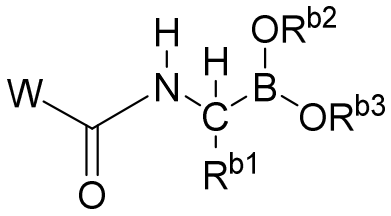
What is claimed is:

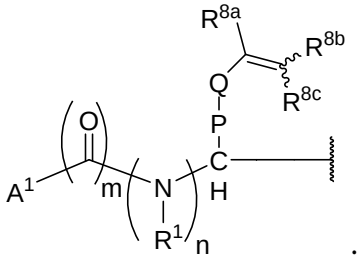
1. A compound of Formula (I):



(I)

or a pharmaceutically acceptable salt thereof, wherein:

W is –O-P-Q-C(R^{8a})=C(R^{8b})(R^{8c}), -N(R')-P-Q-C(R^{8a})=C(R^{8b})(R^{8c}), or a group of formula



;

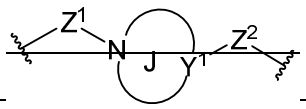
A^1 is ~~hydroxy, optionally substituted~~ C_{1-6} alkyl, ~~optionally substituted~~ C_{6-14} aryl, ~~optionally substituted~~ 5-14 membered heteroaryl, ~~optionally substituted heterocyclyl,~~ or -S(=O)$_2$-C_{1-6} alkyl,

wherein ~~said alkyl of said -S(=O)$_2$-alkyl is optionally substituted~~ said aryl or heteroaryl is optionally substituted with one to three groups independently chosen from halo, hydroxy, C_{1-6} alkyl, C_{1-6} alkoxy, cyano, C_{1-6} haloalkyl, -NH_2, -NH(C_{1-6} alkyl), -N(C_{1-6} alkyl)$_2$, 3-10 membered heterocyclyl, C_{6-14} aryl, and 5-14 membered heteroaryl, and

wherein said alkyl is optionally substituted with 1-2 groups independently chosen from –N(H)-C(=O)-C_{1-6} alkyl, hydroxy, and halo;

R' is H or ~~optionally substituted~~ C_{1-6} alkyl;

each R^1 is H or ~~optionally substituted~~ C_{1-6} alkyl;

P is ~~–alkyl-, -alkyl-O-alkyl-,~~ -C_{1-6} alkyl-N(R)-, -C_{1-6} alkyl-C_{6-14} aryl-N(R)-, ~~-alkyl-N(R)-aryl-N(R)-, -alkyl-O-aryl-N(R)-, -alkyl-aryl-alkyl-N(R)-, -alkyl-heteroaryl-N(R)-, -alkyl-cycloalkyl-N(R)-, -alkyl-O-cycloalkyl-N(R)-, -alkyl-N(R)-cycloalkyl-N(R)-, -alkyl-O-alkyl-N(R)-, -alkyl-N(R)-alkyl-N(R)-,~~ or  , or  ~~, wherein each instance of alkyl, aryl, heteroaryl, and cycloalkyl is optionally substituted~~;

Z ~~and Z^1 are independently~~ is chosen from a covalent bond, -C_{1-6} alkyl-, -C_{1-6} alkyl-O-, -C_{1-6} alkyl-N(R)-, or -C_{1-6} alkyl-O-C_{1-6} alkyl~~, wherein each instance of alkyl is optionally substituted~~;

ring A with the ring nitrogen atom shown is ~~an optionally substituted~~ a saturated mono- or multicyclic 4 to 10 membered heterocyclyl optionally substituted with 1-2 groups chosen from halo or -C_{1-6} alkyl;

~~ring J with the ring nitrogen atom and ring Y^1 atom shown is an optionally substituted saturated 4 to 10 membered heterocyclyl;~~

~~Y^1 is C or N;~~

~~Z^2 is a covalent bond or N(R);~~

each R is independently hydrogen or ~~optionally substituted~~ C_{1-6} alkyl;

Q is –C(=O)- or –$S(=O)_2$-;

each R^{8a} independently is hydrogen, halogen, or cyano;

each R^{8b} independently is hydrogen or ~~optionally substituted~~ C_{1-6} alkyl; or

each R^{8a} and R^{8b} independently are taken together to form a bond; and

each R^{8c} independently is hydrogen, ~~optionally substituted~~ C_{1-6} alkyl, or ~~optionally substituted~~ C_{3-10} cycloalkyl~~, optionally substituted heteroaryl, or optionally substituted heterocyclyl~~ wherein the alkyl is optionally substituted with 1-2 substituents chosen from C_{3-10} cycloalkyl or 3-10 membered heterocyclyl wherein said heterocyclyl is optionally substituted with 1-2 substituents chosen from halo, C_{1-6} alkyl, and -$C(O)OCH_3$;

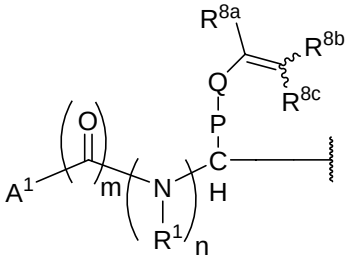
R^{b1} is ~~optionally substituted~~ C_{1-6} alkyl~~, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, optionally substituted cycloalkenyl, or optionally substituted heterocyclyl~~ optionally substituted with 1-2 substituents chosen from C_{3-10} cycloalkenyl, C_{6-14} aryl and 5-14 membered heteroaryl, wherein each of said aryl and heteroaryl is optionally substituted with 1-2 substituents chosen from C_{1-6}alkyl, halo, hydroxy, C_{1-6}alkoxy, cyano, haloalkyl, -NH_2, -NH(C_{1-6}alkyl), and –N(C_{1-6}alkyl)$_2$;

R^{b2} and R^{b3} are independently hydrogen or ~~optionally substituted~~ C_{1-6} alkyl; or

R^{b2} and R^{b3} together with the boron atom to which they are shown attached form an optionally substituted cyclic boronic ester having 2 to 20 carbons, and optionally containing one or two additional cyclic heteroatoms chosen from N, O and S; and

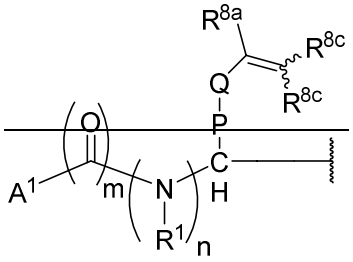
m and n are independently 0 or 1;

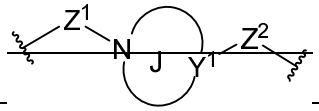
provided that when W is –O-P-Q-C(R^{8a})=C(R^{8b})(R^{8c}), or a group of formula



wherein m and n are each 0, then P is not –$\underline{C_{1-6}}$alkyl-N(R)-, -$\underline{C_{1-6}}$alkyl-(C_3-C_6) cycloalkyl-N(R)-, -$\underline{C_{1-6}}$ alkyl-O-$\underline{C_{1-6}}$alkyl-N(R)-, or , wherein each instance of alkyl, and cycloalkyl is optionally substituted, ring A with the ring nitrogen atom as shown is an optionally substituted saturated monocyclic five- to seven- membered heterocyclyl with only the one nitrogen shown as the ring heteroatom, and wherein Z is connected to ring A at a carbon atom adjacent to the ring nitrogen atom; ~~and~~

~~provided that when W is –O-P-Q-C(R^{8a})=C(R^{8b})(R^{8c}), or a group of formula~~



~~wherein m and n are each 0, and P is~~  ~~wherein Y^1 in ring J is nitrogen, then Z^2 is a covalent bond;~~ or a compound selected from the group consisting of:

(R)-(1-(4-(1-(2-cyano-4-methylpent-2-enoyl)piperidin-4-yl)butanamido)-2-phenylethyl)boronic acid;

((R)-1-(2-((R)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)acetamido)-2-phenylethyl)boronic acid;

((R)-1-(2-((R)-4-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)morpholin-2-yl)acetamido)-2-phenylethyl)boronic acid;

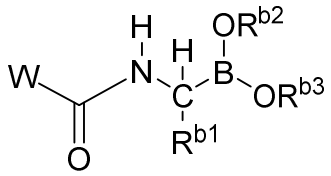
((R)-1-(2-((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)acetamido)-2-phenylethyl)boronic acid;

((R)-1-(2-((S)-4-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)morpholin-2-yl)acetamido)-2-phenylethyl)boronic acid;

an individual E or Z isomer thereof; or

a pharmaceutically acceptable salt of any of the foregoing compounds.

