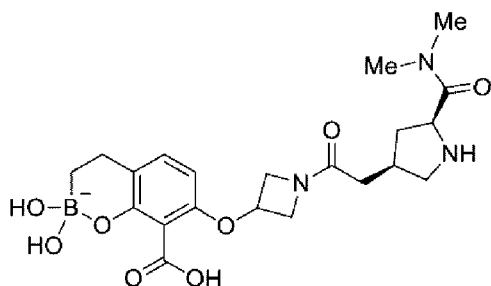
7-[(1-{[(3R,5S)-5-(dimethylcarbamoyl)pyrrolidin-3-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1025]



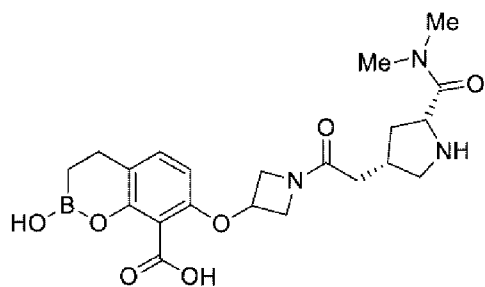
8-[(1-{[(3R,5S)-5-(dimethylcarbamoyl)pyrrolidin-3-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1026]



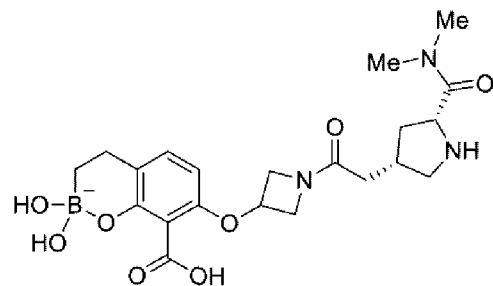
7-[(1-[(3S,5R)-5-(dimethylcarbamoyl)pyrrolidin-3-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1027]



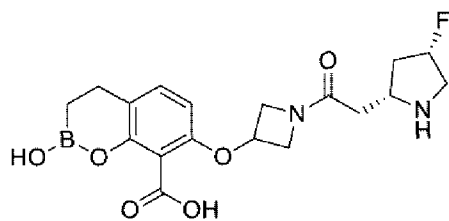
8-[(1-[(3S,5R)-5-(dimethylcarbamoyl)pyrrolidin-3-yl]acetyl}azetidin-3-yl)oxy]-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1028]



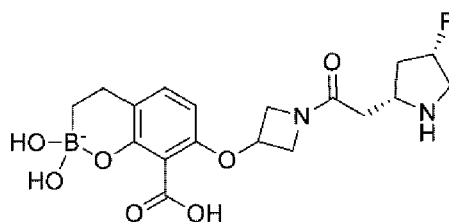
7-[(1-[(2R,4S)-4-fluoropyrrolidin-2-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1029]



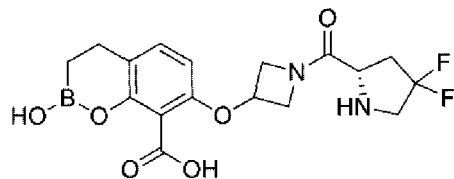
8-[(1-[(2R,4S)-4-fluoropyrrolidin-2-yl]acetyl)azetidin-3-yl]oxy-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1030]



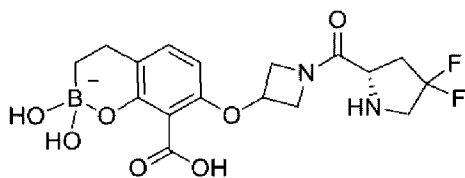
7-{[1-(4,4-difluoro-L-prolyl)azetidin-3-yl]oxy}-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1031]



8-{[1-(4,4-difluoro-L-prolyl)azetidin-3-yl]oxy}-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

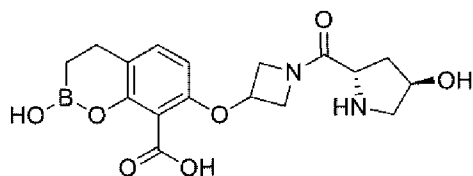
[Chemical Formula 1032]



2-hydroxy-7-({1-[(4R)-4-hydroxy-L-prolyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

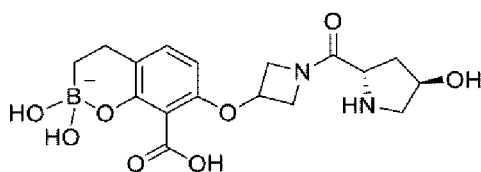
acid

[Chemical Formula 1033]



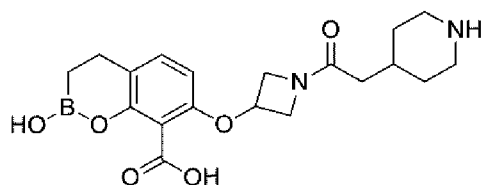
4,4-dihydroxy-8-({1-[(4R)-4-hydroxy-L-prolyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1034]



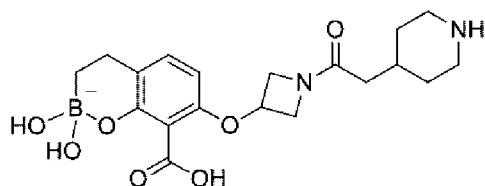
2-hydroxy-7-({1-[(piperidin-4-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1035]



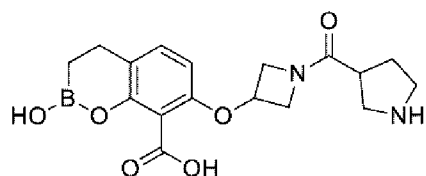
4,4-dihydroxy-8-({1-[(piperidin-4-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1036]



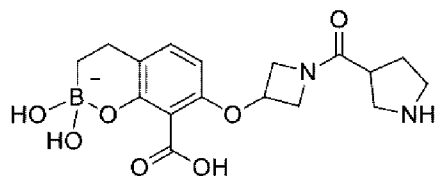
2-hydroxy-7-{[1-(pyrrolidine-3-carbonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1037]



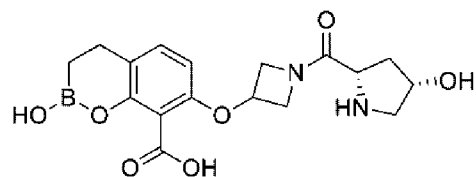
4,4-dihydroxy-8-([1-(pyrrolidin-3-carbonyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1038]



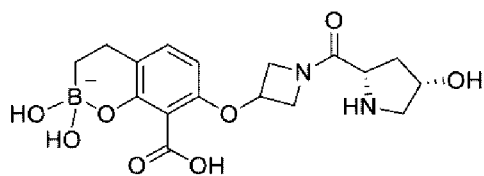
2-hydroxy-7-([1-[(4S)-4-hydroxy-L-prolyl]azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1039]



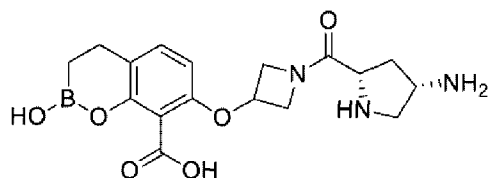
4,4-dihydroxy-8-([1-[(4S)-4-hydroxy-L-prolyl]azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1040]



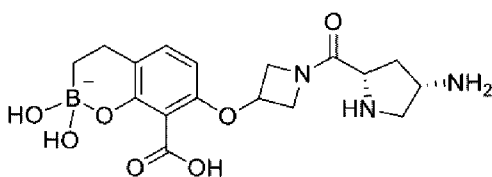
7-([1-[(4S)-4-amino-L-prolyl]azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1041]



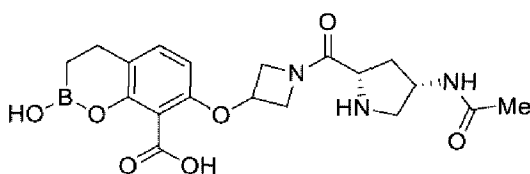
8-((1-[(4S)-4-amino-L-prolyl]azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1042]



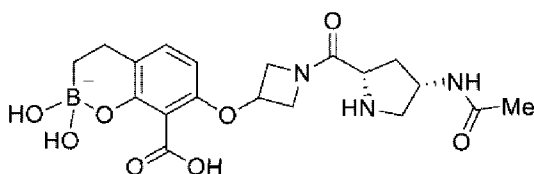
7-((1-[(4S)-4-acetamido-L-prolyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1043]



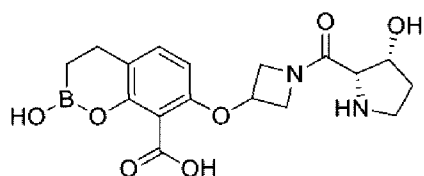
8-((1-[(4S)-4-acetamido-L-prolyl]azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1044]



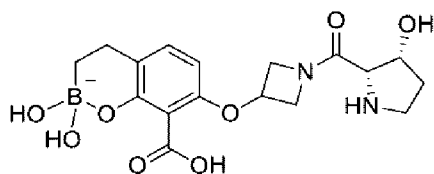
2-hydroxy-7-((1-[(3R)-3-hydroxy-L-prolyl]azetidin-3-yl)oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1045]



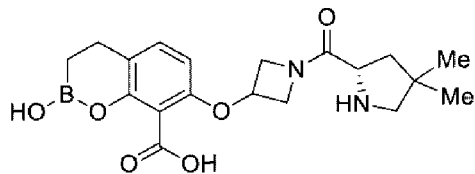
4,4-dihydroxy-8-({1-[(3R)-3-hydroxy-L-propyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1046]



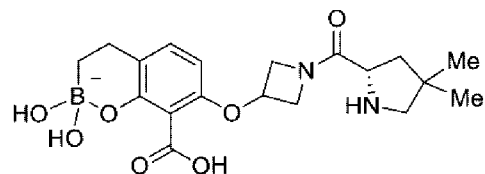
7-({1-[(4,4-dimethyl-L-propyl)azetidin-3-yl]oxy}-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1047]



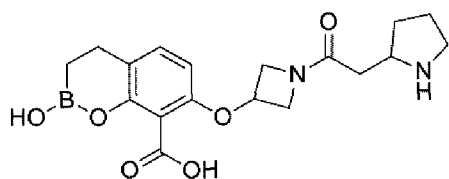
8-({1-[(4,4-dimethyl-L-propyl)azetidin-3-yl]oxy}-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1048]



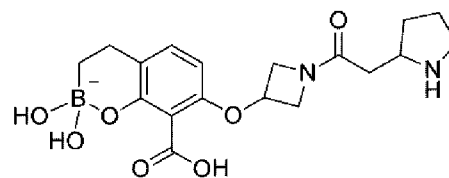
2-hydroxy-7-({1-[(pyrrolidin-2-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1049]



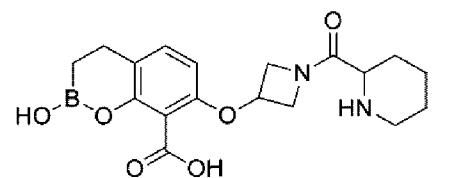
4,4-dihydroxy-8-({1-[(pyrrolidin-2-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1050]



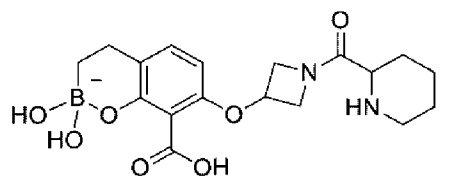
2-hydroxy-7-([1-(piperidine-2-carbonyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1051]



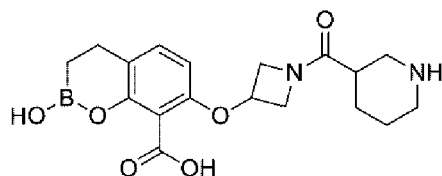
4,4-dihydroxy-8-([1-(piperidine-2-carbonyl)azetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1052]



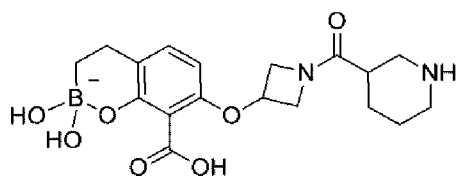
2-hydroxy-7-([1-(piperidine-3-carbonyl)azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1053]



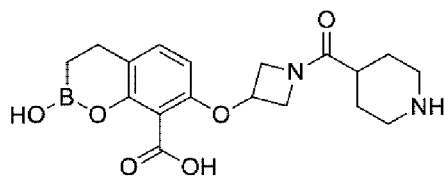
4,4-dihydroxy-8-{{[1-(piperidine-3-carbonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1054]



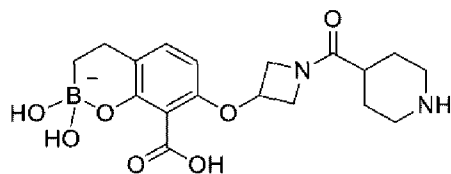
2-hydroxy-7-{{[1-(piperidine-4-carbonyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

10 [Chemical Formula 1055]



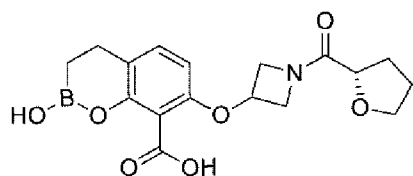
4,4-dihydroxy-8-{{[1-(piperidine-4-carbonyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

15 [Chemical Formula 1056]



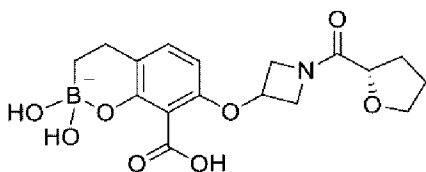
2-hydroxy-7-({[1-[(2S)-oxolane-2-carbonyl]azetidin-3-yl]oxy})-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1057]



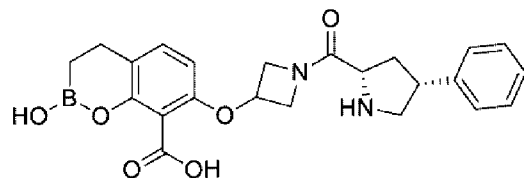
4,4-dihydroxy-8-({1-[(2S)-oxolane-2-carbonyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1058]



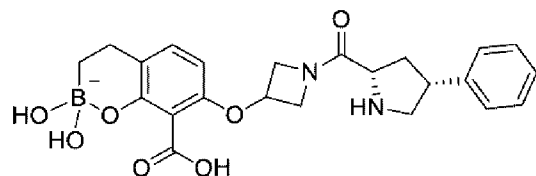
2-hydroxy-7-({1-[(4R)-4-phenyl-L-prolyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1059]



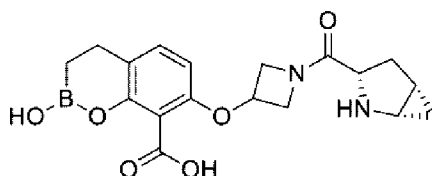
4,4-dihydroxy-8-({1-[(4R)-4-phenyl-L-prolyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1060]



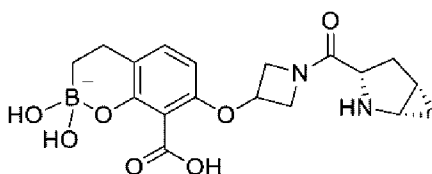
7-({1-[(1S,3S,5S)-2-azabicyclo[3.1.0]hexane-3-carbonyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1061]



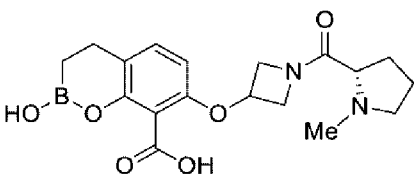
8-({1-[(1S,3S,5S)-2-azabicyclo[3.1.0]hexane-3-carbonyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1062]



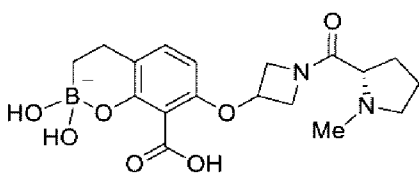
2-hydroxy-7-{{1-[(1-methyl-L-prolyl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1063]



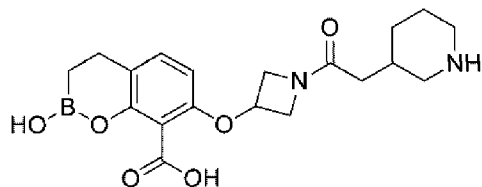
4,4-dihydroxy-8-{{1-[(1-methyl-L-prolyl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1064]



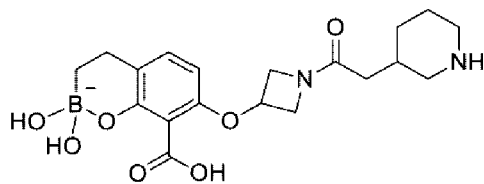
2-hydroxy-7-({1-[(piperidin-3-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1065]



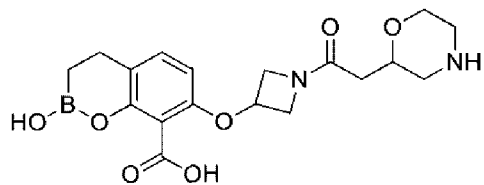
4,4-dihydroxy-8-({1-[(piperidin-3-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1066]



