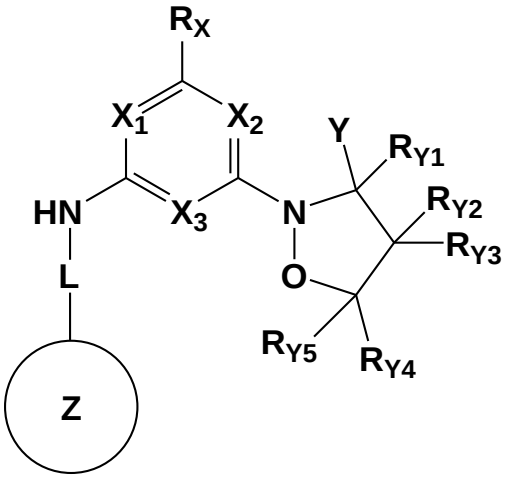
[Claims]

[Claim 1]

A compound represented by the following Chemical Formula 1, an optical isomer thereof, or a pharmaceutically acceptable salt thereof:

[Chemical Formula 1]



in the Chemical Formula 1,

X_1 to X_3 are each independently CH or N;

R_X is -H, $-NH_2$, or -NH(-C_{1-6}alkyl);

Y is -C_{1-6}alkyl, -$(CH_2)_n$aryl, -$(CH_2)_n$heteroaryl, or -$(CH_2)_n$hydroheteroaryl in which at least one H of the -$(CH_2)_n$aryl, -$(CH_2)_n$heteroaryl, or -$(CH_2)_n$hydroheteroaryl ring may be substituted with -C_{1-6}alkyl, -C_{1-6}haloalkyl, -C_{2-6}alkynyl, -CN, -$(C=O)NR_1R_2$, -$(C=O)OR_3$, -NR_4R_5, -OR_6, -halo, =O, heterocycloalkyl, aryl, or heteroaryl, wherein at least one H of the aryl or heteroaryl may be substituted with -halo;

n is 0, 1, 2, 3, or 4;

R_1 to R_3 are each independently -H, -C_{1-6}alkyl, or cycloalkyl;

R_4 and R_5 are each independently -H or -C_{1-6}alkyl;

R_6 is -H, -C_{1-6}alkyl, or phenyl;

R_{Y1} to R_{Y5} are each independently -H or -C_{1-6}alkyl, or R_{Y2} and R_{Y3} may be linked to each other to form cycloalkyl, and R_{Y3} and R_{Y4} may be linked to each other to form aryl;

L is -(CH_2)m-, -C(=O)-, or null;

m is 0, 1, 2, 3, or 4;

a ring Z is aryl, heteroaryl, hydroheteroaryl, cycloalkyl, or heterocycloalkyl in which at least one H of the aryl, heteroaryl, hydroheteroaryl, cycloalkyl, or heterocycloalkyl ring may be substituted with -C_{1-6}alkyl, -C_{1-6}cyanoalkyl, -C_{1-6}haloalkyl, -C_{1-6}alkenyl, -C_{2-6}alkynyl, -CN, -OH, -O-C_{1-6}alkyl, -O-C_{1-6}haloalkyl, -C(=O)-C_{1-6}alkyl, -C(=O)-C_{1-6}haloalkyl, -C(=O)O-C_{1-6}alkyl, -$S(=O)_2$-C_{1-6}alkyl, -C(=N-O-C_{1-6}alkyl)(C_{1-6}alkyl), =O, -halo, or Z_1, or two or more substituents of the aryl, hydroheteroaryl, ring may be linked to each other to form a fused ring or a spiro ring, wherein at least one H of the fused ring or spiro ring may be substituted with -C_{1-6}alkyl, or Z_1;