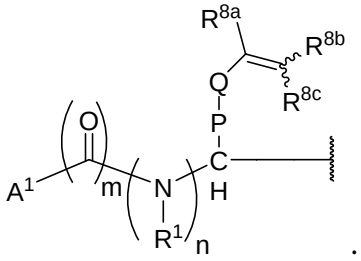
2. A compound of Formula (I'):



(I')

or a pharmaceutically acceptable salt thereof, wherein:

W is –O-P-Q-C(R^{8a})=C(R^{8b})(R^{8c}), -N(R')-P-Q-C(R^{8a})=C(R^{8b})(R^{8c}), or a group of formula



;

wherein:

A^1 is ~~hydroxy;~~ $\underline{C_{1-6}}$ alkyl which is optionally substituted with 1-2 substituents chosen from halo, hydroxy, and –N(H)-C(=O)-$\underline{C_{1-6}}$ alkyl; -S(=O)$_2$-$\underline{C_{1-6}}$ alkyl; ~~heterocycylyl;~~ $\underline{C_{6-14}}$ aryl; or $\underline{5\text{-}14\ membered}$ heteroaryl;

wherein each of said ~~heterocyclyl,~~ aryl and heteroaryl is independently optionally substituted with 1-3 substituents independently chosen from halo, hydroxy, $\underline{C_{1-6}}$ alkyl, $\underline{C_{1-6}}$ alkoxy, cyano, haloalkyl, -NH$_2$, -NH($\underline{C_{1-6}}$ alkyl), -N($\underline{C_{1-6}}$ alkyl)$_2$, $\underline{4\ to\ 10\ membered}$ heterocyclyl, $\underline{C_{6-14}}$ aryl, and $\underline{5\text{-}14\ membered}$ heteroaryl;

R' is H or alkyl;

R^1 is H or alkyl;

P is -$\underline{C_{1-6}}$ alkyl-N(R)-, -$\underline{C_{1-6}}$ alkyl-$\underline{C_{6-14}}$ aryl-N(R)-, or  ;

Z is a covalent bond, -C$_{1-6}$ alkyl-, or -C$_{1-6}$ alkyl-O-C$_{1-6}$ alkyl-;

ring A with the ring nitrogen atom shown is ~~an optionally substituted~~ a saturated mono- or multicyclic 4 to 10 membered heterocyclyl optionally substituted with 1-2 groups chosen from halo or -C$_{1-6}$ alkyl;

each R independently is hydrogen or alkyl;

Q is –C(=O)- or –S(=O)$_2$-;

R^{8a} is hydrogen or cyano;

R^{8b} is hydrogen or C$_{1-6}$ alkyl; or

R^{8a} and R^{8b} are taken together to form a bond; and

R^{8c} is hydrogen or C$_{1-6}$ alkyl which is optionally substituted with 1-2 substituents chosen from C$_{3-10}$ cycloalkyl and 3-10 membered heterocyclyl, wherein said heterocyclyl is optionally substituted with 1-2 substituents chosen from halo, C$_{3-10}$ alkyl, and 3-10 membered heterocyclyl;

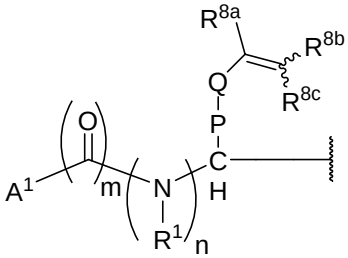
R^{b1} is C$_{1-6}$ alkyl which is optionally substituted with 1-2 substituents chosen from C$_{3-10}$ cycloalkenyl, C$_{6-14}$ aryl and 5-14 membered heteroaryl, wherein each of said aryl and heteroaryl is optionally substituted with 1-2 substituents chosen from C$_{6-14}$ alkyl, halo, hydroxy, C$_{6-14}$ alkoxy, cyano, haloalkyl, -NH$_2$, -NH(C$_{6-14}$ alkyl), and –N(C$_{6-14}$ alkyl)$_2$;

R^{b2} and R^{b3} are independently hydrogen or C$_{1-6}$ alkyl; or

R^{b2} and R^{b3} together with the boron atom to which they are shown attached form an optionally substituted cyclic boronic ester having 2 to 20 carbons, and optionally containing one or two additional cyclic heteroatoms chosen from N, O and S; and

m and n are independently 0 or 1;

provided that when W is –O-P-Q-C(R^{8a})=C(R^{8b})(R^{8c}), or a group of formula



wherein m and n are each 0, then P is not –C$_{1-6}$ alkyl-N(R)- or 

, wherein ring A with the ring nitrogen atom as shown is an optionally substituted saturated monocyclic five-

to seven- membered heterocyclyl with only the one nitrogen shown as the ring heteroatom, and wherein Z is connected to ring A at a carbon atom adjacent to the ring nitrogen atom.

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

said ~~–~~$\underline{C_{1\text{-}6}}$ alkyl-N(R)- of P is $–(CH_2)_{1\text{-}4}N(R)$-;

said ~~–~~$\underline{C_{1\text{-}6}}$ alkyl-$\underline{C_{6\text{-}14}}$ aryl-N(R)- of P is $–(CH_2)_{1\text{-}4}$-phenyl-N(R)-;

~~said alkyl-N(R)-aryl-N(R)- of P is $–(CH_2)_{1\text{-}4}$-N(R)-phenyl-N(R)-;~~

~~said alkyl-O-aryl-N(R)- of P is $–(CH_2)_{1\text{-}4}$-O-phenyl-N(R)-;~~

~~said alkyl-aryl-alkyl-N(R)- of P is $–(CH_2)_{1\text{-}4}$-phenyl-$(CH_2)_{1\text{-}4}$N(R)-;~~

~~said alkyl-heteroaryl-N(R)- of P is $–(CH_2)_{1\text{-}4}$-heteoaryl-N(R)-;~~

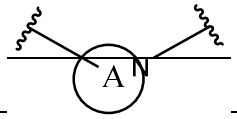
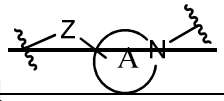
~~said alkyl-O-alkyl-N(R)- of P is $–(CH_2)_{1\text{-}4}$-O-$(CH_2)_{1\text{-}4}$N(R)-;~~

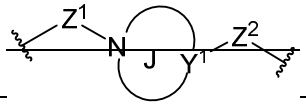
said ~~–~~$\underline{C_{1\text{-}6}}$ alkyl- of Z in  of P is $–(CH_2)_{1\text{-}4}$-;

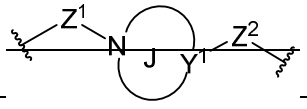
said -$\underline{C_{1\text{-}6}}$ alkyl-O- of Z in  of P is $–(CH_2)_{1\text{-}4}$-O-;

said -$\underline{C_{1\text{-}6}}$ alkyl-N(R)- of Z in  of P is $–(CH_2)_{1\text{-}4}$-N(R)~~-, wherein R is H, unsubstituted alkyl, or alkyl substituted with an alkoxy~~; and

said -$\underline{C_{1\text{-}6}}$ alkyl-O-$\underline{C_{1\text{-}6}}$ alkyl- of Z in  of P is $–(CH_2)_{1\text{-}4}$-O-$(CH_2)_{1\text{-}4}$-~~;~~