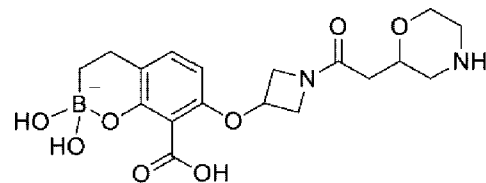
2-hydroxy-7-({1-[(morpholin-2-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1067]



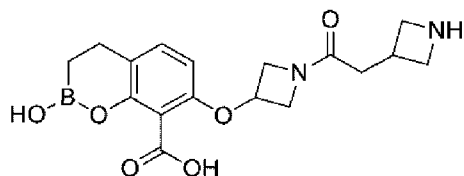
4,4-dihydroxy-8-({1-[(morpholin-2-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1068]



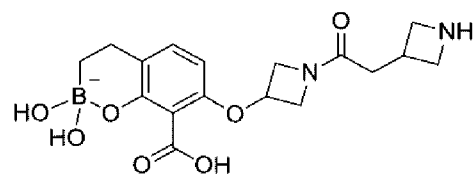
7-({1-[(azetidin-3-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1069]



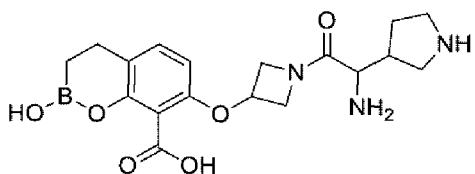
8-({1-[(azetidin-3-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1070]



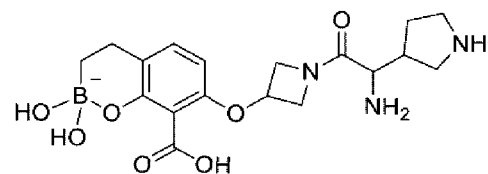
7-({1-[amino(pyrrolidin-3-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1071]



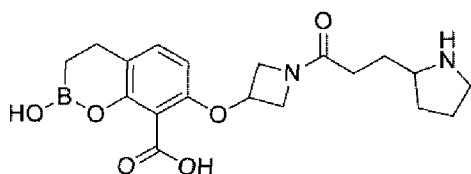
8-({1-[amino(pyrrolidin-3-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1072]



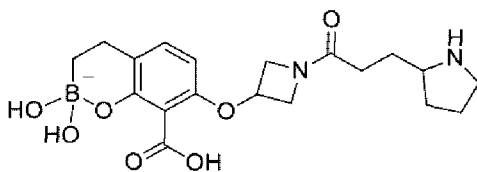
2-hydroxy-7-({1-[3-(pyrrolidin-2-yl)propanoyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1073]

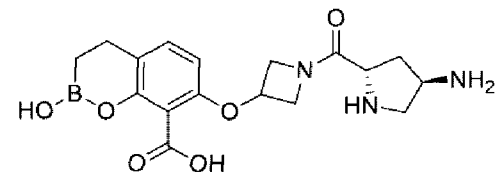


4,4-dihydroxy-8-((1-[3-(pyrrolidin-2-yl)propanoyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1074]

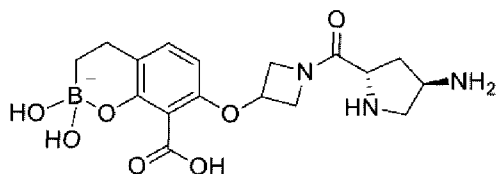


7-((1-[3-(pyrrolidin-2-yl)propanoyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborin-8-carboxylic acid



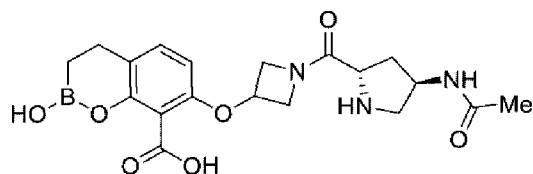
7-((1-[(4R)-4-amino-L-prolyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborin-8-carboxylic acid

[Chemical Formula 1076]



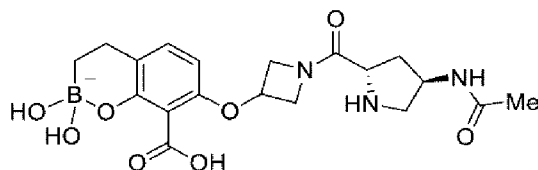
7-((1-[(4R)-4-acetamido-L-prolyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborin-8-carboxylic acid

[Chemical Formula 1077]



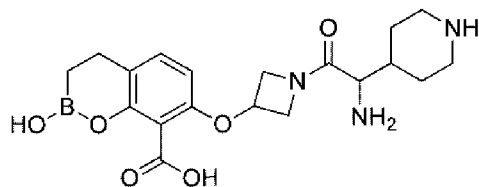
8-({1-[(4R)-4-acetamido-L-prolyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1078]



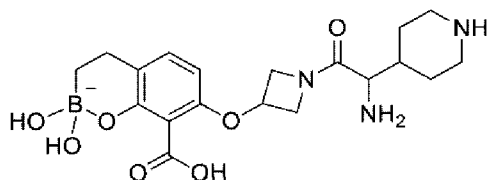
7-({1-[amino(piperidin-4-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1079]



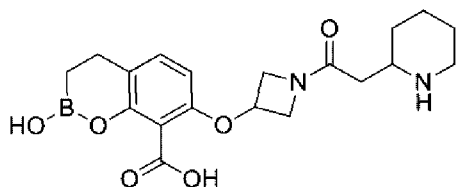
8-({1-[amino(piperidin-4-yl)acetyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1080]



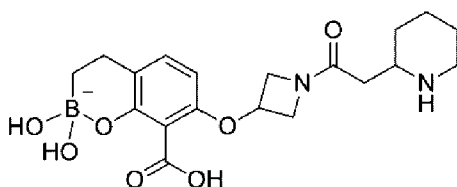
2-hydroxy-7-({1-[(piperidin-2-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1081]



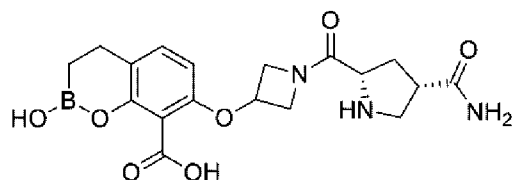
4,4-dihydroxy-8-({1-[(piperidin-2-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1082]



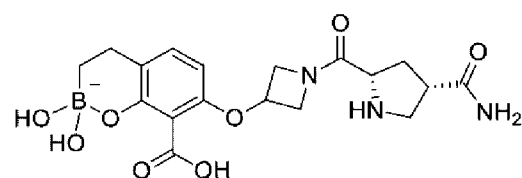
7-({1-[(4S)-4-carbamoyl-L-prolyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1083]



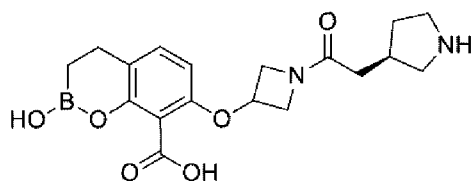
8-({1-[(4S)-4-carbamoyl-L-prolyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1084]



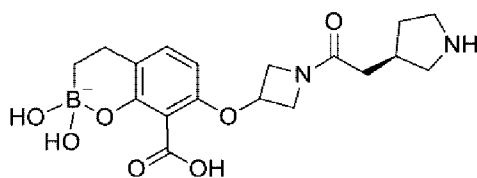
2-hydroxy-7-[(1-[(3R)-pyrrolidin-3-yl]acetyl)azetidin-3-yl]oxy]-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1085]



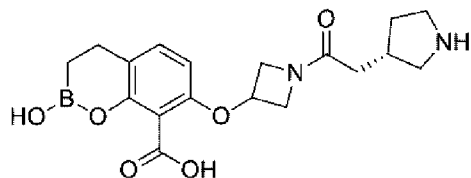
4,4-dihydroxy-8-[(1-[(3R)-pyrrolidin-3-yl]acetyl)azetidin-3-yl]oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1086]



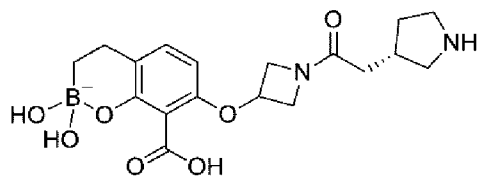
2-hydroxy-7-[(1-[(3S)-pyrrolidin-3-yl]acetyl)azetidin-3-yl]oxy]-3,4-dihydro-2H-1,2-benzoxaborine-8-carboxylic acid

[Chemical Formula 1087]



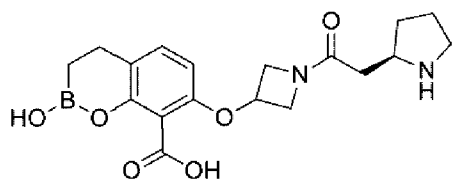
4,4-dihydroxy-8-[(1-[(3S)-pyrrolidin-3-yl]acetyl)azetidin-3-yl]oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1088]



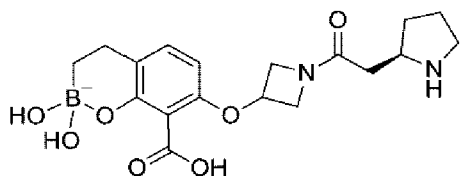
2-hydroxy-7-[(1-[(2R)-pyrrolidin-2-yl]acetyl)azetidin-3-yl]oxy]-3,4-dihydro-2H-1,2-benzoxaborine-8-carboxylic acid

[Chemical Formula 1089]



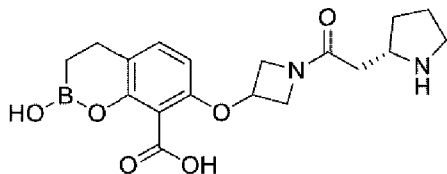
4,4-dihydroxy-8-[(1-[(2R)-pyrrolidin-2-yl]acetyl]azetidin-3-yl]oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1090]



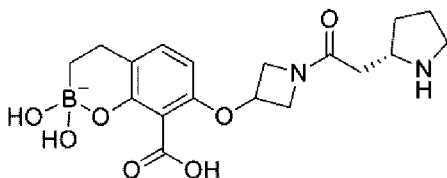
2-hydroxy-7-[(1-[(2S)-pyrrolidin-2-yl]acetyl]azetidin-3-yl]oxy]-3,4-dihydro-2H-1,2-benzoxaborine-8-carboxylic acid

[Chemical Formula 1091]



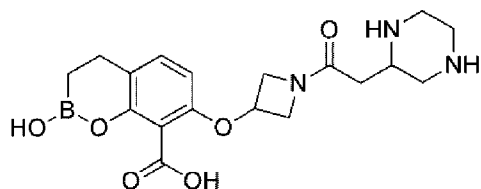
4,4-dihydroxy-8-[(1-[(2S)-pyrrolidin-2-yl]acetyl]azetidin-3-yl]oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1092]



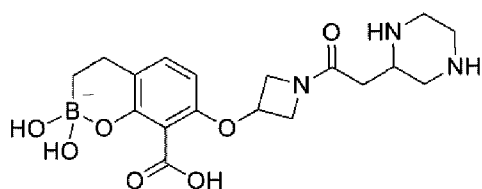
2-hydroxy-7-[(1-[(piperazin-2-yl)acetyl]azetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborine-8-carboxylic acid

[Chemical Formula 1093]



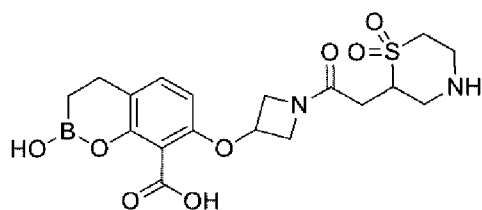
4,4-dihydroxy-8-((1-[(piperazin-2-yl)acetyl]azetidin-3-yl)oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1094]



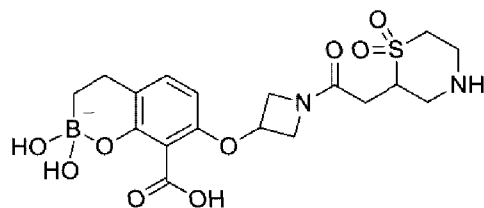
7-((1-[(1,1-dioxo-1λ⁶-thiomorpholin-2-yl)acetyl]azetidin-3-yl)oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1095]



8-((1-[(1,1-dioxo-1λ⁶-thiomorpholin-2-yl)acetyl]azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

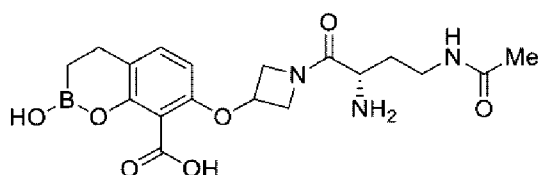
[Chemical Formula 1096]



7-((1-[(2S)-4-acetamido-2-aminobutanoyl]azetidin-3-yl)oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

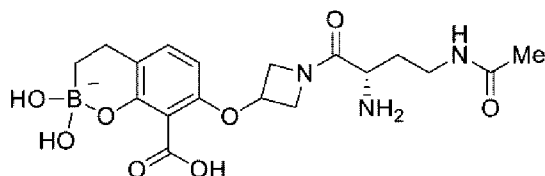
2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1097]



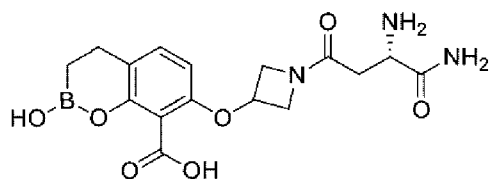
5 8-({1-[(2S)-4-acetamido-2-aminobutanoyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1098]



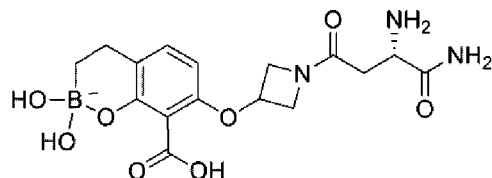
10 7-{[1-(L-α-asparaginyl)azetidin-3-yl]oxy}-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1099]



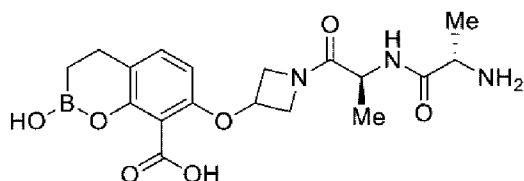
15 8-([1-(L-α-asparaginyl)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1100]



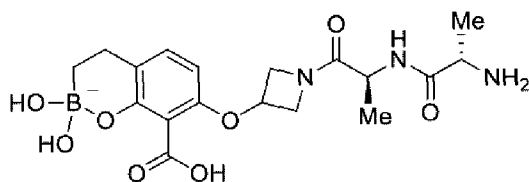
20 7-{[1-(L-alanyl-L-alanyl)azetidin-3-yl]oxy}-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1101]



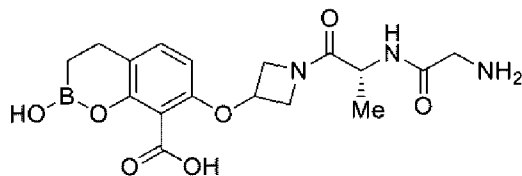
8-([1-(L-alanyl-L-alanyl)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1102]



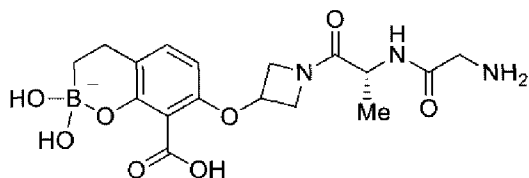
7-([1-(glycyl-D-alanyl)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1103]



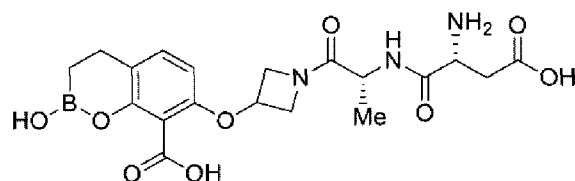
8-([1-(glycyl-D-alanyl)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1104]



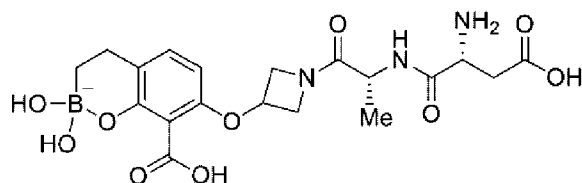
N-[(2R)-1-{3-[(8-carboxy-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-7-yl]oxy]azetidin-1-yl}-1-oxopropan-2-yl]-D- α -asparagine

[Chemical Formula 1105]



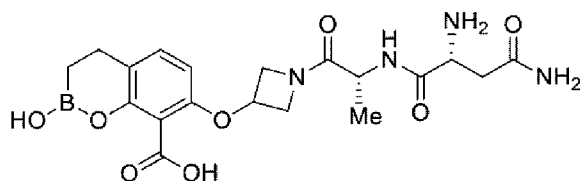
N-[(2R)-1-{3-[(7-carboxy-4,4-hydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-trien-8-yl)oxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-α-asparagine