Z_1 is cycloalkyl, heterocycloalkyl, heterobicycloalkyl, heterospiroalkyl, -C_{1-6}alkyl-heterocycloalkyl, -(C=O)-heterocycloalkyl, -NH-heterocycloalkyl, aryl, or heteroaryl in which the heterocycloalkyl, heterobicycloalkyl, heterospiroalkyl, -C_{1-6}alkyl-heterocycloalkyl, -(C=O)-heterocycloalkyl, or -NH-heterocycloalkyl contains, in the ring, at least one selected from the group consisting of N, O, P, P(=O) and S, and at least one H of the heterocycloalkyl, heterobicycloalkyl, heterospiroalkyl, -C_{1-6}alkyl-heterocycloalkyl, -(C=O)-heterocycloalkyl, -NH-heterocycloalkyl, aryl, or heteroaryl ring may be substituted with -C_{1-6}alkyl, -C_{1-6}aminoalkyl, -C_{1-6}haloalkyl, -C_{1-6}alkyl-N(C_{1-6}alkyl)(C_{1-6}alkyl), -C_{1-6}alkyl-$S(=O)_2$-C_{1-6}alkyl, =O, -NR_9R_{10}, -halo, cycloalkyl, or Z_2;

R_9 and R_{10} are each independently -C_{1-6}alkyl;

Z_2 is heterocycloalkyl, heterobicycloalkyl, heterospiroalkyl, -NH-heterocycloalkyl, or heteroaryl in which the heterocycloalkyl, heterobicycloalkyl, heterospiroalkyl, or -NH-heterocycloalkyl contains, in the ring, at least one selected from the group consisting of N, O, P, P(=O) and S, and at least one H of the heterocycloalkyl, heterobicycloalkyl, heterospiroalkyl, -NH-heterocycloalkyl, or heteroaryl ring may be substituted with -C_{1-6}alkyl, -C_{1-6}aminoalkyl, -C_{1-6}hydroxyalkyl, -C_{1-6}alkenyl, -C(=O)-C_{1-6}alkyl, -C_{1-6}alkyl-$S(=O)_2$-C_{1-6}alkyl, =O, -$NR_{11}R_{12}$, cycloalkyl, or Z_3;

R_{11} and R_{12} are each independently -C_{1-6}alkyl; and

Z_3 is heterocycloalkyl, heterobicycloalkyl, heterospiroalkyl, or -NH-heterocycloalkyl in which the heterocycloalkyl, heterobicycloalkyl, heterospiroalkyl, or -NH-heterocycloalkyl contains, in the ring, at least one selected from the group consisting of N, O, P, P(=O) and S, and at least one H of the heterocycloalkyl, heterobicycloalkyl, heterospiroalkyl, or -NH-heterocycloalkyl ring may be substituted with -C_{1-6}alkyl or cycloalkyl.

[Claim 2]

The compound represented by Chemical Formula I, the optical isomer thereof, or the pharmaceutically acceptable salt thereof of claim 1, wherein

X_1 to X_3 are each independently CH or N;

R_X is -H, -NH_2, or -NH(-C_{1-6}alkyl);

Y is -C_{1-6}alkyl, -$(CH_2)_n$aryl, -$(CH_2)_n$heteroaryl, or -$(CH_2)_n$hydroheteroaryl in which at least one H of the -$(CH_2)_n$aryl, -$(CH_2)_n$heteroaryl, or -$(CH_2)_n$hydroheteroaryl ring may be substituted with -C_{1-6}alkyl, -C_{1-6}haloalkyl, -C_{2-6}alkynyl, -CN, -

$(C=O)NR_1R_2$, $-(C=O)OR_3$, $-NR_4R_5$, $-OR_6$, -halo, =O, heterocycloalkyl, aryl, or heteroaryl, wherein at least one H of the aryl may be substituted with -halo;

n is 0, 1, or 2;

R_1 to R_3 are each independently -H, $-C_{1-6}$alkyl, or cycloalkyl;

R_4 and R_5 are each independently -H or $-C_{1-6}$alkyl;

R_6 is $-C_{1-6}$alkyl or phenyl;

R_{Y1} to R_{Y5} are each independently -H or $-C_{1-6}$alkyl, or R_{Y2} and R_{Y3} may be linked to each other to form cycloalkyl, and R_{Y3} and R_{Y4} may be linked to each other to form aryl;