~~said~~  ~~in said~~  ~~of P is a mono- or multicyclic heterocyclyl;~~

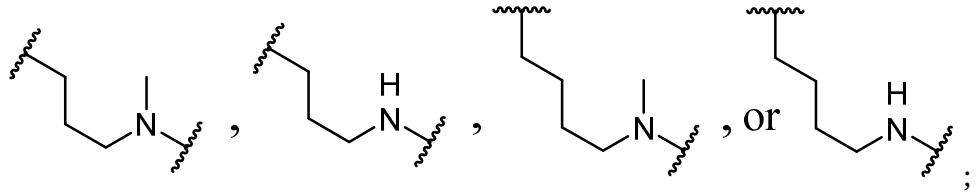
~~said Z^1 in said~~  ~~of P is $–(CH_2)_{1\text{-}4}$-; and~~

~~said ring J in said~~  ~~of P is heterocyclyl;~~

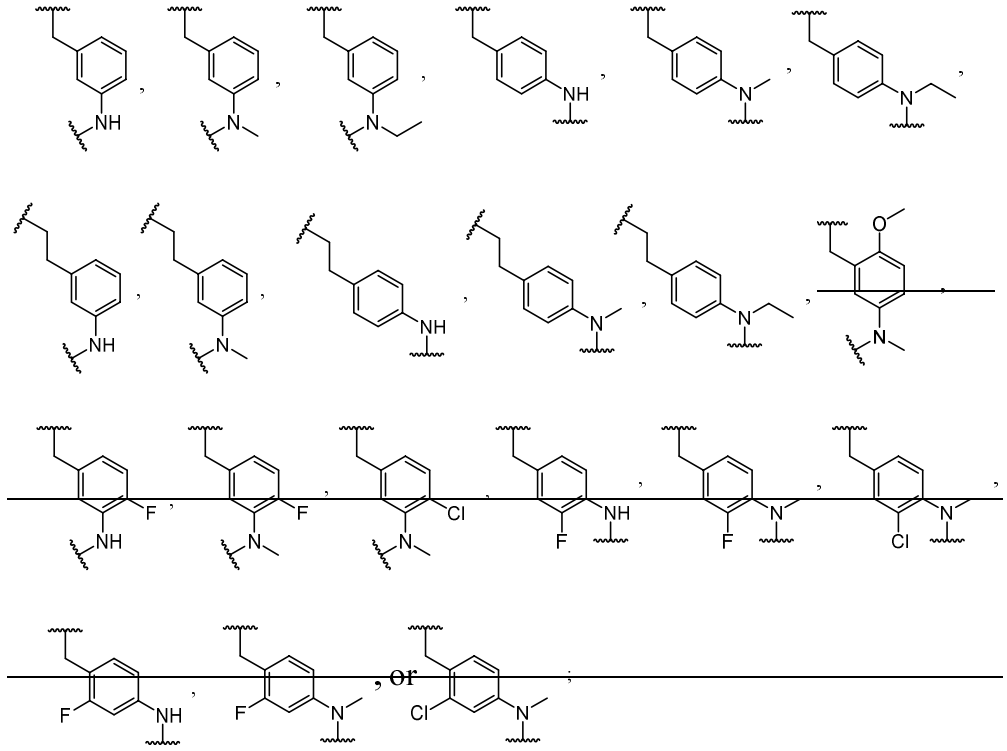
~~wherein each phenyl and each heterocyclyl is independently optionally substituted with 1-3 substituents independently chosen from halo, hydroxy, alkyl, alkoxy, cyano, haloalkyl, $-NH_2$, -NH(alkyl), $-N(alkyl)_2$, heterocyclyl, aryl, and heteroaryl~~.

4. The compound or pharmaceutically acceptable salt thereof of any of claims 1-3, wherein:

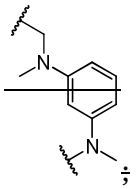
said -C_{1-6} alkyl-N(R)- of P is



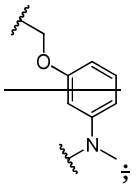
said -C_{1-6} alkyl-C_{6-14} aryl-N(R)- of P is



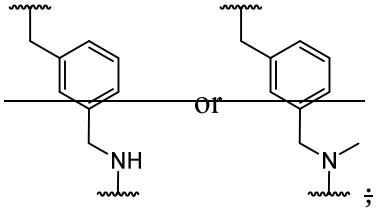
~~said -alkyl-N(R)-aryl-N(R)- of P is~~



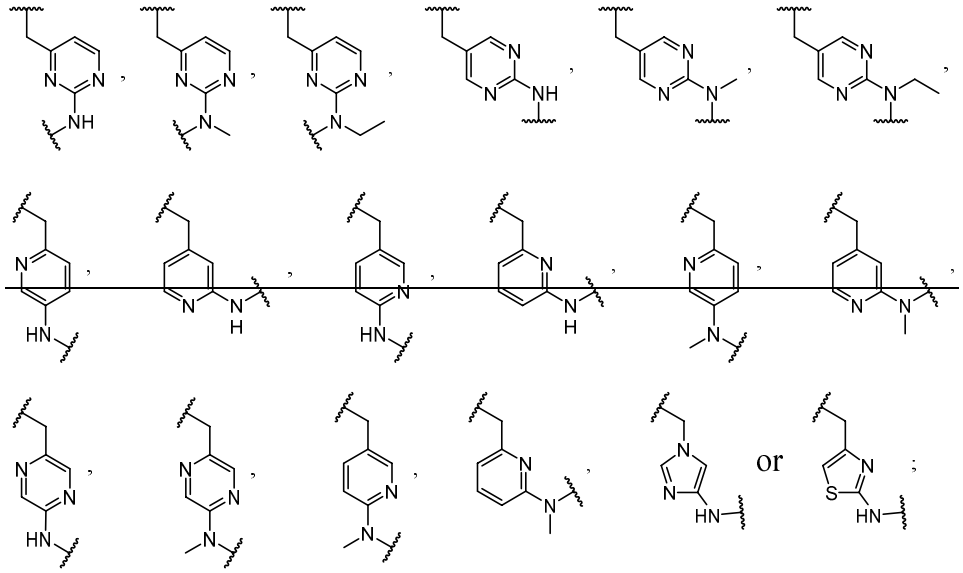
~~said -alkyl-O-aryl-N(R)- of P is~~



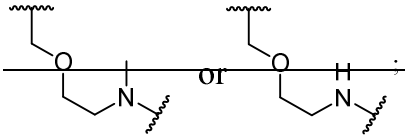
~~said -alkyl-aryl-alkyl-N(R)- of P is~~



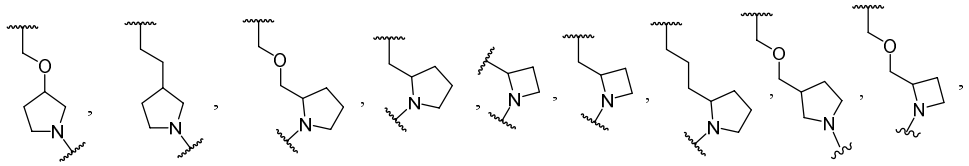
~~said -alkyl-heteroaryl-N(R)- of P is~~