[Chemical Formula 1106]



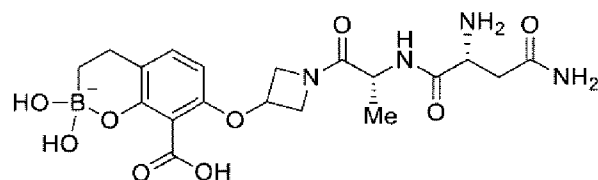
N¹-[(2R)-1-{3-[(8-carboxy-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-7-yl)oxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-aspartamide

[Chemical Formula 1107]



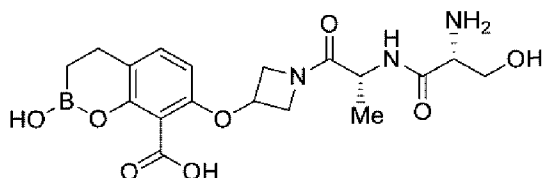
N¹-[(2R)-1-{3-[(7-carboxy-4,4-hydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-trien-8-yl)oxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-aspartamide

[Chemical Formula 1108]



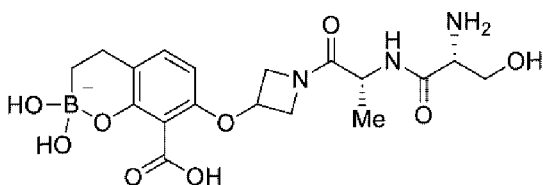
N-[(2R)-1-{3-[(8-carboxy-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-7-yl)oxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-serinamide

[Chemical Formula 1109]



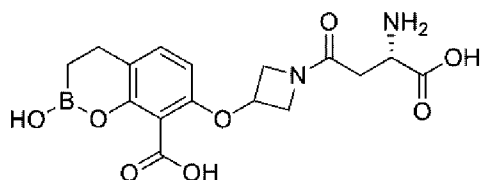
N-[(2R)-1-{3-[(7-carboxy-4,4-hydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-trien-8-yl)oxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-serinamide

[Chemical Formula 1110]



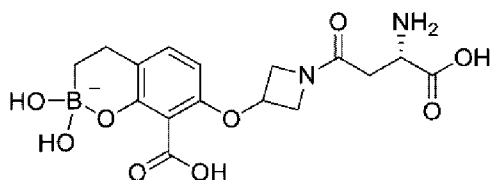
7-({1-[(3S)-3-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1111]



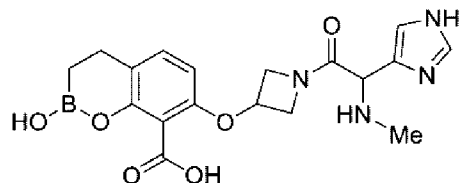
8-({1-[(3S)-3-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1112]



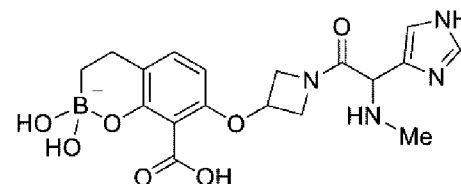
2-hydroxy-7-({1-[(1H-imidazol-4-yl)(methylamino)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1113]



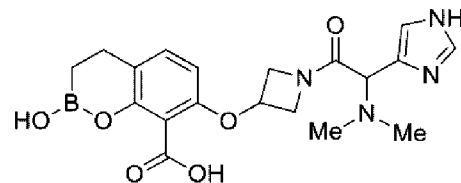
4,4-dihydroxy-8-({1-[(1H-imidazol-4-yl)(methylamino)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1114]



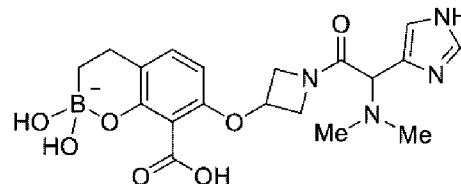
2-hydroxy-7-({1-[(1H-imidazol-4-yl)(methylamino)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1115]



4,4-dihydroxy-8-({1-[(1H-imidazol-4-yl)(methylamino)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

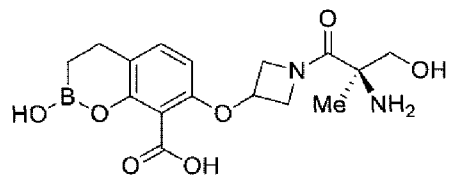
[Chemical Formula 1116]



2-hydroxy-7-{[1-(2-methyl-D-seryl)azetidin-3-yl]oxy}-3,4-

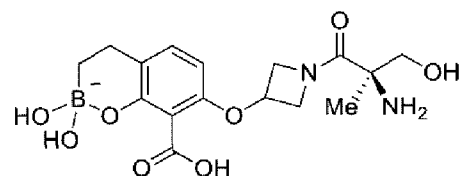
dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1117]



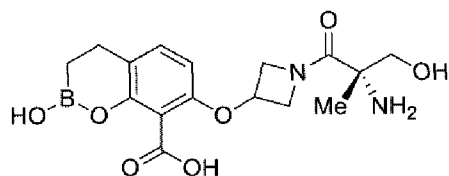
4,4-dihydroxy-8-{[1-(2-methyl-D-seryl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1118]



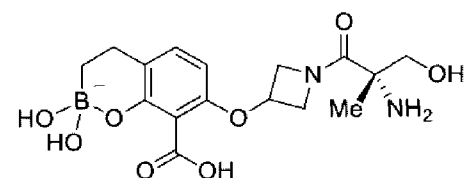
2-hydroxy-7-{[1-(2-methyl-L-seryl)azetidin-3-yl]oxy}-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1119]



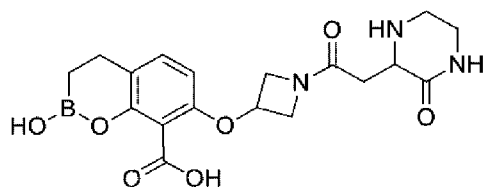
4,4-dihydroxy-8-{[1-(2-methyl-L-seryl)azetidin-3-yl]oxy}-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1120]



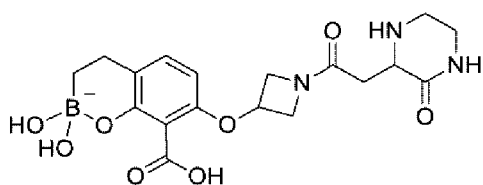
2-hydroxy-7-({1-[(3-oxopiperazin-2-yl)acetyl]azetidin-3-yl}oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1121]



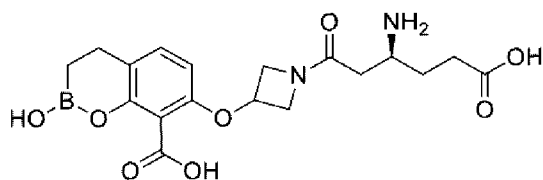
4,4-dihydroxy-8-({1-[(3-oxopiperazin-2-yl)acetyl]azetidin-3-yl}oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1122]



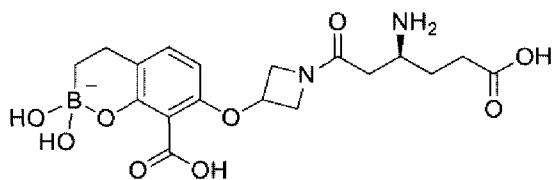
7-({1-[(3S)-3-amino-5-carboxypentanoyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1123]



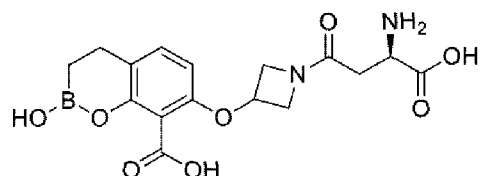
8-({1-[(3S)-3-amino-5-carboxypentanoyl]azetidin-3-yl}oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1124]



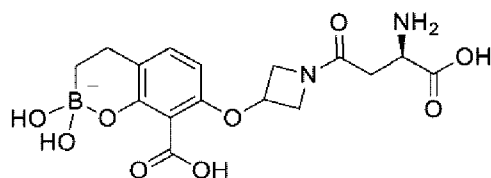
7-({1-[(3R)-3-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1125]



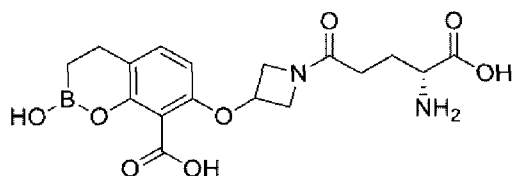
8-({1-[(3R)-3-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-
4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
5 triene-7-carboxylic acid

[Chemical Formula 1126]



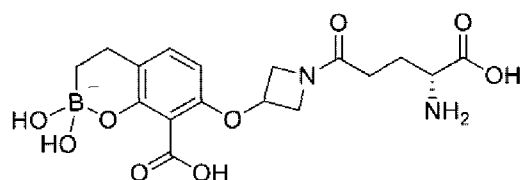
7-({1-[(4R)-4-amino-4-carboxybutanoyl]azetidin-3-yl}oxy)-2-
hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic
10 acid

[Chemical Formula 1127]



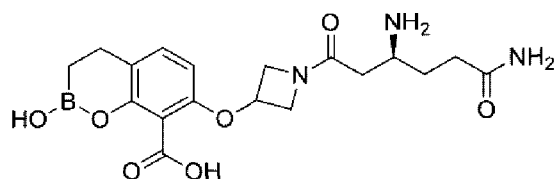
8-({1-[(3R)-3-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-
4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
15 triene-7-carboxylic acid

[Chemical Formula 1128]



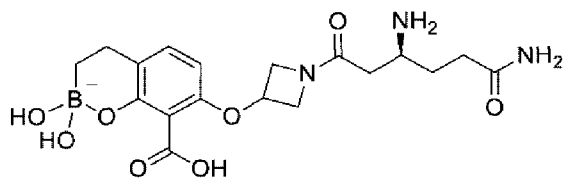
7-({1-[(3S)-3,6-diamino-6-oxohexanoyl]azetidin-3-yl}oxy)-2-
hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic
20 acid

[Chemical Formula 1129]



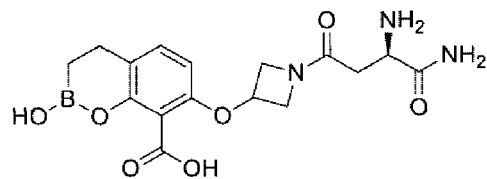
8-({1-[(3S)-3,6-diamino-6-oxohexanoyl]azetidin-3-yl}oxy)-
4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-
5 triene-7-carboxylic acid

[Chemical Formula 1130]



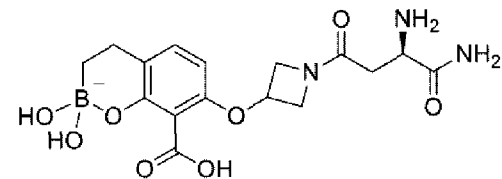
7-{[1-(D-α-asparaginyl)azetidin-3-yl]oxy}-2-hydroxy-3,4-
dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

10 [Chemical Formula 1131]



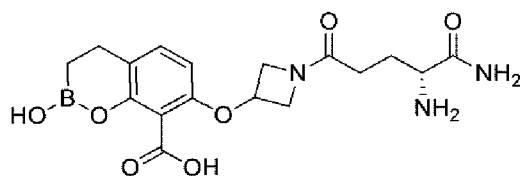
8-{[1-(D-α-asparaginyl)azetidin-3-yl]oxy}-4,4-dihydroxy-5-
oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-
carboxylic acid

15 [Chemical Formula 1132]



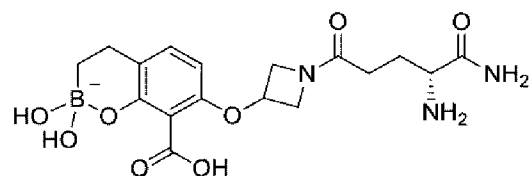
7-{[1-(D-α-glutaminyl)azetidin-3-yl]oxy}-2-hydroxy-3,4-
dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1133]



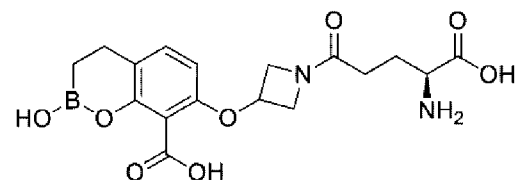
8-([1-(D-α-glutaminy)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1134]



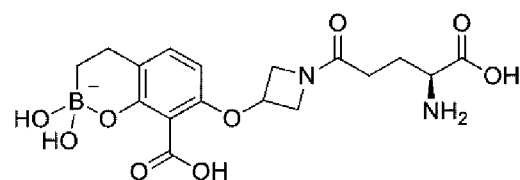
7-([1-[(4S)-4-amino-4-carboxybutanoyl]azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1135]



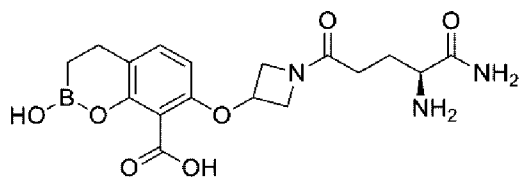
8-([1-[(4S)-4-amino-4-carboxybutanoyl]azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1136]



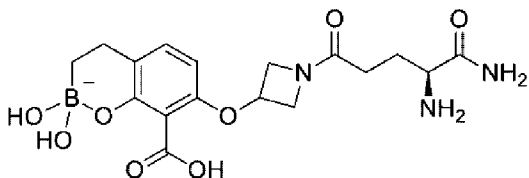
7-([1-(L-α-glutaminy)azetidin-3-yl]oxy)-2-hydroxy-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1137]



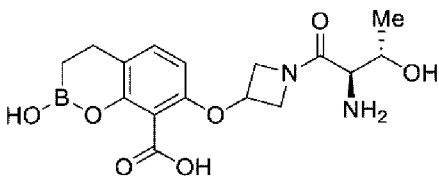
8-([1-(L-α-glutaminy)azetidin-3-yl]oxy)-4,4-dihydroxy-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1138]



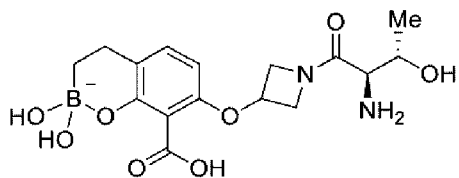
2-hydroxy-7-([1-D-threonylazetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

[Chemical Formula 1139]



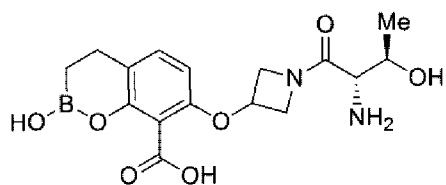
4,4-dihydroxy-8-([1-D-threonylazetidin-3-yl]oxy)-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

[Chemical Formula 1140]



2-hydroxy-7-([1-L-threonylazetidin-3-yl]oxy)-3,4-dihydro-2H-1,2-benzoxaborinine-8-carboxylic acid

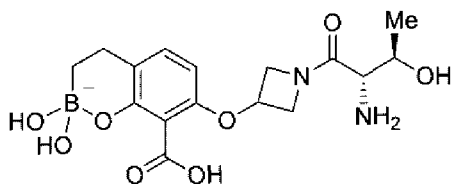
[Chemical Formula 1141]



, or

4,4-dihydroxy-8-[(1-L-threonylazetidin-3-yl)oxy]-5-oxa-4-boranuidabicyclo[4.4.0]deca-1(6),7,9-triene-7-carboxylic acid

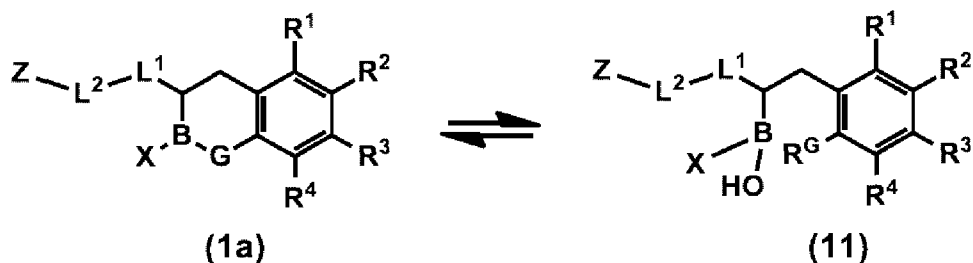
[Chemical Formula 1142]



[Claim 55]

A compound represented by formula (11):

[Chemical Formula 1143]



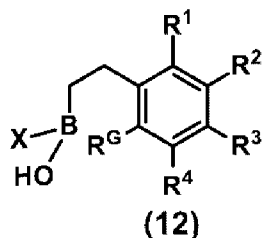
or a pharmaceutically acceptable salt thereof,

wherein R^G is a hydroxyl group, a thiol group, or $-NHR^{a1}$, R^{a1} , Z, L^1 , L^2 , X, R^1 , R^2 , R^3 , and R^4 are defined the same as the definition according to claim 1, and formula (1a) is defined the same as claim 1.