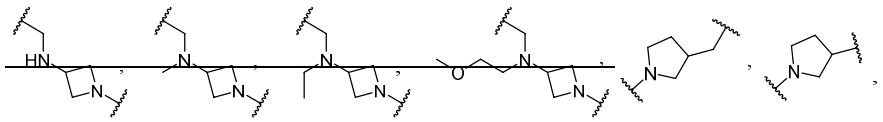


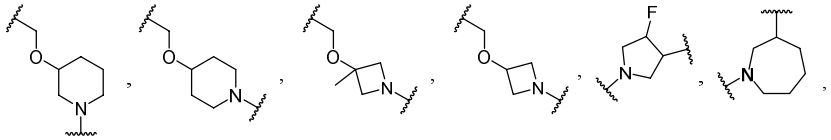
~~said -alkyl-O-alkyl-N(R)- of P is~~

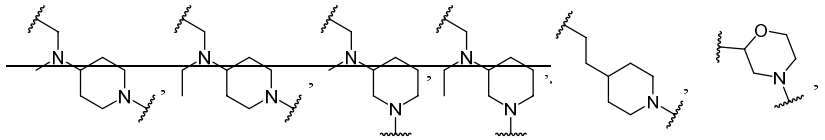


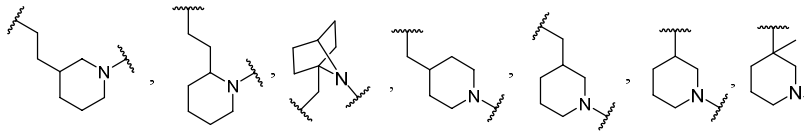
and said  of P is

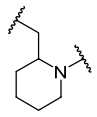




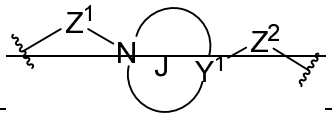




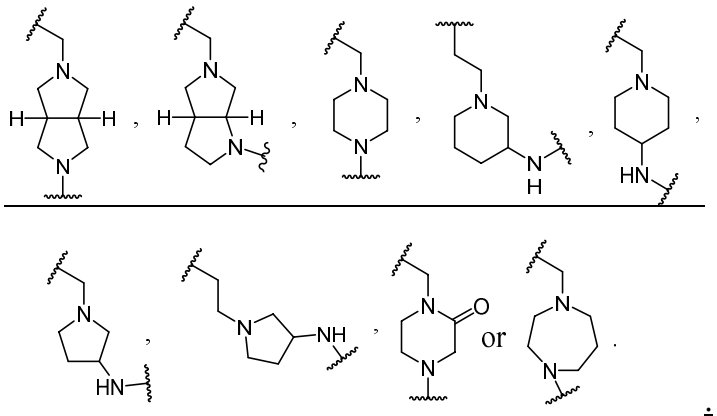


or 

and

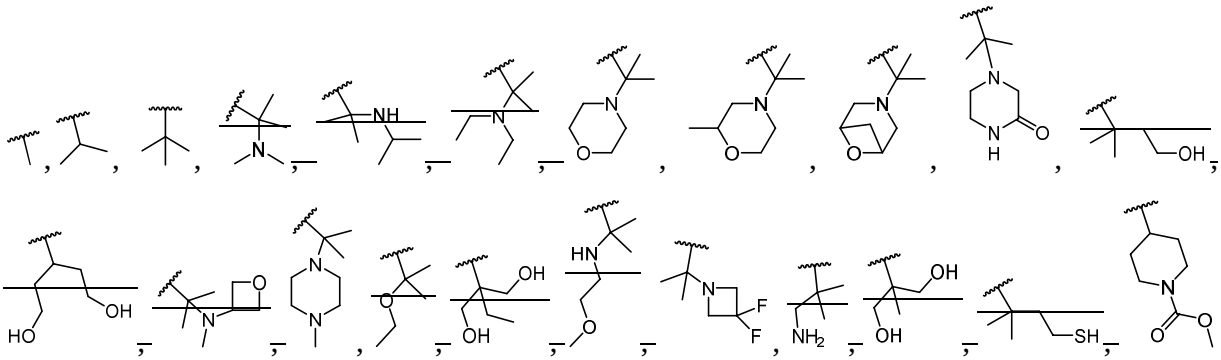


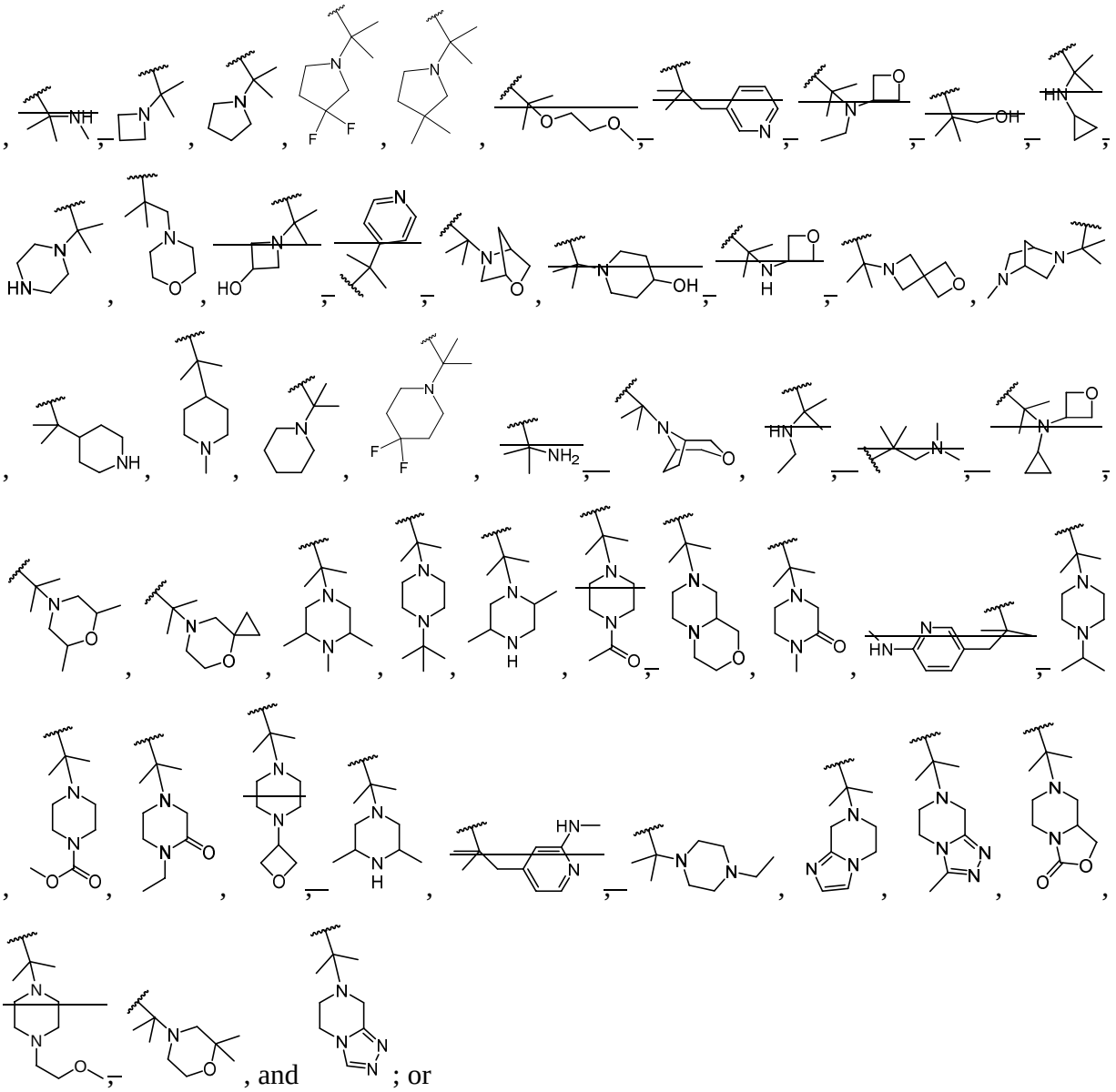
said of P is



5. The compound or pharmaceutically acceptable salt thereof of any of claims 1-4, wherein ~~the optional substituents of said alkyl of R^{8c} are 1-3 substituents independently chosen from halo, hydroxy, alkoxy, cyano, $-NH_2$, -SH, -C(=O)-alkyl, -C(=O)-O-alkyl, -O-alkyl-O-alkyl, -NH(alkyl), -NH(optionally substituted cycloalkyl), -NH(alkyl-O-alkyl), $-N(alkyl)_2$, -NH(optionally substituted heterocyclyl), -N(alkyl)(optionally substituted heterocyclyl), -N(optionally substituted cycloalkyl)(optionally substituted heterocyclyl), optionally substituted cycloalkyl, optionally substituted heterocyclyl, optionally substituted aryl, and optionally substituted heteroaryl; and wherein the optional substituents of each of said cycloalkyl, heteroaryl, and heterocyclyl of R^{8c} are 1-3 substituents independently chosen from halo, hydroxy, alkyl, alkoxy, cyano, haloalkyl, $-NH_2$, -SH, -C(=O)-alkyl, -C(=O)-O-alkyl, -O-alkyl-O-alkyl, -NH(alkyl), -NH(optionally substituted cycloalkyl), -NH(alkyl-O-alkyl), $-N(alkyl)_2$, -NH(optionally substituted heterocyclyl), -N(alkyl)(optionally substituted heterocyclyl), -N(optionally substituted cycloalkyl)(optionally substituted heterocyclyl), optionally substituted cycloalkyl, optionally substituted heterocyclyl, optionally substituted aryl, and optionally substituted heteroaryl; or~~

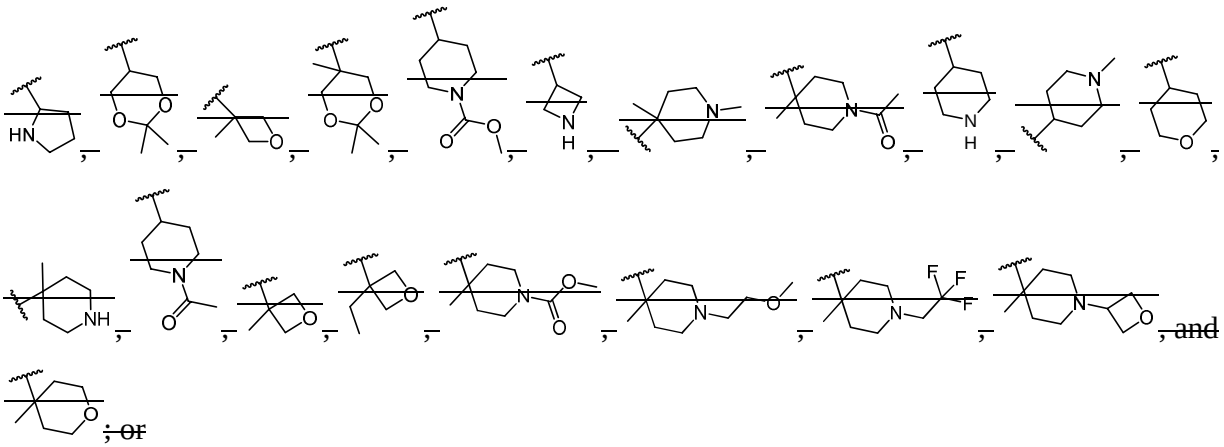
~~w~~herein R^{8c} is an unsubstituted or substituted C_{1-6} alkyl chosen from:



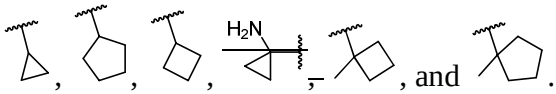


; or

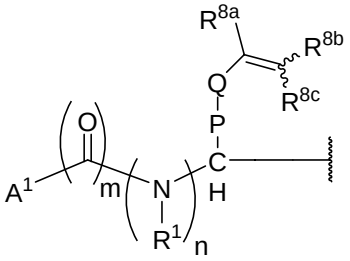
~~wherein R^{8c} is an optionally substituted heterocyclyl chosen from:~~



wherein R^{8c} is an ~~optionally substituted~~ C_{3-10} cycloalkyl chosen from:

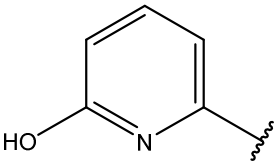
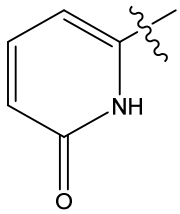


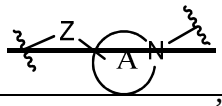
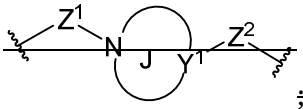
6. The compound or pharmaceutically acceptable salt thereof of any of claims 1-5, wherein W is a group of formula

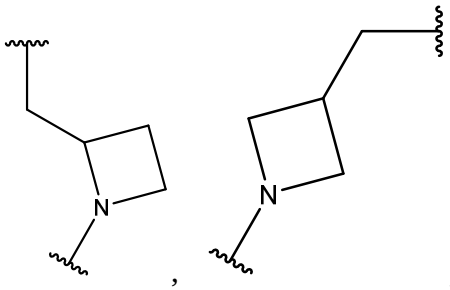
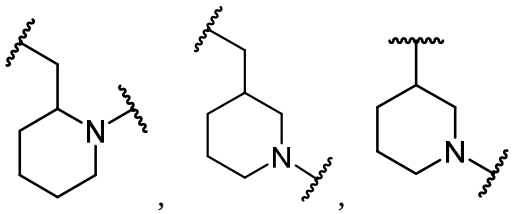
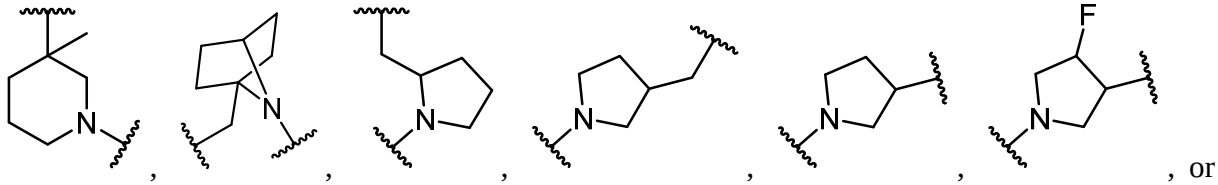
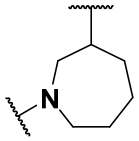


7. The compound or pharmaceutically acceptable salt thereof of any of claims 1-5, wherein W is –O-P-Q-C(R^{8a})=C(R^{8b})(R^{8c}) or -N(R)-P-Q-C(R^{8a})=C(R^{8b})(R^{8c}).

8. The compound or pharmaceutically acceptable salt thereof of claim 6, wherein m and n are each 1; and A^1 is optionally substituted C_{1-6} alkyl, optionally substituted C_{6-14} aryl, or optionally substituted 5-14 membered heteroaryl; wherein the optional substituents said aryl or heteroaryl of A^1 are one to three groups independently chosen from halo, hydroxy, C_{1-6} alkyl, C_{1-6} alkoxy, cyano, haloalkyl, -NH_2, -NH(C_{1-6} alkyl), -N(C_{1-6} alkyl)$_2$, 3-10 membered heterocyclyl, C_{6-14} aryl, and 5-14 membered heteroaryl, and the optional substituents of said alkyl of A^1 are 1-2 groups independently chosen from –N(H)-C(=O)- C_{1-6} alkyl, hydroxy, and halo; or A^1 is chosen

from 2,5-dichlorophenyl, 2-pyrazinyl, 4-methyl-3-pyridyl, 

, -CH_3, –CH(CH(OH)CH_3)-NH-C(=O)$CH(CH_3)_2$, or -$CH(CH_3)$-NH-C(=O)-$CH(CH_3)_2$.

9. The compound or pharmaceutically acceptable salt thereof of claim 6, wherein m and n are each 1; ~~and P is –alkyl-N(R)-, –alkyl-aryl-N(R)-,~~ 
~~, or~~ 
~~;~~ or wherein m and n are each 1; and P is –$(CH_2)_4$-N(H)-, –CH_2-phenyl-N(CH_3)- or CH_2-O-CH_2-pyrrolidinyl-.

10. The compound or pharmaceutically acceptable salt thereof of claim 6, wherein P is 
wherein Z is a covalent bond or ~~–alkyl-, wherein said –alkyl- is –~~$(CH_2)_{1\text{-}4}$-; or wherein P is 



.