[Claim 56]

The compound or the pharmaceutically acceptable salt thereof according to claim 55, wherein the compound of formula (11) is represented by formula (12):

[Chemical Formula 1144]

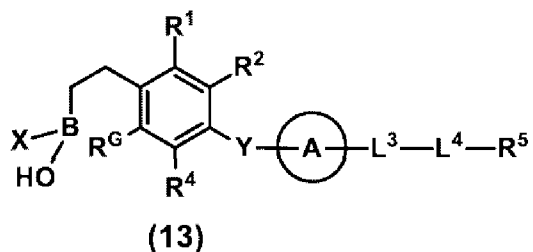


wherein X, R¹, R², R³, and R⁴ are defined the same as the definition according to claim 8.

5 [Claim 57]

The compound or the pharmaceutically acceptable salt thereof according to claim 55 or 56, wherein the compound of formula (12) is represented by formula (13):

[Chemical Formula 1145]



10

wherein X, Y, ring A, L³, L⁴, R¹, R², R⁴, and R⁵ are defined the same as the definition according to any one of claims 10 to 14 and 16 to 21.

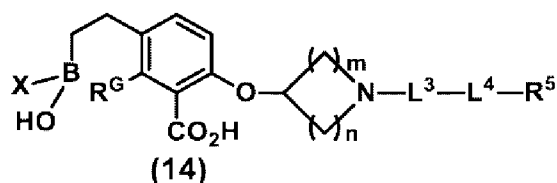
[Claim 58]

15 The compound or the pharmaceutically acceptable salt thereof according to claim 57, wherein X and R^G are hydroxyl groups, R⁴ is a carboxyl group, and ring A is an optionally substituted 4- to 6-membered nitrogen-containing non-aryl heterocycle.

20 [Claim 59]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 55 to 58, wherein the compound of formula (13) is represented by formula (14):

[Chemical Formula 1146]



wherein X, L³, L⁴, m, n, and R⁵ are defined the same as the definition according to claim 22.

5 [Claim 60]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 55 to 59, wherein R^G is a hydroxyl group or a thiol group.

[Claim 61]

10 The compound or the pharmaceutically acceptable salt thereof according to any one of claims 55 to 60, wherein R^G is a hydroxyl group.

[Claim 62]

15 The compound or the pharmaceutically acceptable salt thereof according to any one of claims 55 to 61, wherein X is a hydroxyl group or a C₁₋₆ alkoxy group.

[Claim 63]

20 The compound or the pharmaceutically acceptable salt thereof according to any one of claims 55 to 62, wherein X is a hydroxyl group.

[Claim 64]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 59 to 63, wherein m is 1 or 2, n is 1 or 2, and m + n is 2 or 3.

25 [Claim 65]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 59 to 64, wherein m is 1, and n is 1.

[Claim 66]

30 The compound or the pharmaceutically acceptable salt thereof according to any one of claims 55 to 65, wherein L³ is defined the same as the definition according to claim 16

or 17.

[Claim 67]

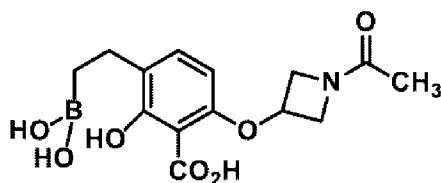
The compound or the pharmaceutically acceptable salt thereof according to any one of claims 55 to 66, wherein L⁴ and R⁵ are defined the same as the definitions according to any one of claims 18, 25 to 37, and 42 to 52.

[Claim 68]

The compound or the pharmaceutically acceptable salt thereof according to claim 55, selected from the group consisting of the following compounds:

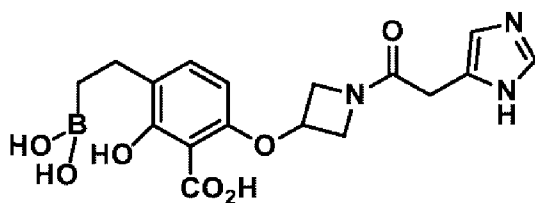
6-[(1-acetylazetidin-3-yl)oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1147]



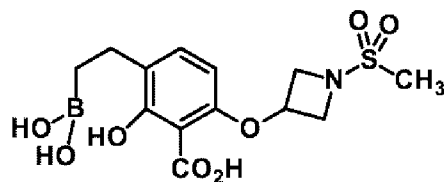
3-(2-boronoethyl)-2-hydroxy-6-({1-[(1H-imidazol-5-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 1148]



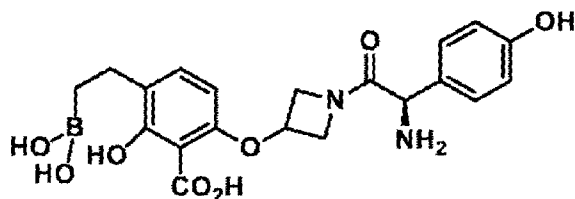
3-(2-boronoethyl)-2-hydroxy-6-{{1-(methanesulfonyl)azetidin-3-yl}oxy}benzoic acid

[Chemical Formula 1149]



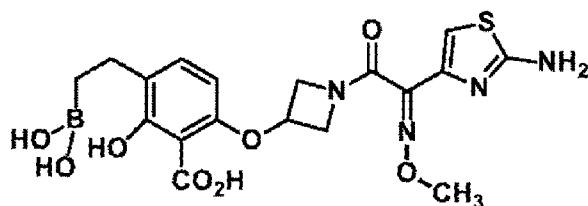
6-({1-[(2R)-2-amino-2-(4-hydroxyphenyl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1150]

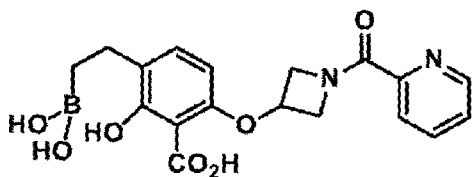


6-({1-[(2-amino-1,3-thiazol-4-yl)(methoxyimino)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

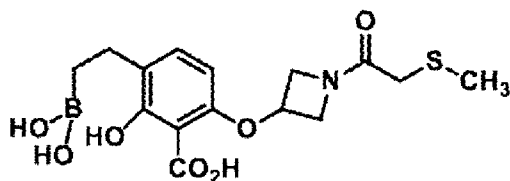
[Chemical Formula 1151]



3-(2-boronoethyl)-2-hydroxy-6-({1-[(pyridine-2-carbonyl)azetidin-3-yl]oxy}benzoic acid

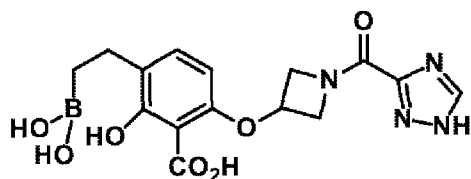


3-(2-boronoethyl)-2-hydroxy-6-({1-[(methoxymethyl)acetyl]azetidin-3-yl}oxy)benzoic acid



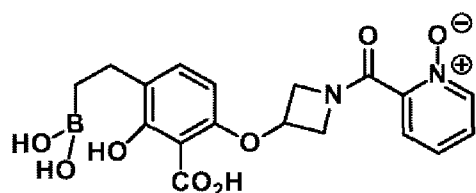
3-(2-boronoethyl)-2-hydroxy-6-({1-[(1H-1,2,4-triazole-3-carbonyl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 1154]



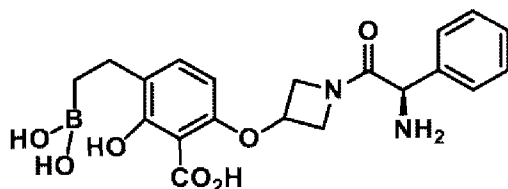
3-(2-boronoethyl)-2-hydroxy-6-([1-(1-oxido-2-pyridinylcarbonyl)azetidin-3-yl]oxy)benzoic acid

5 [Chemical Formula 1155]



6-([1-[(2R)-2-amino-2-phenylacetyl]azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

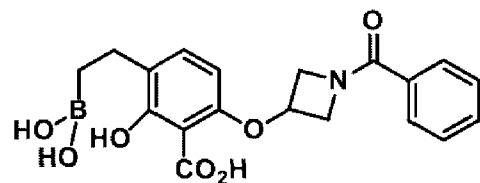
[Chemical Formula 1156]



10

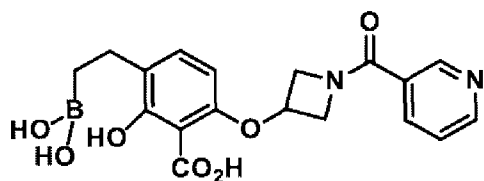
6-[(1-benzoylazetidin-3-yl)oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1157]



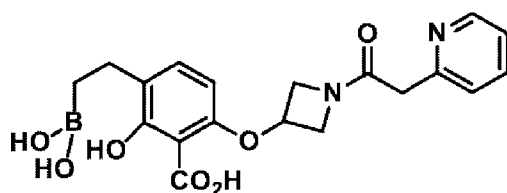
15 3-(2-boronoethyl)-2-hydroxy-6-([1-(pyridine-3-carbonyl)azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 1158]



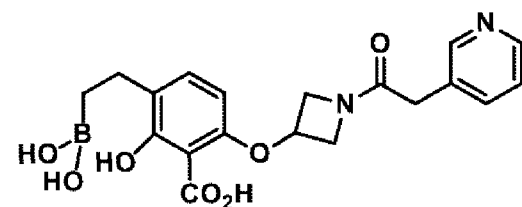
3-(2-boronoethyl)-2-hydroxy-6-({1-[(pyridin-2-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

5 [Chemical Formula 1159]



3-(2-boronoethyl)-2-hydroxy-6-({1-[(pyridin-3-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

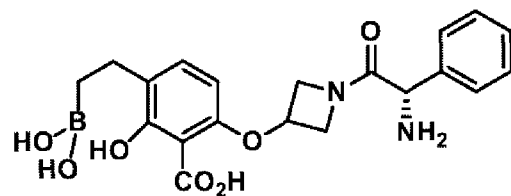
[Chemical Formula 1160]



10

6-({1-[(2S)-2-amino-2-phenylacetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

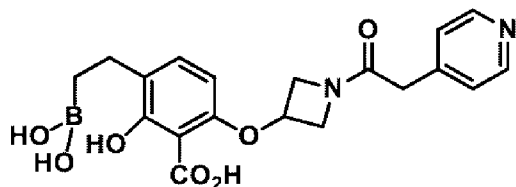
[Chemical Formula 1161]



15

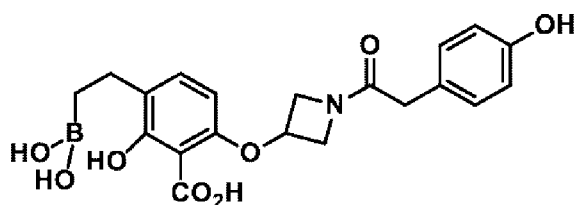
3-(2-boronoethyl)-2-hydroxy-6-({1-[(pyridin-4-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 1162]



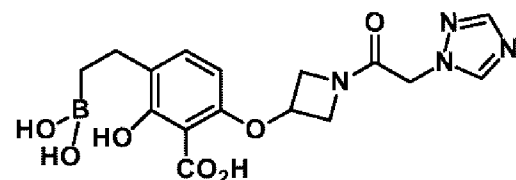
3-(2-boronoethyl)-2-hydroxy-6-({1-[(4-hydroxyphenyl)acetyl]azetidin-3-yl}oxy)benzoic acid

5 [Chemical Formula 1163]



3-(2-boronoethyl)-2-hydroxy-6-({1-[(1H-1,2,4-triazol-1-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

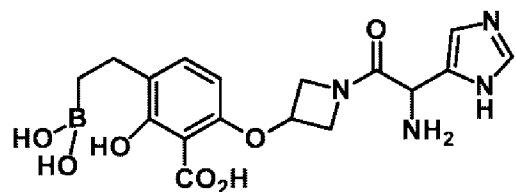
[Chemical Formula 1164]



10

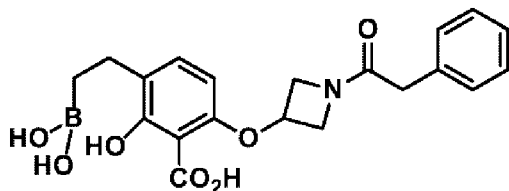
6-({1-[amino(1H-imidazol-5-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1165]



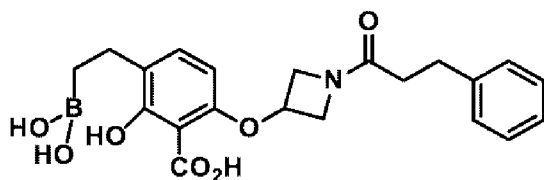
15 3-(2-boronoethyl)-2-hydroxy-6-{[1-(phenylacetyl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 1166]



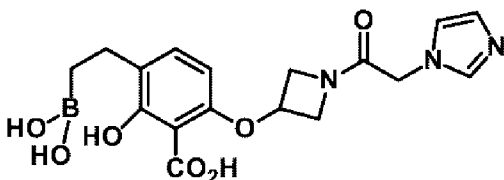
3-(2-boronoethyl)-2-hydroxy-6-([1-(3-phenylpropanoyl)azetidin-3-yl]oxy)benzoic acid

5 [Chemical Formula 1167]



3-(2-boronoethyl)-2-hydroxy-6-([1-(1H-imidazol-1-yl)acetyl]azetidin-3-yl]oxy)benzoic acid

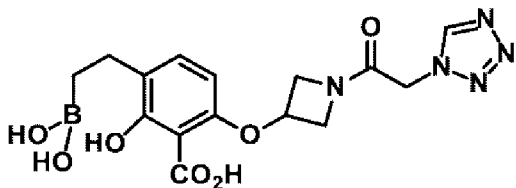
[Chemical Formula 1168]



10

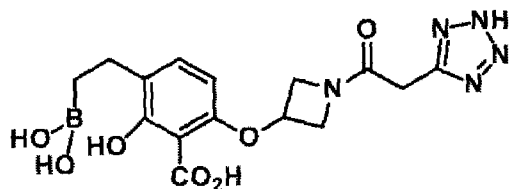
3-(2-boronoethyl)-2-hydroxy-6-([1-(1H-tetrazol-1-yl)acetyl]azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 1169]



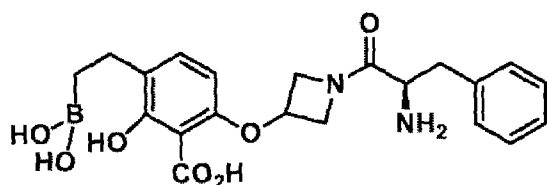
15 3-(2-boronoethyl)-2-hydroxy-6-([1-(2H-tetrazol-5-yl)acetyl]azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 1170]



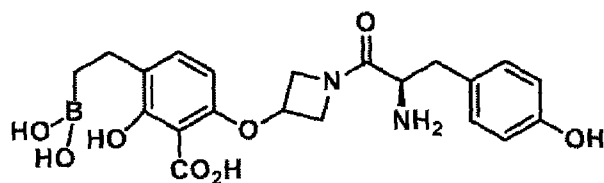
3-(2-boronoethyl)-2-hydroxy-6-[(1-D-phenylalanylazetidin-3-yl)oxy]benzoic acid

5 [Chemical Formula 1171]



3-(2-boronoethyl)-2-hydroxy-6-[(1-D-tyrosylazetidin-3-yl)oxy]benzoic acid

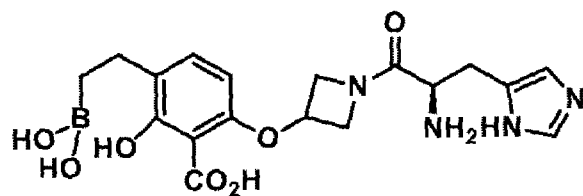
[Chemical Formula 1172]



10

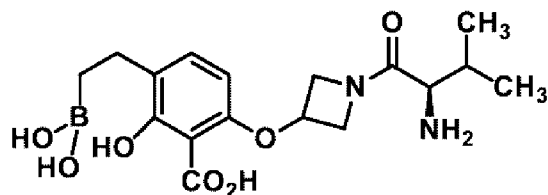
3-(2-boronoethyl)-6-[(1-D-histidylazetidin-3-yl)oxy]-2-hydroxybenzoic acid

[Chemical Formula 1173]



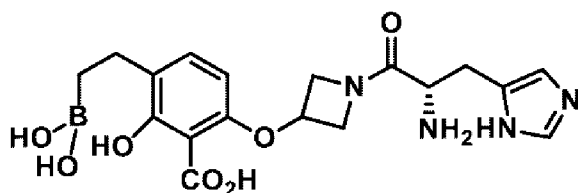
15 3-(2-boronoethyl)-2-hydroxy-6-[(1-D-valylazetidin-3-yl)oxy]benzoic acid

[Chemical Formula 1174]