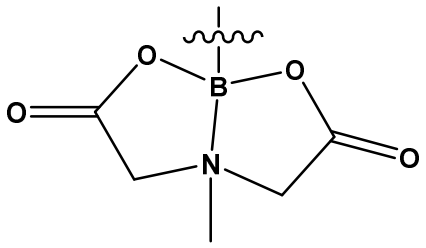
~~11. The compound or pharmaceutically acceptable salt thereof of any of claims 1-10, wherein R^{b1} is optionally substituted alkyl, wherein the optional substituents are 1-2 substituents chosen from –O-aryl, –O-heteroaryl, –N(H)-aryl, –N(alkyl)-aryl, –N(H)-heteroaryl, –N(alkyl)-~~

~~heteroaryl, cycloalkenyl, aryl, heterocyclyl, heterocyclenyl, or heteroaryl; wherein each instance of said aryl, heteroaryl, heterocyclyl, and heterocyclenyl is optionally substituted with 1-3 substituents independently chosen from halo, alkyl, alkoxy, haloalkyl, cyano, -NH_2, -NH(alkyl), -N(alkyl)$_2$, and heterocyclyl; or wherein said R^{b1} is unsubstituted alkyl or a substituted alkyl of the formula -$(CH_2)_{1-2}$-R" wherein R" is -O-aryl, -O-heteroaryl, -N(H)-aryl, -N(alkyl)-aryl, -N(H)-heteroaryl, -N(alkyl)-heteroaryl, cycloalkenyl, aryl, heterocyclyl, heterocyclenyl, or heteroaryl; wherein each instance of said aryl, heteroaryl, heterocyclyl, and heterocyclenyl is optionally substituted with 1-3 substituents independently chosen from the group consisting of halo, alkyl, alkoxy, haloalkyl, cyano, -NH_2, -NH(alkyl), -N(alkyl)$_2$, and heterocyclyl; or wherein said R^{b1} is chosen from -$CH_2CH(CH_3)_2$, -$CH_2C(CH_3)_3$, -CH_2-cyclopentenyl, -CH_2-phenyl, -CH_2-phenyl-methyl, -CH_2-phenyl-ethyl, -CH_2CH_2-phenyl, -CH_2-phenyl-trifluoromethyl, -CH_2-fluorophenyl, -CH_2-thiophenyl, -CH_2-CH_2-benzofuranyl, -CH_2CH_2-benzimidazolyl, -CH_2CH_2-dihydroindolyl, -CH_2-benzofuranyl, -CH_2-benzimidazolyl, -CH_2-dihydroindolyl, -CH_2-O-phenyl, and -CH_2-N(CH_3)-phenyl; or wherein said R^{b1} is chosen from -$CH_2CH(CH_3)_2$, -CH_2-cyclopentenyl, -CH_2-phenyl, -CH_2-phenyl-trifluoromethyl, -CH_2-fluorophenyl, -CH_2-phenyl-methyl, -CH_2-phenyl-ethyl, and -CH_2-benzofuranyl.~~

~~12.~~11. The compound or pharmaceutically acceptable salt thereof of any of claims 1-~~11~~10, wherein R^{8a} is hydrogen or cyano~~; R^{8b} is hydrogen or alkyl; or R^{8a} and R^{8b} are taken together to form a covalent bond; or wherein R^{8a}, R^{8b} and R^{8c} are each hydrogen; or R^{8a} is halogen, and R^{8b} and R^{8c} are each hydrogen~~.

~~13.~~12. The compound or pharmaceutically acceptable salt thereof of any of claims 1-~~11~~10, wherein R^{8a}, R^{8b} and R^{8c} are each hydrogen; or R^{8a} is halogen, and R^{8b} and R^{8c} are each hydrogen.

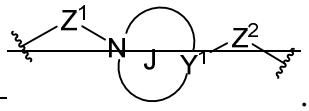
~~14.~~13. The compound or pharmaceutically acceptable salt thereof of any of claims 1-~~13~~12, wherein R^{b2} and R^{b3} are each H; or wherein R^{b2} and R^{b3} together with the boron atom to which they are shown attached form ~~an optionally substituted~~ a cyclic boronic ester of the formula



.

~~15.~~14. The compound or pharmaceutically acceptable salt thereof of claim 6, wherein m is 0 and n is 1; and A^1 is optionally substituted C_{1-6} alkyl or -S(=O)$_2$-C_{1-6} alkyl, wherein said optional substituents of alkyl of A^1 are 1-2 substituents chosen from halo~~,~~ and hydroxy~~, alkoxy, cyano, haloalkyl, NH_2, NH(alkyl), N(alkyl)$_2$, heterocyclyl, aryl, and heteroaryl~~.

~~16.~~15. The compound or pharmaceutically acceptable salt thereof of claim 6, wherein m is 0 and n is 1; and P is –C_{1-6} alkyl-N(R)-, -C_{1-6} alkyl-C_{6-14} aryl-N(R)-, 

wherein Z is –C_{1-6} alkyl-O-C_{1-6} alkyl-, and ring A with the ring nitrogen atom shown is a monocyclic five- to six-membered heterocyclyl~~, or~~ 

.

~~17.~~16. The compound or pharmaceutically acceptable salt thereof of claim 6, m and n are each 0; and P is 

; wherein Z is covalent bond or –C_{1-6} alkyl-; and ring A with the ring nitrogen atom shown is piperidinyl or morpholinyl.

~~18.~~17. The compound of claim 1, wherein the compound is:

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-((S)-2-isobutyramidopropanamido)hexanamido)-3-methylbutyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-(pyrazine-2-carboxamido)hexanamido)-3-methylbutyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-(2,5-dichlorobenzamido)hexanamido)-3-methylbutyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-((S)-2-isobutyramidopropanamido)hexanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-(pyrazine-2-carboxamido)hexanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-(6-hydroxypicolinamido)hexanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-(6-hydroxypicolinamido)hexanamido)-3-methylbutyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-(6-oxo-1,6-dihydropyridine-2-carboxamido)hexanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-(6-oxo-1,6-dihydropyridine-2-carboxamido)hexanamido)-3-methylbutyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-(2,5-dichlorobenzamido)hexanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-((2S,3R)-3-hydroxy-2-isobutyramidobutanamido)hexanamido)-3-methylbutyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-((2S,3R)-3-hydroxy-2-isobutyramidobutanamido)hexanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-2-acetamido-6-(2-cyano-4-methylpent-2-enamido)hexanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-3-(((R)-1-(2-cyano-4-methylpent-2-enoyl)pyrrolidin-2-yl)methoxy)-2-(2,5-dichlorobenzamido)propanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-2-(2,5-dichlorobenzamido)-3-(3-(N-methylacrylamido)phenyl)propanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-2-(2,5-dichlorobenzamido)-3-(3-(N-methylvinylsulfonamido)phenyl)propanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-(4-methylnicotinamido)hexanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-2-(2,5-dichlorobenzamido)-3-(3-(N-methylbut-2-ynamido)phenyl)propanamido)-2-phenylethyl)boronic acid;

8-((R)-1-((S)-3-(((R)-1-(2-cyano-4-methylpent-2-enoyl)pyrrolidin-2-yl)methoxy)-2-(2,5-dichlorobenzamido)propanamido)-2-phenylethyl)-4-methyl-2,6-dioxohexahydro-[1,3,2]oxazaborolo[2,3-b][1,3,2]oxazaborol-4-ium-8-uide;

((R)-1-((S)-3-(3-(2-cyano-N,4-dimethylpent-2-enamido)phenyl)-2-(2,5-dichlorobenzamido)propanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-3-(3-(2-cyano-N,4-dimethylpent-2-enamido)phenyl)-2-(pyrazine-2-carboxamido)propanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-(methylsulfonamido)hexanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-6-(2-cyano-4-methylpent-2-enamido)-2-((2,2,2-trifluoroethyl)amino)hexanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-3-(((R)-1-(2-cyano-3-cyclopropylacryloyl)pyrrolidin-2-yl)methoxy)-2-((2,2,2-trifluoroethyl)amino)propanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-3-(((R)-1-(2-cyano-4-methylpent-2-enoyl)pyrrolidin-2-yl)methoxy)-2-((2,2,2-trifluoroethyl)amino)propanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-3-(((R)-1-(2-cyano-4,4-dimethylpent-2-enoyl)pyrrolidin-2-yl)methoxy)-2-((2,2,2-trifluoroethyl)amino)propanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-3-(((R)-1-(2-cyano-4-methylpent-2-enoyl)piperidin-2-yl)methoxy)-2-((2,2,2-trifluoroethyl)amino)propanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-3-(3-(2-cyano-N,4-dimethylpent-2-enamido)phenyl)-2-((2,2,2-trifluoroethyl)amino)propanamido)-2-phenylethyl)boronic acid;

((R)-1-((S)-3-(3-(2-cyano-N,4-dimethylpent-2-enamido)phenyl)-2-((2,2,2-trifluoroethyl)amino)propanamido)-3-methylbutyl)boronic acid;

((R)-1-((S)-3-(((R)-1-(2-cyano-4-methylpent-2-enoyl)pyrrolidin-2-yl)methoxy)-2-((2,2,2-trifluoroethyl)amino)propanamido)-3-methylbutyl)boronic acid;

((R)-1-((S)-3-(((R)-1-(2-cyano-4-methylpent-2-enoyl)pyrrolidin-2-yl)methoxy)-2-((2,2,2-trifluoroethyl)amino)propanamido)-2-(3-ethylphenyl)ethyl)boronic acid;

((R)-2-(benzofuran-3-yl)-1-((S)-3-(((R)-1-(2-cyano-4-methylpent-2-enoyl)pyrrolidin-2-yl)methoxy)-2-((2,2,2-trifluoroethyl)amino)propanamido)ethyl)boronic acid;

(R)-1-((S)-3-(((R)-1-(2-cyano-3-cyclopropylacryloyl)pyrrolidin-2-yl)methoxy)-2-(2,2,2-trifluoroethylamino)propanamido)-2-phenylethylboronic acid;

(R)-1-((S)-3-(((R)-1-(2-cyano-4-methylpent-2-enoyl)pyrrolidin-2-yl)methoxy)-2-(2,2,2-trifluoroethylamino)propanamido)-2-phenylethylboronic acid; and

(R)-1-((S)-3-(((R)-1-(2-cyano-4,4-dimethylpent-2-enoyl)pyrrolidin-2-yl)methoxy)-2-(2,2,2-trifluoroethylamino)propanamido)-2-phenylethylboronic acid;

(R)-(1-(4-(1-(2-cyano-4-methylpent-2-enoyl)piperidin-4-yl)butanamido)-2-phenylethyl)boronic acid;

((R)-1-(2-((R)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)acetamido)-2-phenylethyl)boronic acid;

((R)-1-(2-((R)-4-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)morpholin-2-yl)acetamido)-2-phenylethyl)boronic acid;

((R)-1-(2-((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)acetamido)-2-phenylethyl)boronic acid;

((R)-1-(2-((S)-4-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)morpholin-2-yl)acetamido)-2-phenylethyl)boronic acid;

((R)-1-(3-(((R)-1-(2-cyano-4-methylpent-2-enoyl)pyrrolidin-2-yl)methyl)ureido)-2-phenylethyl)boronic acid;

((R)-1-(3-(((R)-1-(2-cyano-4-methylpent-2-enoyl)piperidin-2-yl)methyl)ureido)-2-phenylethyl)boronic acid;

((R)-1-(3-(((S)-1-(2-cyano-4-methylpent-2-enoyl)pyrrolidin-2-yl)methyl)ureido)-2-phenylethyl)boronic acid;

((R)-1-(3-(((S)-1-(2-cyano-4-methylpent-2-enoyl)piperidin-2-yl)methyl)ureido)-2-phenylethyl)boronic acid;

((R)-1-(3-(((R)-1-acryloylpyrrolidin-2-yl)methyl)ureido)-2-phenylethyl)boronic acid;

((R)-1-(3-(((S)-1-acryloylpyrrolidin-2-yl)methyl)ureido)-2-phenylethyl)boronic acid;

((R)-1-(3-(((S)-1-acryloylpiperidin-2-yl)methyl)ureido)-2-phenylethyl)boronic acid;

((R)-1-(3-(((S)-1-(2-cyano-4,4-dimethylpent-2-enoyl)pyrrolidin-2-yl)methyl)ureido)-2-phenylethyl)boronic acid;

((R)-1-(3-(((S)-1-(2-cyano-4,4-dimethylpent-2-enoyl)piperidin-2-yl)methyl)ureido)-2-phenylethyl)boronic acid;

((R)-1-(3-(((R)-1-acryloylpyrrolidin-2-yl)methyl)ureido)-2-(benzofuran-3-yl)ethyl)boronic acid;

((R)-1-(3-(((S)-1-(2-cyano-4,4-dimethylpent-2-enoyl)pyrrolidin-2-yl)methyl)ureido)-2-(p-tolyl)ethyl)boronic acid;

((R)-1-(3-(((R)-1-(2-cyano-4,4-dimethylpent-2-enoyl)pyrrolidin-2-yl)methyl)ureido)-2-(p-tolyl)ethyl)boronic acid;

((R)-2-(benzofuran-3-yl)-1-(3-(((R)-1-(2-cyano-4,4-dimethylpent-2-enoyl)pyrrolidin-2-yl)methyl)ureido)ethyl)boronic acid;

((R)-2-(benzofuran-3-yl)-1-(3-(((R)-1-(2-cyano-4-methyl-4-morpholinopent-2-enoyl)pyrrolidin-2-yl)methyl)ureido)ethyl)boronic acid;

((R)-2-(benzofuran-3-yl)-1-(3-(((R)-1-(2-cyano-4-methyl-4-(4-(oxetan-3-yl)piperazin-1-yl)pent-2-enoyl)pyrrolidin-2-yl)methyl)ureido)ethyl)boronic acid;

((R)-2-(benzofuran-3-yl)-1-(3-(((R)-1-(2-cyano-4-(4,4-difluoropiperidin-1-yl)-4-methylpent-2-enoyl)pyrrolidin-2-yl)methyl)ureido)ethyl)boronic acid;

((R)-2-(benzofuran-3-yl)-1-(3-(((R)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)pyrrolidin-2-yl)methyl)ureido)ethyl)boronic acid;

((R)-1-(3-(((R)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-2-yl)methyl)-3-methylureido)-2-phenylethyl)boronic acid;

((R)-1-(3-((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)pyrrolidin-3-yl)ureido)-2-phenylethyl)boronic acid;

((R)-1-(3-((R)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)ureido)-2-phenylethyl)boronic acid; and

((R)-1-(3-((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)ureido)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4,4-dimethylpent-2-enoyl)piperidin-3-yl)methoxy)carbonyl)amino)-2-(p-tolyl)ethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4,4-dimethylpent-2-enoyl)pyrrolidin-3-yl)methoxy)carbonyl)amino)-2-(p-tolyl)ethyl)boronic acid;

((R)-1-(((((S)-1-acryloylazetidin-2-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)methoxy)carbonyl)amino)-2-(p-tolyl)ethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)azetidin-2-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

(R)-(1-((((7-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((R)-1-acryloylazetidin-2-yl)methoxy)carbonyl)amino)-2-(benzofuran-3-yl)ethyl)boronic acid;

(R)-(1-((((7-acryloyl-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-(benzofuran-3-yl)ethyl)boronic acid;

((R)-1-(((((S)-1-acryloylpiperidin-3-yl)oxy)carbonyl)amino)-2-(benzofuran-3-yl)ethyl)boronic acid;

((R)-1-(((((S)-1-acryloylpiperidin-3-yl)oxy)carbonyl)amino)-2-(4-(trifluoromethyl)phenyl)ethyl)boronic acid;

((R)-1-(((((S)-1-acryloylpiperidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-2-(benzofuran-3-yl)-1-(((((S)-1-(2-cyano-4-(3,3-dimethylpyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)ethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(3,3-dimethylpyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)-2-(4-(trifluoromethyl)phenyl)ethyl)boronic acid;

((R)-1-(((((S)-1-acryloylpiperidin-3-yl)oxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

(R)-(1-((((7-acryloyl-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-3-phenylpropyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(3,3-dimethylpyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

((R)-2-(benzofuran-3-yl)-1-(((((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)ethyl)boronic acid;

((R)-1-(((((S)-1-(2-fluoroacryloyl)piperidin-3-yl)oxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

(R)-(1-((((7-(2-fluoroacryloyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

(R)-(1-((((7-acryloyl-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

(R)-(1-((((7-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-3-phenylpropyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-methyl-4-(4-(oxetan-3-yl)piperazin-1-yl)pent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-methyl-4-(4-methylpiperazin-1-yl)pent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