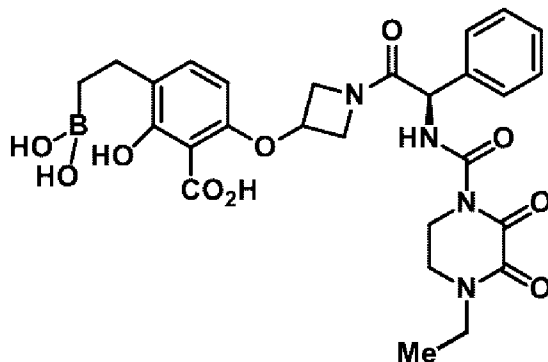
3-(2-boronoethyl)-6-[(1-L-histidylazetidin-3-yl)oxy]-2-hydroxybenzoic acid

5 [Chemical Formula 1175]



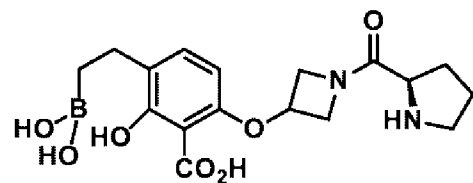
3-(2-boronoethyl)-6-[(1-{(2R)-2-[(4-ethyl-2,3-dioxopiperazine-1-carbonyl)amino]-2-phenylacetyl}azetidin-3-yl)oxy]-2-hydroxybenzoic acid

10 [Chemical Formula 1176]



3-(2-boronoethyl)-2-hydroxy-6-[(1-D-prolylazetidin-3-yl)oxy]benzoic acid

[Chemical Formula 1177]

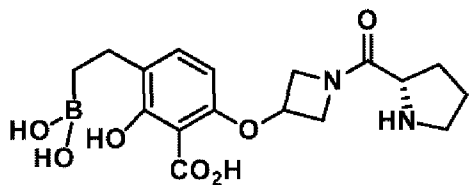


15

3-(2-boronoethyl)-2-hydroxy-6-[(1-L-prolylazetidin-3-

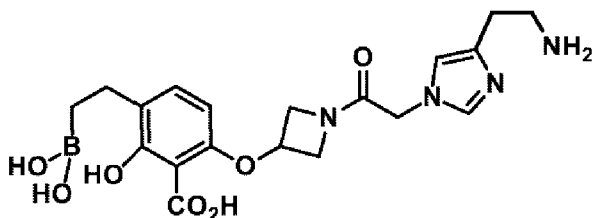
yl)oxy]benzoic acid

[Chemical Formula 1178]



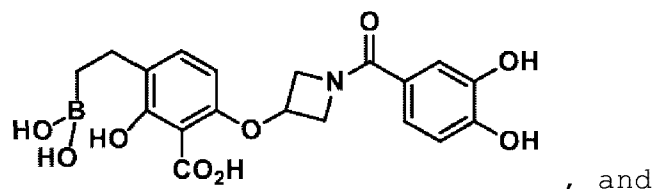
6-[(1-{[4-(2-aminoethyl)-1H-imidazol-1-yl]acetyl}azetidin-3-yl)oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1179]



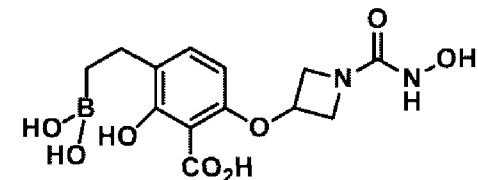
3-(2-boronoethyl)-6-{[1-(3,4-dihydroxybenzoyl)azetidin-3-yl]oxy}-2-hydroxybenzoic acid

[Chemical Formula 1180]



3-(2-boronoethyl)-2-hydroxy-6-{[1-(hydroxycarbamoyl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 1181]

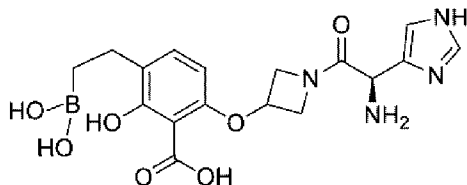


[Claim 69]

The compound or the pharmaceutically acceptable salt thereof according to claim 55, selected from the group consisting of the following compounds:

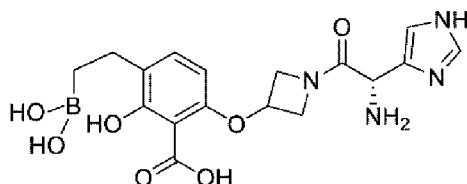
6-({1-[(2R)-2-amino-2-(1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1182]



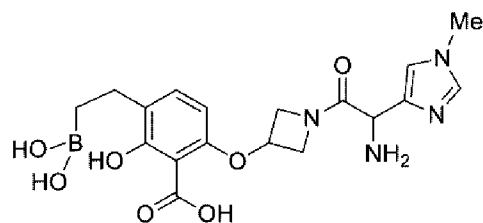
5 6-({1-[(2S)-2-amino-2-(1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1183]



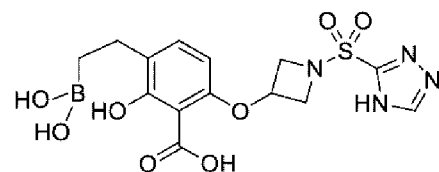
10 6-({1-[amino(1-methyl-1H-imidazol-4-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1184]



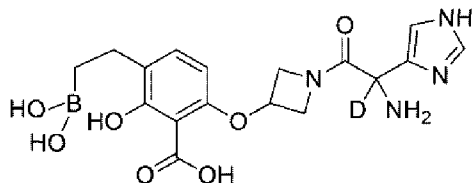
15 3-(2-boronoethyl)-2-hydroxy-6-{{1-[(4H-1,2,4-triazole-3-sulfonyl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 1185]



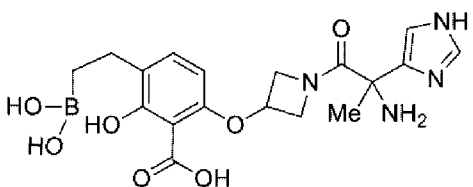
6-({1-[2-amino-2-(1H-imidazol-4-yl) (2H)ethanoyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1186]



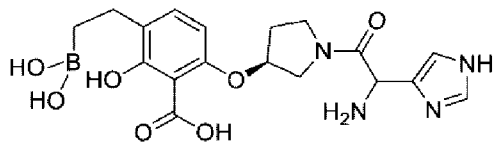
6-({1-[2-amino-2-(1H-imidazol-4-yl)propanoyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 1187]



6-({(3S)-1-[amino(1H-imidazol-4-yl)acetyl]pyrrolidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

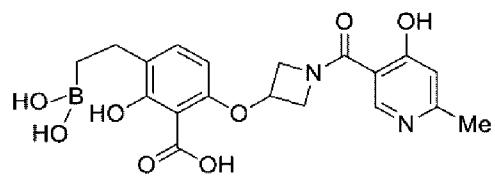
[Chemical Formula 1188]



10

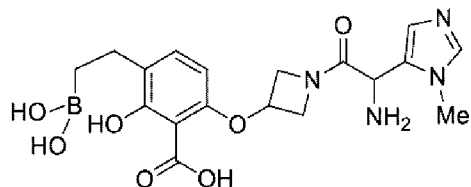
3-(2-boronoethyl)-2-hydroxy-6-({[1-(4-hydroxy-6-methylpyridine-3-carbonyl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 1189]



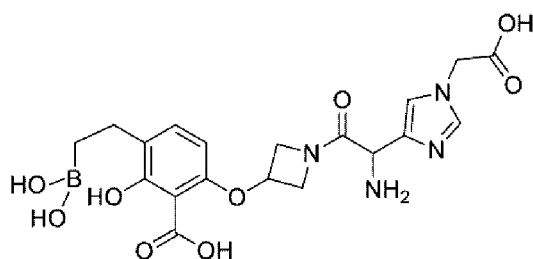
15 6-({1-[amino(1-methyl-1H-imidazol-5-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1190]



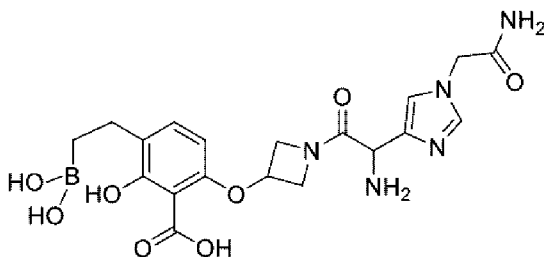
6-[(1-{amino[1-(carboxymethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1191]



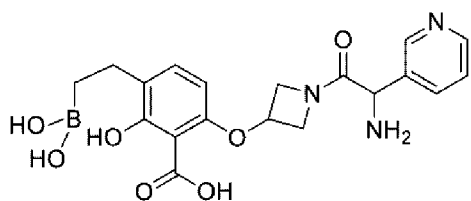
6-[(1-{amino[1-(2-amino-2-oxoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1192]



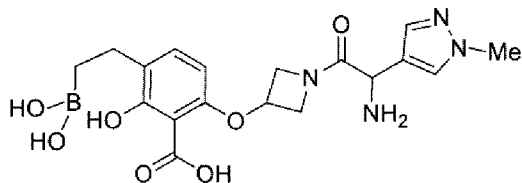
6-[(1-{amino[1-(2-amino-2-oxoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1193]



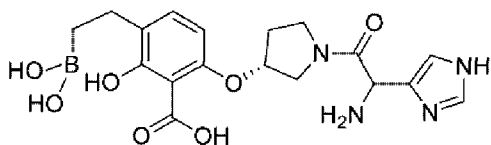
6-[(1-{amino[1-(2-amino-2-oxoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1194]



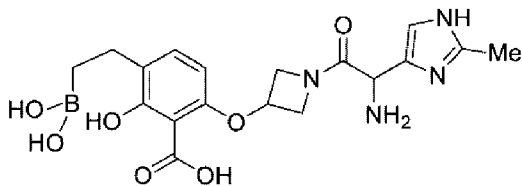
6-((3R)-1-[(2-methyl-1H-imidazol-4-yl)amino]acetyl)pyrrolidin-3-yl oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 1195]



6-((1-[(2-methyl-1H-imidazol-4-yl)amino]acetyl)azetidin-3-yl oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

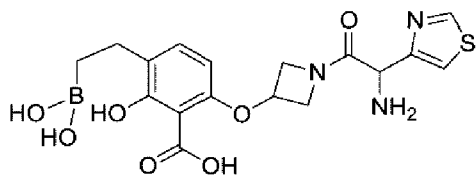
[Chemical Formula 1196]



10

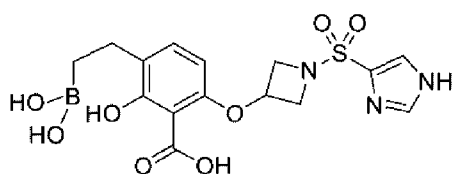
6-((1-[(1,3-thiazol-4-yl)amino]acetyl)azetidin-3-yl oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1197]



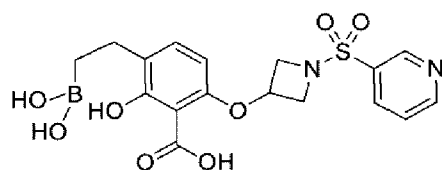
15 3-(2-boronoethyl)-2-hydroxy-6-([1-(1H-imidazole-4-sulfonyl)azetidin-3-yl oxy]oxy)benzoic acid

[Chemical Formula 1198]



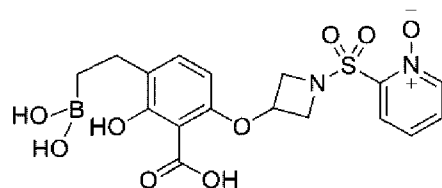
3-(2-boronoethyl)-2-hydroxy-6-([1-(pyridine-3-sulfonyl)azetidin-3-yl]oxy)benzoic acid

5 [Chemical Formula 1199]



3-(2-boronoethyl)-2-hydroxy-6-([1-(1-oxo-1λ⁵-pyridine-2-sulfonyl)azetidin-3-yl]oxy)benzoic acid

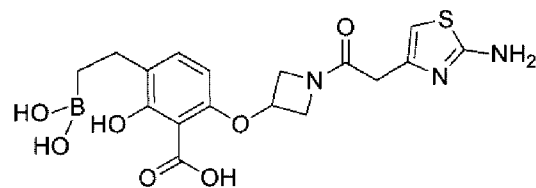
[Chemical Formula 1200]



10

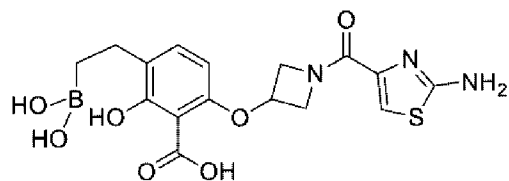
6-([1-((2-amino-1,3-thiazol-4-yl)acetyl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1201]



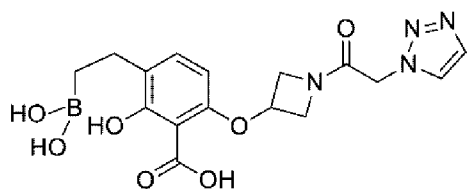
15 6-([1-(2-amino-1,3-thiazole-4-carbonyl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1202]



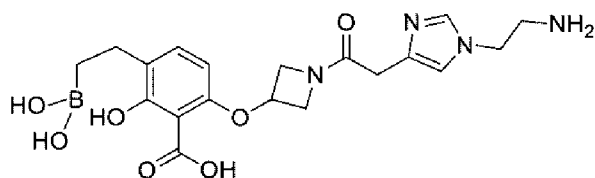
3-(2-boronoethyl)-2-hydroxy-6-({1-[(1H-1,2,3-triazol-1-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

5 [Chemical Formula 1203]



6-[(1-{[1-(2-aminoethyl)-1H-imidazol-4-yl]acetyl}azetidin-3-yl)oxy]-3-(2-boronoethyl)-2-hydroxybenzoic acid

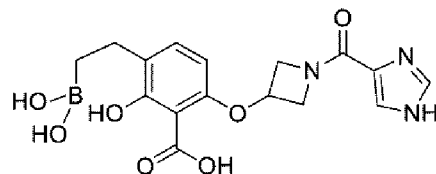
[Chemical Formula 1204]



10

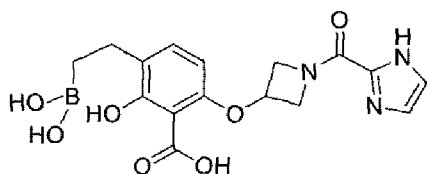
3-(2-boronoethyl)-2-hydroxy-6-([1-(1H-imidazole-4-carbonyl)azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 1205]



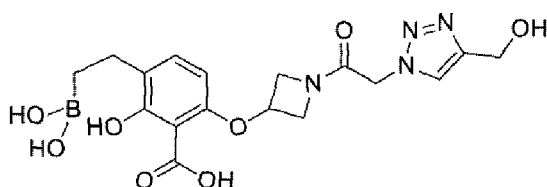
15 3-(2-boronoethyl)-2-hydroxy-6-([1-(1H-imidazole-2-carbonyl)azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 1206]



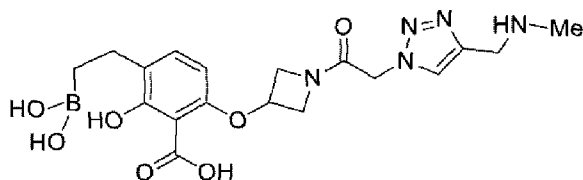
3-(2-boronoethyl)-2-hydroxy-6-[(1-{[4-(hydroxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]benzoic acid

5 [Chemical Formula 1207]



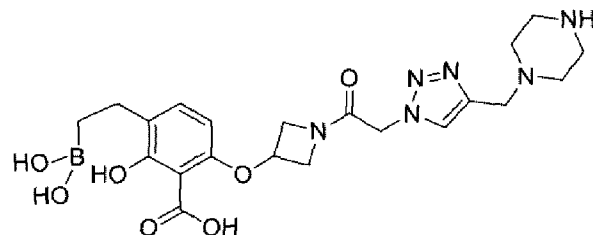
3-(2-boronoethyl)-2-hydroxy-6-{[1-({4-[(methylamino)methyl]-1H-1,2,3-triazol-1-yl}acetyl)azetidin-3-yl]oxy}benzoic acid

10 [Chemical Formula 1208]



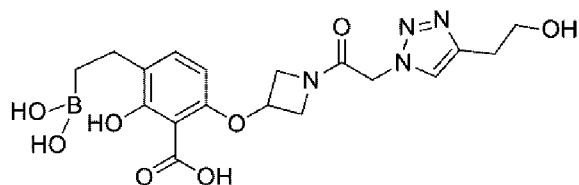
3-(2-boronoethyl)-2-hydroxy-6-{[1-({4-[(piperazin-1-yl)methyl]-1H-1,2,3-triazol-1-yl}acetyl)azetidin-3-yl]oxy}benzoic acid

15 [Chemical Formula 1209]



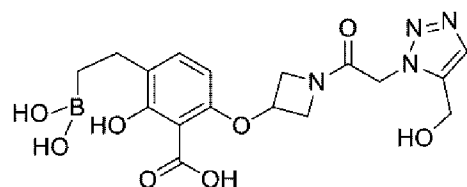
3-(2-boronoethyl)-2-hydroxy-6-[(1-{[4-(2-hydroxyethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]benzoic acid

[Chemical Formula 1210]



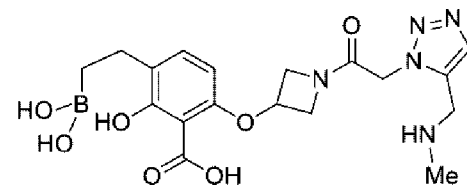
3-(2-boronoethyl)-2-hydroxy-6-[(1-{[5-(hydroxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]benzoic acid

5 [Chemical Formula 1211]



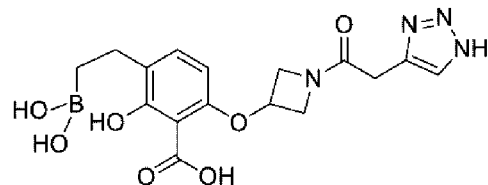
3-(2-boronoethyl)-2-hydroxy-6-[(1-{[5-(hydroxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]benzoic acid

10 [Chemical Formula 1212]



3-(2-boronoethyl)-2-hydroxy-6-[(1-{[5-(hydroxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]benzoic acid

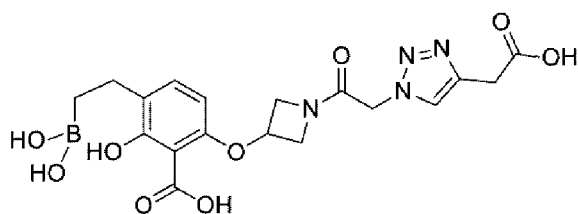
[Chemical Formula 1213]



15

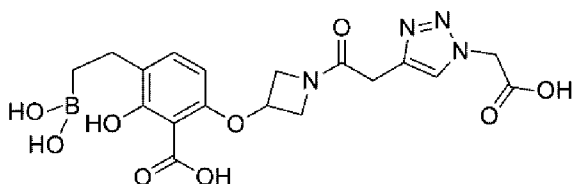
3-(2-boronoethyl)-6-[(1-{[4-(carboxymethyl)-1H-1,2,3-triazol-1-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxybenzoic acid

[Chemical Formula 1214]



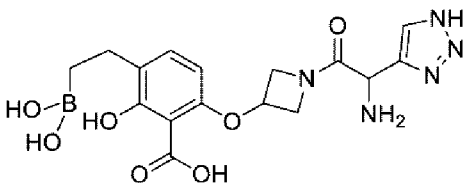
3-(2-boronoethyl)-6-[(1-{[1-(carboxymethyl)-1H-1,2,3-
triazol-4-yl]acetyl}azetidin-3-yl)oxy]-2-hydroxybenzoic
5 acid

[Chemical Formula 1215]



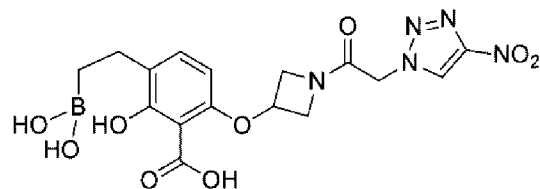
6-({1-[amino(1H-1,2,3-triazol-4-yl)acetyl]azetidin-3-
yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

10 [Chemical Formula 1216]



3-(2-boronoethyl)-2-hydroxy-6-({1-[(4-nitro-1H-1,2,3-
triazol-1-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

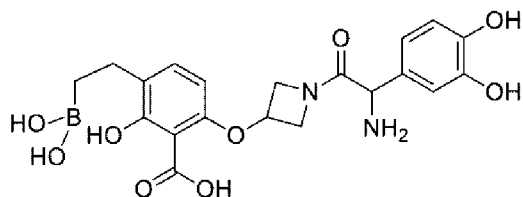
[Chemical Formula 1217]



15

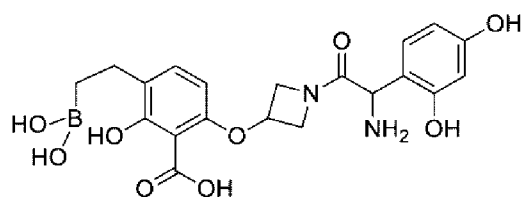
6-({1-[amino(3,4-dihydroxyphenyl)acetyl]azetidin-3-yl}oxy)-
3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1218]



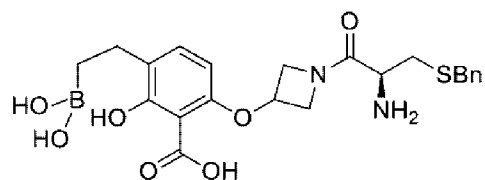
6-({1-[amino(2,4-dihydroxyphenyl)acetyl]azetidin-3-yl}oxy)-
3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 1219]



6-([1-(S-benzyl-D-cysteiny)azetidin-3-yl]oxy)-3-(2-
boronoethyl)-2-hydroxybenzoic acid

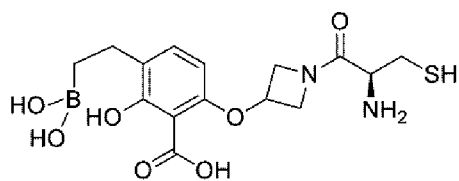
[Chemical Formula 1220]



10

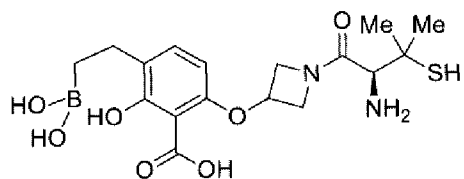
3-(2-boronoethyl)-6-([1-D-cysteiny]azetidin-3-yl)oxy-2-
hydroxybenzoic acid

[Chemical Formula 1221]



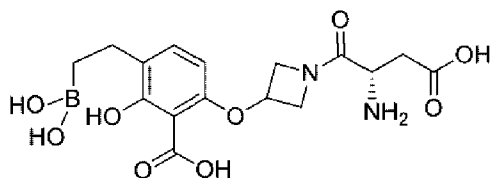
15 3-(2-boronoethyl)-2-hydroxy-6-([1-(3-sulfanyl-D-
valyl)azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 1222]



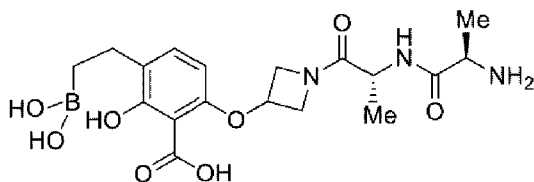
6-({1-[(2S)-2-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-
3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 1223]



6-([1-(D-alanyl-D-alanyl)azetidin-3-yl]oxy)-3-(2-
boronoethyl)-2-hydroxybenzoic acid

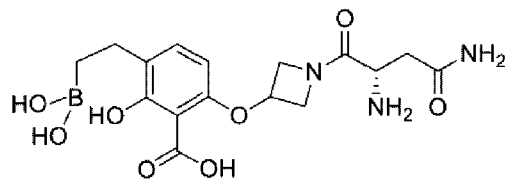
[Chemical Formula 1224]



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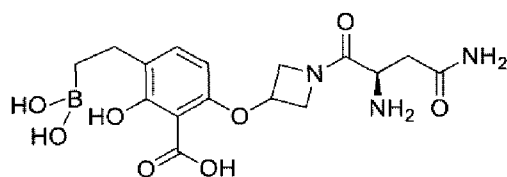
6-[(1-L-asparaginylazetidin-3-yl)oxy]-3-(2-boronoethyl)-2-
hydroxybenzoic acid

[Chemical Formula 1225]



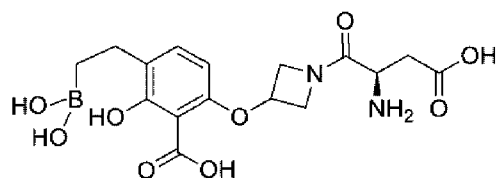
15 6-[(1-D-asparaginylazetidin-3-yl)oxy]-3-(2-boronoethyl)-2-
hydroxybenzoic acid

[Chemical Formula 1226]



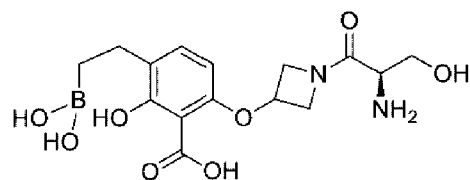
6-({1-[(2R)-2-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-
3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 1227]



3-(2-boronoethyl)-2-hydroxy-6-[(1-D-serylazetidin-3-yl)oxy]benzoic acid

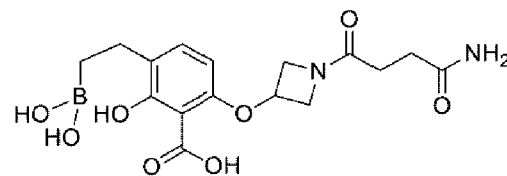
[Chemical Formula 1228]



10

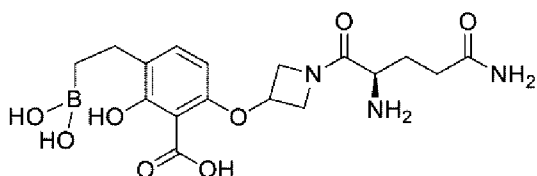
6-([1-(4-amino-4-oxobutanoyl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1229]



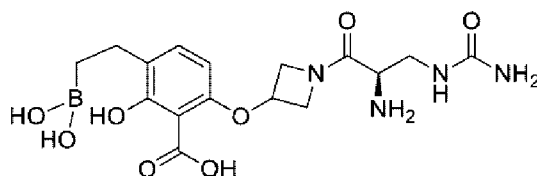
15 3-(2-boronoethyl)-6-[(1-D-glutaminylazetidin-3-yl)oxy]-2-hydroxybenzoic acid

[Chemical Formula 1230]



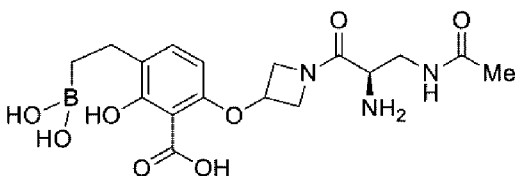
3-(2-boronoethyl)-6-({1-[3-(carbamoylamino)-D-alanyl]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

5 [Chemical Formula 1231]



6-{{1-[3-(acetamido-D-alanyl)azetidin-3-yl]oxy}-3-(2-boronoethyl)-2-hydroxybenzoic acid

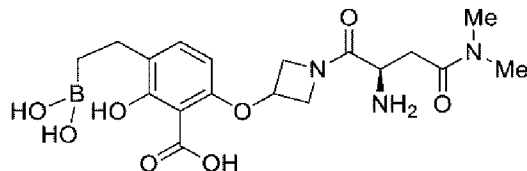
[Chemical Formula 1232]



10

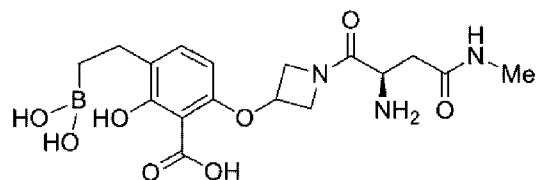
3-(2-boronoethyl)-6-{{1-[N,N-dimethyl-D-asparaginy]azetidin-3-yl}oxy}-2-hydroxybenzoic acid

[Chemical Formula 1233]



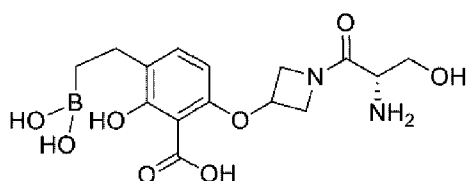
15 3-(2-boronoethyl)-2-hydroxy-6-{{1-[N-methyl-D-asparaginy]azetidin-3-yl}oxy}benzoic acid

[Chemical Formula 1234]



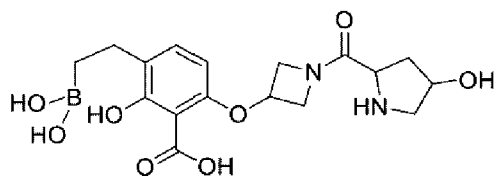
3-(2-boronoethyl)-2-hydroxy-6-[(1-L-serylazetidin-3-yl)oxy]benzoic acid

5 [Chemical Formula 1235]



3-(2-boronoethyl)-2-hydroxy-6-[[1-(4-hydroxypropyl)azetidin-3-yl]oxy]benzoic acid

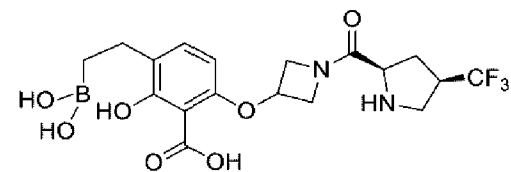
[Chemical Formula 1236]



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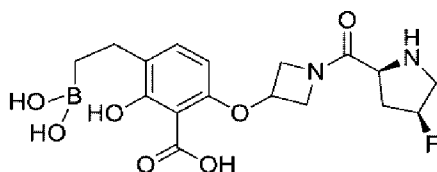
3-(2-boronoethyl)-2-hydroxy-6-({1-[(4R)-4-(trifluoromethyl)-D-prolyl]azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 1237]



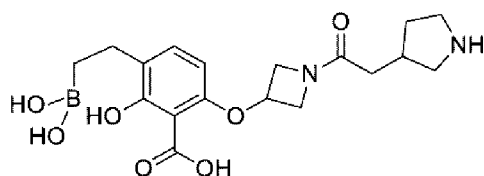
15 3-(2-boronoethyl)-6-({1-[(4S)-4-fluoro-L-prolyl]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

[Chemical Formula 1238]



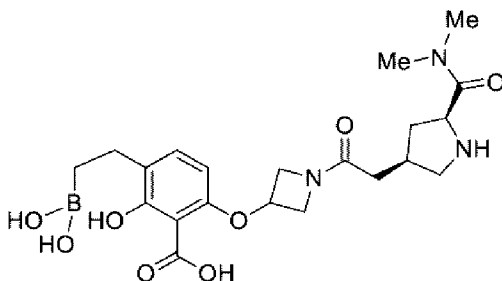
3-(2-boronoethyl)-2-hydroxy-6-((1-[(pyrrolidin-3-yl)acetyl]azetidin-3-yl)oxy)benzoic acid

5 [Chemical Formula 1239]



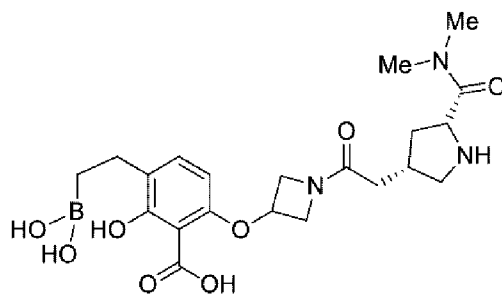
3-(2-boronoethyl)-6-[(1-[(3R,5S)-5-(dimethylcarbamoyl)pyrrolidin-3-yl]acetyl]azetidin-3-yl]oxy-2-hydroxybenzoic acid

10 [Chemical Formula 1240]

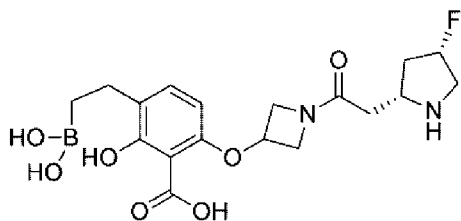


3-(2-boronoethyl)-6-[(1-[(3S,5R)-5-(dimethylcarbamoyl)pyrrolidin-3-yl]acetyl]azetidin-3-yl]oxy-2-hydroxybenzoic acid

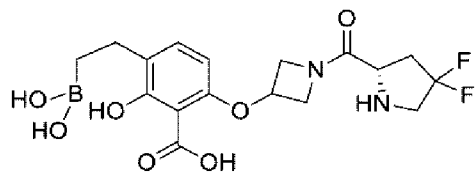
15 [Chemical Formula 1241]



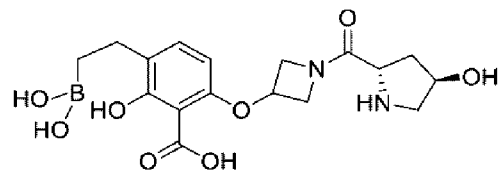
3-(2-boronoethyl)-6-[(1-[(2R,4S)-4-fluoropyrrolidin-2-yl]acetyl]azetidin-3-yl]oxy]-2-hydroxybenzoic acid
[Chemical Formula 1242]



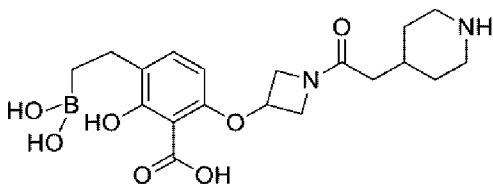
5 3-(2-boronoethyl)-6-{[1-(4,4-difluoro-L-prolyl)azetidin-3-yl]oxy}-2-hydroxybenzoic acid
[Chemical Formula 1243]



10 3-(2-boronoethyl)-2-hydroxy-6-({1-[(4R)-4-hydroxy-L-prolyl]azetidin-3-yl}oxy)benzoic acid
[Chemical Formula 1244]