(R)-(1-((((7-(2-cyano-4-methyl-4-morpholinopent-2-enoyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

(R)-(1-((((7-(2-cyano-4-methyl-4-morpholinopent-2-enoyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(4-(methoxycarbonyl)piperazin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

(R)-(1-((((7-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

((1R)-1-((((1-acryloyl-3-methylpiperidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

(R)-(1-((((1-acryloylazetidin-3-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-((E)-2-cyano-4,4-dimethylpent-2-enoyl)pyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-acryloylpyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)pyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)pyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((1R)-1-((((1-acryloyl-3-methylpiperidin-3-yl)oxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)-3-methylpiperidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)-3-methylpiperidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((1R)-1-((((1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)-3-methylpiperidin-3-yl)oxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)pyrrolidin-3-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(4-(methoxycarbonyl)piperazin-1-yl)-4-methylpent-2-enoyl)pyrrolidin-3-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-methyl-4-((S)-3-oxotetrahydro-3H-oxazolo[3,4-a]pyrazin-7(1H)-yl)pent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-methyl-4-((R)-3-oxotetrahydro-3H-oxazolo[3,4-a]pyrazin-7(1H)-yl)pent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-methyl-4-morpholinopent-2-enoyl)pyrrolidin-3-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((3R,4R)-1-acryloyl-4-fluoropyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-methyl-4-morpholinopent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-methyl-4-morpholinopent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-(4-(methoxycarbonyl)piperazin-1-yl)-4-methylpent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(4-(methoxycarbonyl)piperazin-1-yl)-4-methylpent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((3S,4S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)-4-fluoropyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((3S,4S)-1-acryloyl-4-fluoropyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((3R,4S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)-4-fluoropyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((3R,4R)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)-4-fluoropyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-((((7-(2-cyano-4-((2S,6R)-2,6-dimethylmorpholino)-4-methylpent-2-enoyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((3R,4S)-1-acryloyl-4-fluoropyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

(R)-(1-((((7-(2-cyano-4-methyl-4-(4-oxa-7-azaspiro[2.5]octan-7-yl)pent-2-enoyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)-2-(cyclopent-1-en-1-yl)ethyl)boronic acid;

((R)-1-((((7-(2-cyano-4-methyl-4-((R)-2-methylmorpholino)pent-2-enoyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

(R)-(1-((((7-(2-cyano-4-(2,2-dimethylmorpholino)-4-methylpent-2-enoyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-(4-(methoxycarbonyl)piperazin-1-yl)-4-methylpent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)-2-(cyclopent-1-en-1-yl)ethyl)boronic acid;

((R)-1-(((((S)-1-(2-cyano-4-methyl-4-morpholinopent-2-enoyl)piperidin-3-yl)oxy)carbonyl)amino)-2-(cyclopent-1-en-1-yl)ethyl)boronic acid;

((R)-1-((((7-(2-cyano-4-methyl-4-((S)-2-methylmorpholino)pent-2-enoyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-((((7-(2-cyano-4-((2S,6S)-2,6-dimethylmorpholino)-4-methylpent-2-enoyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((3S,4R)-1-acryloyl-4-fluoropyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((3S,4R)-1-(2-cyano-4-(3,3-difluoropyrrolidin-1-yl)-4-methylpent-2-enoyl)-4-fluoropyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-((((7-(2-cyano-4-((2R,6R)-2,6-dimethylmorpholino)-4-methylpent-2-enoyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-((2S,6R)-2,6-dimethylmorpholino)-4-methylpent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-((2R,6R)-2,6-dimethylmorpholino)-4-methylpent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-methyl-4-((S)-2-methylmorpholino)pent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-methyl-4-((R)-2-methylmorpholino)pent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((1R)-1-((((7-(4-(6-oxa-3-azabicyclo[3.1.1]heptan-3-yl)-2-cyano-4-methylpent-2-enoyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-methyl-4-(4-oxa-7-azaspiro[2.5]octan-7-yl)pent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((1R)-1-(((((3R)-1-(4-(6-oxa-3-azabicyclo[3.1.1]heptan-3-yl)-2-cyano-4-methylpent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((3R,4R)-1-acryloyl-4-fluoropyrrolidin-3-yl)oxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-(2,2-dimethylmorpholino)-4-methylpent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-methyl-4-morpholinopent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

((R)-1-(((((R)-1-(2-cyano-4-methyl-4-morpholinopent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-(cyclopent-1-en-1-yl)ethyl)boronic acid;

(R)-(1-((((7-acryloyl-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-(benzofuran-3-yl)ethyl)boronic acid;

((R)-1-(((((S)-1-acryloylpiperidin-3-yl)oxy)carbonyl)amino)-2-(benzofuran-3-yl)ethyl)boronic acid;

((R)-1-(((((S)-1-acryloylpiperidin-3-yl)oxy)carbonyl)amino)-2-(4-(trifluoromethyl)phenyl)ethyl)boronic acid;

((R)-1-(((((S)-1-acryloylpiperidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-acryloylpiperidin-3-yl)oxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

(R)-(1-((((7-acryloyl-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-3-phenylpropyl)boronic acid;

(R)-(1-((((7-(2-fluoroacryloyl)-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

(R)-(1-((((7-acryloyl-7-azabicyclo[2.2.1]heptan-1-yl)methoxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

((1R)-1-((((1-acryloyl-3-methylpiperidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

(R)-(1-((((1-acryloylazetidin-3-yl)methoxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((S)-1-acryloylpyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((1R)-1-((((1-acryloyl-3-methylpiperidin-3-yl)oxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

((R)-1-(((((3R,4R)-1-acryloyl-4-fluoropyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((3R,4S)-1-acryloyl-4-fluoropyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid;

((R)-1-(((((3S,4R)-1-acryloyl-4-fluoropyrrolidin-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid; and

((R)-1-(((((3R,4R)-1-acryloyl-4-fluoropyrrolidin-3-yl)oxy)carbonyl)amino)-2-(4-fluorophenyl)ethyl)boronic acid;

an individual E or Z isomer thereof; or

a pharmaceutically acceptable salt of any of the foregoing compounds.

~~19.~~18. A pharmaceutical composition comprising at least one compound of any of claims 1-~~18~~17, or a pharmaceutical acceptable salt thereof, and a pharmaceutically acceptable excipient.

~~20. Use of a compound of any one of claims 1-18, or a pharmaceutically acceptable salt thereof, in the preparation of a medicament for inhibiting Large Multifunctional Protease 2 (LMP2) or Large Multifunctional Protease 7 (LMP7).~~

~~21.~~19. Use of a compound of any one of claims 1-~~18~~17, or a pharmaceutically acceptable salt thereof, in the preparation of a medicament for treating a disease chosen from an autoimmune disorder, an inflammatory disorder, and a hematological disorder.

~~22.~~

20. The use of claim ~~21~~19, wherein the disease is chosen from lupus, rheumatoid arthritis, scleroderma, ankylosing spondylitis, Duchene muscular dystrophy (DMD), Becker muscular dystrophy (BMD), idiopathic inflammatory myopathies (IIMs), polymyositis, sporadic inclusion body myositis, dermatomyositis, immune-mediated necrotizing myopathies (IMNM), psoriasis, multiple sclerosis, inflammatory bowel disease, Behçet's disease, ulcerative colitis, Crohn's disease, Sjogren's Syndrome, bronchitis, conjunctivitis, pancreatitis, cholecystitis, bronchiectasis, aortic valve stenosis, restenosis, psoriasis, arthritis, fibrosis, infection, ischemia, cardiovascular disease, hepatitis, cirrhosis, steatohepatitis, liver inflammation, Alzheimer's Disease (AD), amyotrophic lateral sclerosis (ALS), Huntington's disease, body myositis, myofibrilar myopathy, GVHD, and multiple myeloma.

21. A compound chosen from: ((R)-1-(((((R)-1-(2-cyano-4-methyl-4-((R)-2-methylmorpholino)pent-2-enoyl)azepan-3-yl)oxy)carbonyl)amino)-2-phenylethyl)boronic acid or a pharmaceutically acceptable salt thereof.