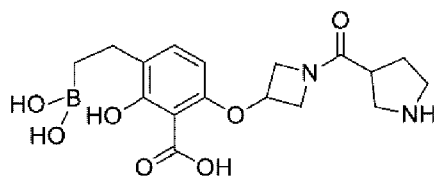


15 3-(2-boronoethyl)-2-hydroxy-6-({1-[(piperidin-4-yl)acetyl]azetidin-3-yl}oxy)benzoic acid
[Chemical Formula 1245]



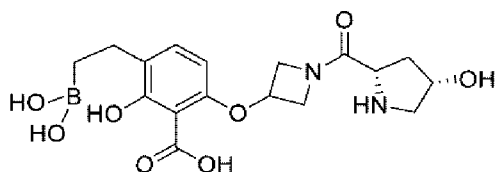
3-(2-boronoethyl)-2-hydroxy-6-{[1-(pyrrolidine-3-carbonyl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 1246]



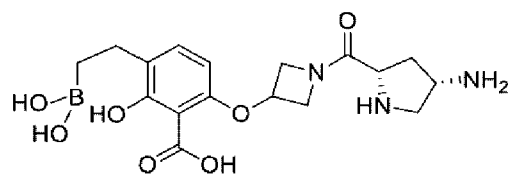
3-(2-boronoethyl)-2-hydroxy-6-({1-[(4S)-4-hydroxy-L-prolyl]azetidin-3-yl}oxy)benzoic acid

5 [Chemical Formula 1247]



6-({1-[(4S)-4-amino-L-prolyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

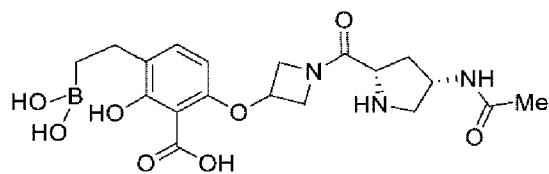
[Chemical Formula 1248]



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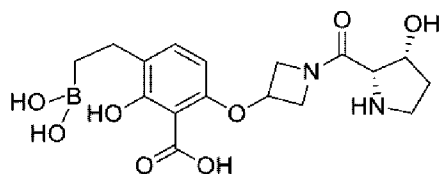
6-({1-[(4S)-4-acetamido-L-prolyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1249]



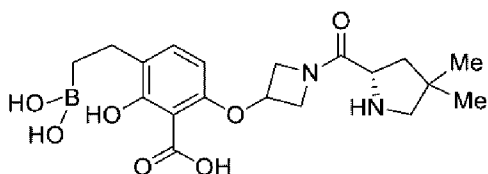
15 3-(2-boronoethyl)-2-hydroxy-6-({1-[(3R)-3-hydroxy-L-prolyl]azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 1250]



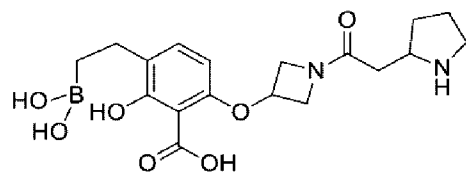
3-(2-boronoethyl)-6-{[1-(4,4-dimethyl-L-prolyl)azetidin-3-yl]oxy}-2-hydroxybenzoic acid

5 [Chemical Formula 1251]



3-(2-boronoethyl)-2-hydroxy-6-({1-[(pyrrolidin-2-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

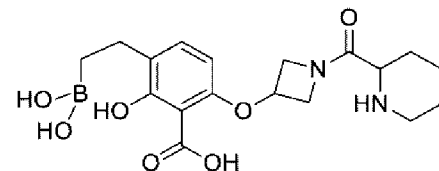
[Chemical Formula 1252]



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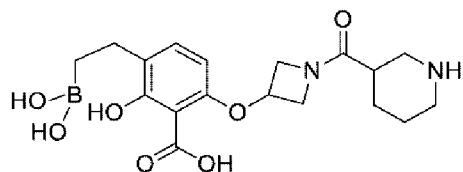
3-(2-boronoethyl)-2-hydroxy-6-({1-(piperidine-2-carbonyl)azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 1253]



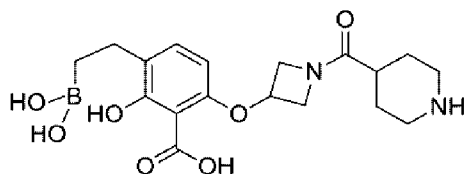
15 3-(2-boronoethyl)-2-hydroxy-6-({1-(piperidine-3-carbonyl)azetidin-3-yl}oxy)benzoic acid

[Chemical Formula 1254]



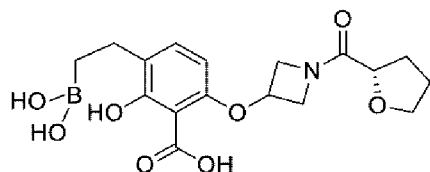
3-(2-boronoethyl)-2-hydroxy-6-([1-(piperidine-4-carbonyl)azetidin-3-yl]oxy)benzoic acid

5 [Chemical Formula 1255]



3-(2-boronoethyl)-2-hydroxy-6-([1-[(2S)-oxolane-2-carbonyl]azetidin-3-yl]oxy)benzoic acid

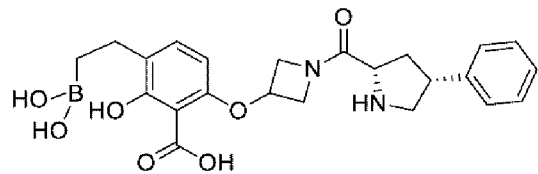
[Chemical Formula 1256]



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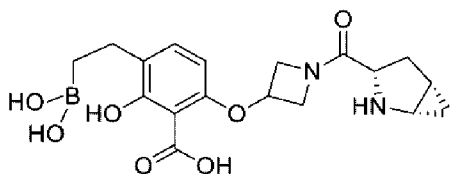
3-(2-boronoethyl)-2-hydroxy-6-([1-[(4R)-4-phenyl-L-prolyl]azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 1257]



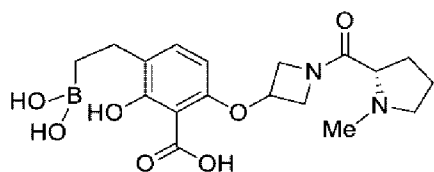
15 6-([1-[(1S,3S,5S)-2-azabicyclo[3.1.0]hexane-3-carbonyl]azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1258]



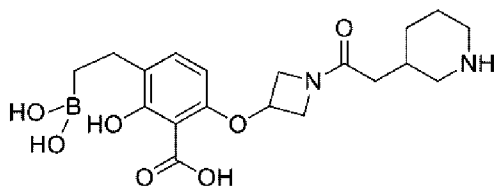
3-(2-boronoethyl)-2-hydroxy-6-([1-(1-methyl-L-prolyl)azetidin-3-yl]oxy)benzoic acid

5 [Chemical Formula 1259]



3-(2-boronoethyl)-2-hydroxy-6-([1-(1-methyl-L-piperidin-3-yl)acetyl]azetidin-3-yl]oxy)benzoic acid

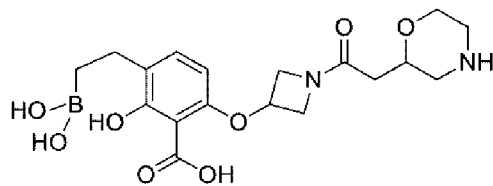
[Chemical Formula 1260]



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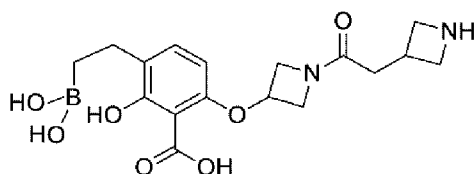
3-(2-boronoethyl)-2-hydroxy-6-([1-(morpholin-2-yl)acetyl]azetidin-3-yl]oxy)benzoic acid

[Chemical Formula 1261]



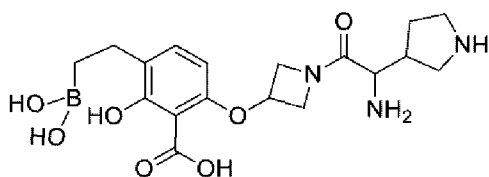
15 6-([1-([3-(2-boronoethyl)-2-hydroxybenzoyl]azetidin-3-yl)acetyl]azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1262]



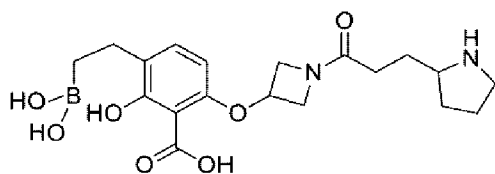
6-({1-[amino(pyrrolidin-3-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 1263]



3-(2-boronoethyl)-2-hydroxy-6-({1-[3-(pyrrolidin-2-yl)propanoyl]azetidin-3-yl}oxy)benzoic acid

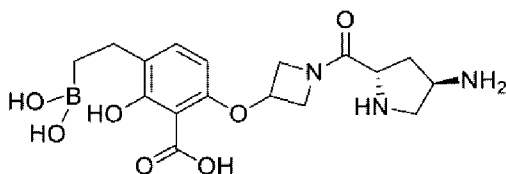
[Chemical Formula 1264]



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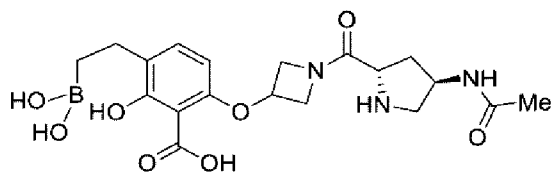
6-({1-[(4R)-4-amino-L-prolyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1265]



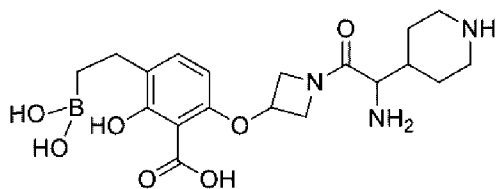
15 6-({1-[(4R)-4-acetamido-L-prolyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1266]



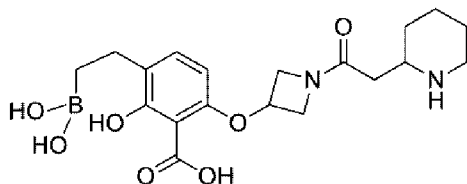
6-({1-[amino(piperidin-4-yl)acetyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 1267]



3-(2-boronoethyl)-2-hydroxy-6-({1-[(piperidin-2-yl)acetyl]azetidin-3-yl}oxy)benzoic acid

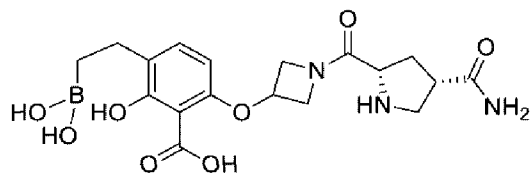
[Chemical Formula 1268]



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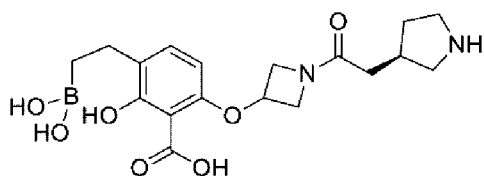
3-(2-boronoethyl)-6-({1-[(4S)-4-carbamoyl-L-prolyl]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

[Chemical Formula 1269]



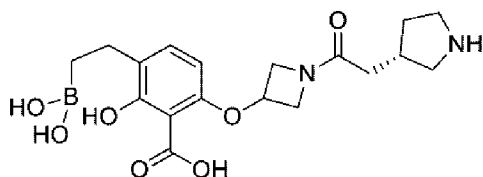
15 3-(2-boronoethyl)-2-hydroxy-6-[(1-{[(3R)-pyrrolidin-3-yl]acetyl}azetidin-3-yl)oxy]benzoic acid

[Chemical Formula 1270]



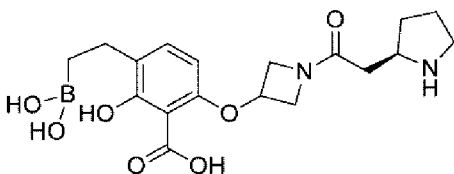
3-(2-boronoethyl)-2-hydroxy-6-[(1-[(3S)-pyrrolidin-3-yl]acetyl)azetidin-3-yl]oxy]benzoic acid

5 [Chemical Formula 1271]



3-(2-boronoethyl)-2-hydroxy-6-[(1-[(2R)-pyrrolidin-2-yl]acetyl)azetidin-3-yl]oxy]benzoic acid

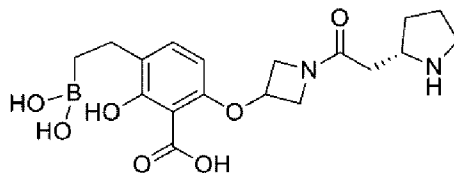
[Chemical Formula 1272]



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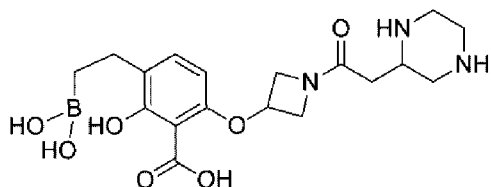
3-(2-boronoethyl)-2-hydroxy-6-[(1-[(2S)-pyrrolidin-2-yl]acetyl)azetidin-3-yl]oxy]benzoic acid

[Chemical Formula 1273]



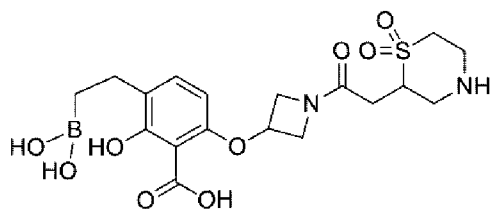
15 3-(2-boronoethyl)-2-hydroxy-6-[(1-[(piperazin-2-yl]acetyl)azetidin-3-yl]oxy]benzoic acid

[Chemical Formula 1274]



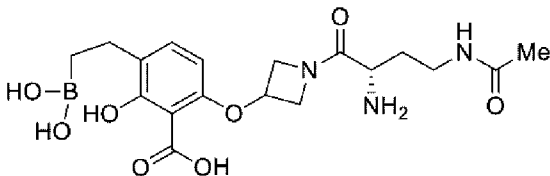
3-(2-boronoethyl)-6-({1-[(1,1-dioxo-1λ⁶-thiomorpholin-2-yl)acetyl]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

5 [Chemical Formula 1275]



6-({1-[(2S)-4-acetamido-2-aminobutanoyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

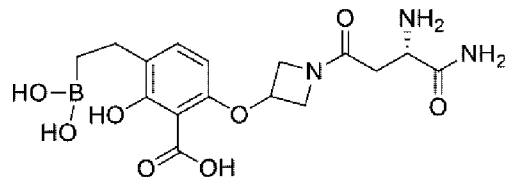
[Chemical Formula 1276]



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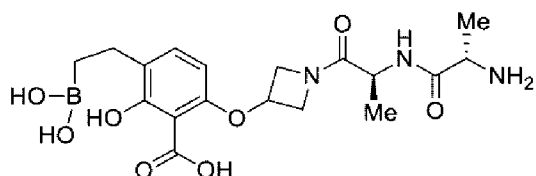
6-([1-(L-α-asparaginyl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1277]



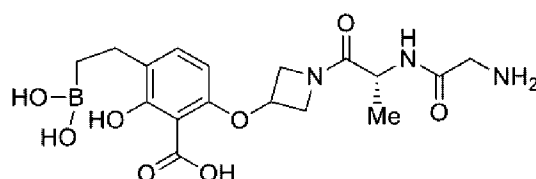
15 6-([1-(L-alanyl-L-alanyl)azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1278]



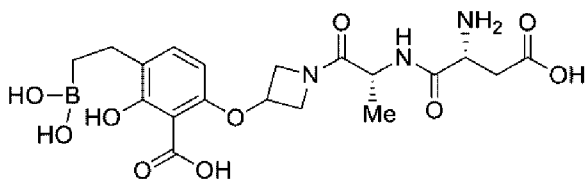
3-(2-boronoethyl)-6-{[1-(glycyl-D-alanyl)azetidin-3-yl]oxy}-2-hydroxybenzoic acid

5 [Chemical Formula 1279]



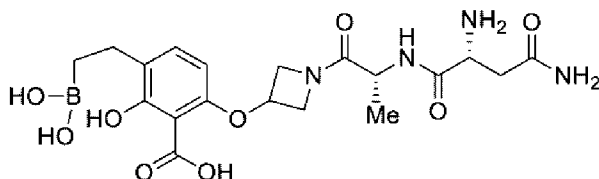
N-[(2R)-1-{3-[4-(2-boronoethyl)-2-carboxy-3-hydroxyphenoxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-α-asparagine

10 [Chemical Formula 1280]



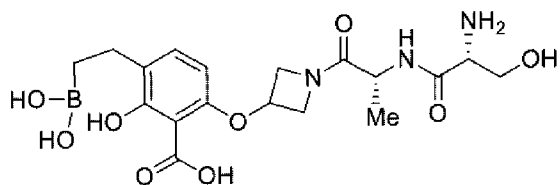
N¹-[(2R)-1-{3-[4-(2-boronoethyl)-2-carboxy-3-hydroxyphenoxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-aspartamide

15 [Chemical Formula 1281]



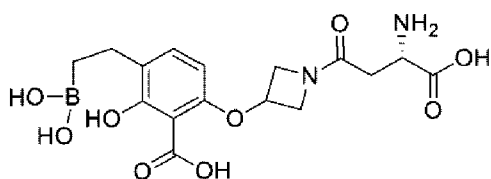
N-[(2R)-1-{3-[4-(2-boronoethyl)-2-carboxy-3-hydroxyphenoxy]azetidin-1-yl}-1-oxopropan-2-yl]-D-serinamide

[Chemical Formula 1282]



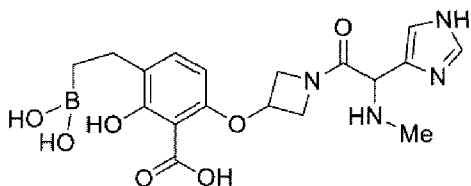
6-({1-[(3S)-3-amino-3-carboxypropanoyl]azetidin-3-yl}oxy)-
3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 1283]



3-(2-boronoethyl)-2-hydroxy-6-({1-[(1H-imidazol-4-yl)
(methylamino)acetyl]azetidin-3-yl}oxy)benzoic acid

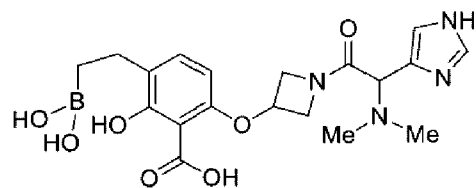
[Chemical Formula 1284]



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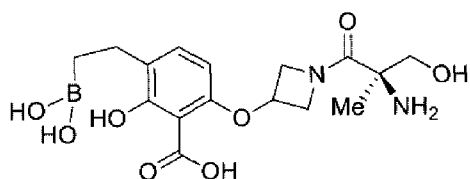
3-(2-boronoethyl)-6-({1-[(dimethylamino)(1H-imidazol-4-yl)
acetyl]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

[Chemical Formula 1285]



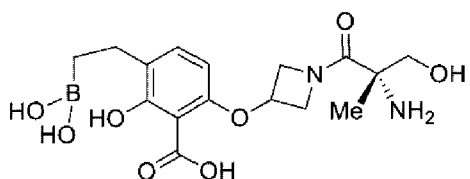
15 3-(2-boronoethyl)-2-hydroxy-6-({1-[(2-methyl-D-
seryl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 1286]



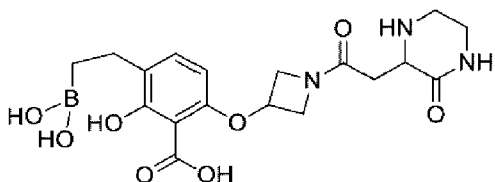
3-(2-boronoethyl)-2-hydroxy-6-([1-(2-methyl-L-seryl)azetidin-3-yl]oxy)benzoic acid

5 [Chemical Formula 1287]



3-(2-boronoethyl)-2-hydroxy-6-([1-(3-oxopiperazin-2-yl)acetyl]azetidin-3-yl]oxy)benzoic acid

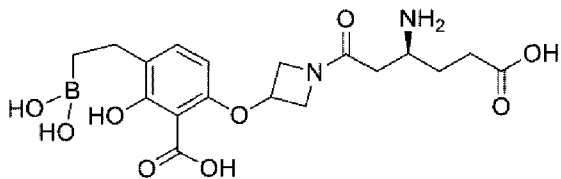
[Chemical Formula 1288]



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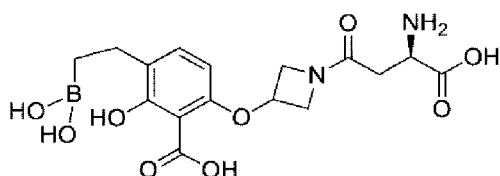
6-([1-[(3S)-3-amino-5-carboxypentanoyl]azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1289]



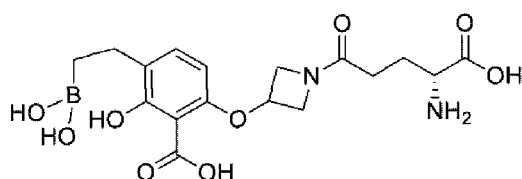
15 6-([1-[(3R)-3-amino-3-carboxypropanoyl]azetidin-3-yl]oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1290]



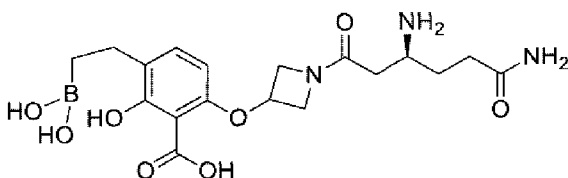
6-({1-[(4R)-4-amino-4-carboxybutanoyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 1291]



3-(2-boronoethyl)-6-({1-[(3S)-3,6-diamino-6-oxohexanoyl]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

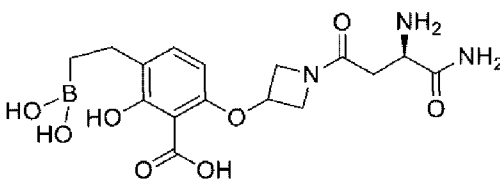
[Chemical Formula 1292]



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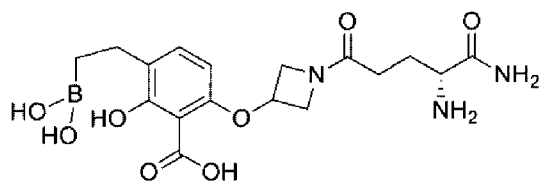
6-([1-(D-α-asparaginy)]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

[Chemical Formula 1293]



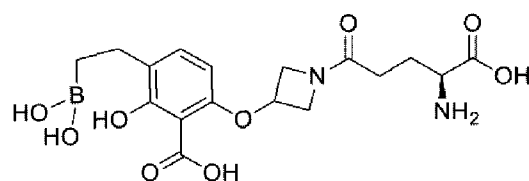
15 3-(2-boronoethyl)-6-([1-(D-α-glutaminy)]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

[Chemical Formula 1294]



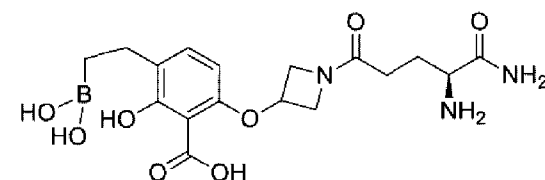
6-({1-[(4S)-4-amino-4-carboxybutanoyl]azetidin-3-yl}oxy)-3-(2-boronoethyl)-2-hydroxybenzoic acid

5 [Chemical Formula 1295]



3-(2-boronoethyl)-6-({1-[(L-α-glutaminy]azetidin-3-yl}oxy)-2-hydroxybenzoic acid

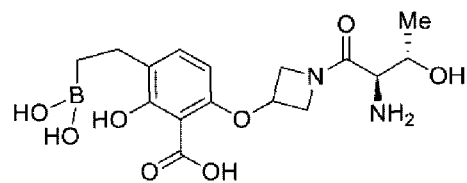
[Chemical Formula 1296]



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3-(2-boronoethyl)-2-hydroxy-6-({1-[(1-D-threonyl)azetidin-3-yl]oxy}benzoic acid

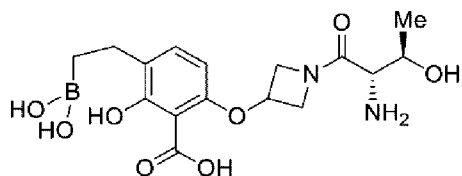
[Chemical Formula 1297]



, and

15 3-(2-boronoethyl)-2-hydroxy-6-({1-[(1-L-threonyl)azetidin-3-yl]oxy}benzoic acid

[Chemical Formula 1298]



[Claim 70]

A medicament comprising the compound or the
 5 pharmaceutically acceptable salt thereof according to any
 one of claims 1 to 69.

[Claim 71]

The medicament according to claim 70, which is a
 therapeutic drug or a prophylactic drug for a bacterial
 10 infection.

[Claim 72]

A β -lactamase inhibiting agent comprising the compound
 or the pharmaceutically acceptable salt thereof according
 to any one of claims 1 to 69 as an active ingredient.

15 [Claim 73]

A pharmaceutical composition comprising the compound or
 the pharmaceutically acceptable salt thereof according to
 any one of claims 1 to 69 and a pharmaceutically acceptable
 carrier.

20 [Claim 74]

The pharmaceutical composition according to claim 73,
 further comprising an additional agent.

[Claim 75]

The pharmaceutical composition according to claim 74,
 25 wherein the additional agent is selected from the group
 consisting of an antibacterial agent, an antifungal agent,
 an antiviral agent, an anti-inflammatory agent, and an
 anti-allergic agent.

[Claim 76]

30 The pharmaceutical composition according to claim 74 or
 75, wherein the additional agent is a β -lactam agent.

[Claim 77]

The pharmaceutical composition according to claim 75 or 76, wherein a β -lactam agent, which is the additional agent, is selected from the group consisting of amoxicillin, ampicillin (pivampicillin, hetacillin, bacampicillin, 5 metampicillin, and talampicillin), epicillin, carbenicillin (carindacillin), ticarcillin, temocillin, azlocillin, piperacillin, mezlocillin, mecillinam (pivmecillinam), sulbenicillin, benzylpenicillin (G), clometocillin, benzathine benzylpenicillin, procaine benzylpenicillin, 10 azidocillin, penamecillin, phenoxymethyl penicillin (V), propicillin, benzathine phenoxymethylpenicillin, phenethicillin, cloxacillin (dicloxacillin and flucloxacillin), oxacillin, methicillin, nafcillin, faropenem, biapenem, doripenem, ertapenem, imipenem, 15 meropenem, panipenem, tomopenem, razupenem, cefazolin, cefacetrile, cefadroxil, cephalixin, cefaloglycin, cefalonium, cefaloridine, cephalothin, cephapirin, cefatrizine, cefazedone, cefazaflur, cefradine, cefroxadine, ceftezole, cefaclor, cefamandole, cefminox, cefonicide, 20 ceforanide, cefotiam, cefprozil, cefbuperazone, cefuroxime, cefuzonam, cefoxitin, cefotetan, cefmetazole, loracarbef, cefixime, ceftazidime, ceftriaxone, cefcapene, cefdaloxime, cefdinir, cefditoren, cefetamet, cefmenoxime, cefodizime, cefoperazone, cefotaxime, cefpimizole, cefpiramide, 25 cefpodoxime, cefsulodin, cefteram, ceftibuten, ceftiolene, ceftizoxime, flomoxef, latamoxef, cefepime, ceftazopran, cefpirome, cefquinome, ceftobiprole, ceftaroline, CXA-101, RWJ-54428, MC-04546, ME1036, BAL30072, SYN2416, ceftiofur, cefquinome, cefovecin, aztreonam, tigemonam, carumonam, 30 RWJ-442831, RWJ-333441, and RWJ-333442.

[Claim 78]

The pharmaceutical composition according to claim 76 or 77, wherein the β -lactam agent is selected from ceftazidime, biapenem, doripenem, ertapenem, imipenem, meropenem, or 35 panipenem.

[Claim 79]

The pharmaceutical composition according to claim 76 or 77, wherein the β -lactam agent is selected from aztreonam, tigemonam, BAL30072, SYN2416, or carumonam.

[Claim 80]

5 The pharmaceutical composition according to claim 73, characterized in that an additional agent is concomitantly administered.

[Claim 81]

10 The pharmaceutical composition according to claim 80, wherein the additional agent is selected from an antibacterial agent, an antifungal agent, an antiviral agent, an anti-inflammatory agent, or an anti-allergic agent.

[Claim 82]

15 The pharmaceutical composition according to claim 80 or 81, wherein the additional agent is a β -lactam agent.

[Claim 83]

The pharmaceutical composition according to claim 81 or 82, wherein a β -lactam agent, which is the additional agent,
 20 is selected from the group consisting of amoxicillin, ampicillin (pivampicillin, hetacillin, bacampicillin, metampicillin, and talampicillin), epicillin, carbenicillin (carindacillin), ticarcillin, temocillin, azlocillin, piperacillin, mezlocillin, mecillinam (pivmecillinam),
 25 sulbenicillin, benzylpenicillin (G), clometocillin, benzathine benzylpenicillin, procaine benzylpenicillin, azidocillin, penamecillin, phenoxymethyl penicillin (V), propicillin, benzathine phenoxymethylpenicillin, phenethicillin, cloxacillin (dicloxacillin and
 30 flucloxacillin), oxacillin, methicillin, nafcillin, faropenem, biapenem, doripenem, ertapenem, imipenem, meropenem, panipenem, tomopenem, razupenem, cefazolin, cefacetrile, cefadroxil, cephalixin, cefaloglycin, cefalonium, cefaloridine, cephalothin, cephapirin,
 35 cefatrizine, cefazedone, cefazaflur, cefradine, cefroxadine, ceftezole, cefaclor, cefamandole, cefminox, cefonicide,

ceforanide, cefotiam, cefprozil, cefbuperazone, cefuroxime, cefuzonam, cefoxitin, cefotetan, cefmetazole, loracarbef, cefixime, ceftazidime, ceftriaxone, cefcapene, cefdaloxime, cefdinir, cefditoren, cefetamet, cefmenoxime, cefodizime, 5 cefoperazone, cefotaxime, cefpimizole, cefpiramide, cefpodoxime, cefsulodin, ceftoram, ceftibuten, ceftiolene, ceftizoxime, flomoxef, latamoxef, cefepime, ceftazopran, cefpirome, cefquinome, ceftobiprole, ceftaroline, CXA-101, RWJ-54428, MC-04546, ME1036, BAL30072, SYN2416, ceftiofur, 10 cefquinome, ceftovecin, aztreonam, tigemonam, carumonam, RWJ-442831, RWJ-333441, and RWJ-333442.

[Claim 84]

The pharmaceutical composition according to claim 82 or 83, wherein the β -lactam agent is selected from the group 15 consisting of ceftazidime, biapenem, doripenem, ertapenem, imipenem, meropenem, and panipenem.

[Claim 85]

The pharmaceutical composition according to claim 82 or 83, wherein the β -lactam agent is selected from the group 20 consisting of aztreonam, tigemonam, BAL30072, SYN2416, and carumonam.

[Claim 86]

The compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 69 for treating 25 a bacterial infection.

[Claim 87]

The compound or the pharmaceutically acceptable salt thereof according to claim 86, wherein the bacterial infection is a bacterial infection in which a bacteria that 30 can have a β -lactamase is involved.

[Claim 88]

The compound or the pharmaceutically acceptable salt thereof according to claim 86 or 87, wherein the bacterial infection is sepsis, febrile neutropenia, bacterial 35 meningitis, bacterial endocarditis, otitis media, sinusitis, pneumonia, lung abscess, empyema, secondary infection of a

chronic respiratory disease, pharyngolaryngitis, tonsillitis, osteomyelitis, arthritis, peritonitis, intraperitoneal abscess, cholecystitis, cholangitis, liver abscess, a deep skin infection, lymphangitis/lymphadenitis, 5 secondary infection of trauma, burn injury, surgical wound, or the like, a urinary tract infection, a genital infection, eye infection, or an odontogenic infection.

[Claim 89]

A medicament comprised of a combination of the compound 10 or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 69 and at least one agent selected from the group consisting of therapeutic agents for sepsis, febrile neutropenia, bacterial meningitis, bacterial endocarditis, otitis media, sinusitis, pneumonia, 15 lung abscess, empyema, secondary infection of a chronic respiratory disease, pharyngolaryngitis, tonsillitis, osteomyelitis, arthritis, peritonitis, intraperitoneal abscess, cholecystitis, cholangitis, liver abscess, a deep skin infection, lymphangitis/lymphadenitis, secondary 20 infection of trauma, burn injury, surgical wound, or the like, a urinary tract infection, a genital infection, eye infection, and an odontogenic infection.

[Claim 90]

A pharmaceutical composition comprising a β -lactam 25 agent, wherein the pharmaceutical composition is administered with the compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 69.

[Claim 91]

A method for treating a bacterial infection, 30 characterized in that a therapeutically effective amount of the compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 69 is administered to a patient in need thereof.

35 [Claim 92]

The method according to claim 91, wherein the bacterial

infection is a bacterial infection in which a bacteria that can have a β -lactamase is involved.

[Claim 93]

5 The method according to claim 91 or 92, wherein the
bacterial infection is sepsis, febrile neutropenia,
bacterial meningitis, bacterial endocarditis, otitis media,
sinusitis, pneumonia, lung abscess, empyema, secondary
infection of a chronic respiratory disease,
pharyngolaryngitis, tonsillitis, osteomyelitis, arthritis,
10 peritonitis, intraperitoneal abscess, cholecystitis,
cholangitis, liver abscess, a deep skin infection,
lymphangitis/lymphadenitis, secondary infection of trauma,
burn injury, surgical wound, or the like, a urinary tract
infection, a genital infection, an eye infection, or an
15 odontogenic infection.

[Claim 94]

The method of any one of claims 91 to 93, characterized in that an additional agent is concomitantly administered.