L is $-(CH_2)$m-, -C(=O)-, or null;

m is 0, 1, or 2;

the ring Z is aryl, heteroaryl, hydroheteroaryl, cycloalkyl, or heterocycloalkyl in which at least one H of the aryl, heteroaryl, hydroheteroaryl, cycloalkyl, or heterocycloalkyl ring may be substituted with $-C_{1-6}$alkyl, $-C_{1-6}$cyanoalkyl, $-C_{1-6}$haloalkyl, $-C_{1-6}$alkenyl, $-C_{2-6}$alkynyl, -CN, $-NR_7R_8$, $-O-C_{1-6}$alkyl, $-O-C_{1-6}$haloalkyl, $-S-C_{1-6}$alkyl, $-C(=O)-C_{1-6}$alkyl, $-C(=O)-C_{1-6}$haloalkyl, $-C(=O)O-C_{1-6}$alkyl, $-S(=O)_2-C_{1-6}$alkyl, $-C(=N-O-C_{1-6}$alkyl$)(C_{1-6}$alkyl), =O, -halo, or Z_1, or two or more substituents of the aryl, heteroaryl, hydroheteroaryl, cycloalkyl, or heterocycloalkyl ring may be linked to each other to form a fused ring or a spiro ring, wherein at least one H of the fused ring or spiro ring may be substituted with $-C_{1-6}$alkyl or Z_1;

Z_1 is cycloalkyl, heterocycloalkyl, heterobicycloalkyl, heterospiroalkyl, $-C_{1-6}$alkyl-heterocycloalkyl, -(C=O)-heterocycloalkyl, -NH-heterocycloalkyl, or heteroaryl in which the heterocycloalkyl, heterobicycloalkyl, heterospiroalkyl, $-C_{1-6}$alkyl-heterocycloalkyl, -(C=O)-heterocycloalkyl, or -NH-heterocycloalkyl contains, in the ring, at least one selected from the group consisting of N, O, P, P(=O) and S, and at least

one H of the heterocycloalkyl, heterobicycloalkyl, heterospiroalkyl, -C_{1-6}alkyl-heterocycloalkyl, -(C=O)-heterocycloalkyl, -NH-heterocycloalkyl, or heteroaryl ring may be substituted with -C_{1-6}alkyl, -C_{1-6}aminoalkyl, -C_{1-6}haloalkyl, -C_{1-6}alkyl-S(=O)$_2$-C_{1-6}alkyl, =O, -NR_9R_{10}, -halo, cycloalkyl, or Z_2;

R_9 and R_{10} are each independently -C_{1-6}alkyl;

Z_2 is heterocycloalkyl, heterobicycloalkyl, or -NH-heterocycloalkyl in which the heterocycloalkyl, heterobicycloalkyl, or -NH-heterocycloalkyl contains, in the ring, at least one selected from the group consisting of N, O, P, P(=O) and S, and at least one H of the heterocycloalkyl, heterobicycloalkyl, or -NH-heterocycloalkyl ring may be substituted with -C_{1-6}alkyl, -C_{1-6}hydroxyalkyl, -C_{1-6}alkenyl, -C_{2-6}alkynyl, -C(=O)-C_{1-6}alkyl, -C_{1-6}alkyl-S(=O)$_2$-C_{1-6}alkyl, =O, -$NR_{11}R_{12}$, cycloalkyl, or Z_3;

R_{11} and R_{12} are each independently -C_{1-6}alkyl; and

Z_3 is heterocycloalkyl or heterobicycloalkyl in which the heterocycloalkyl or heterobicycloalkyl contains, in the ring, at least one selected from the group consisting of N, O, P, P(=O) and S, and at least one H of the heterocycloalkyl or heterobicycloalkyl ring may be substituted with -C_{1-6}alkyl or cycloalkyl.

[Claim 3]

The compound represented by Chemical Formula I, the optical isomer thereof, or the pharmaceutically acceptable salt thereof of claim 1, wherein

X_1 is N;

X_2 and X_3 are each independently CH or N; and

R_X is -H, -NH_2, or -NH(-C_{1-6}alkyl).

[Claim 4]

The compound represented by Chemical Formula I, the optical isomer thereof, or the pharmaceutically acceptable salt thereof of claim 1, wherein

Y is -C_{1-6}alkyl, -$(CH_2)_n$aryl, -$(CH_2)_n$heteroaryl, or -$(CH_2)_n$hydroheteroaryl in which at least one H of the -$(CH_2)_n$aryl, -$(CH_2)_n$heteroaryl, or -$(CH_2)_n$hydroheteroaryl ring may be substituted with -C_{1-6}alkyl, -C_{1-6}haloalkyl, -C_{2-6}alkynyl, -CN, -(C=O)NH-cycloalkyl, -(C=O)O-C_{1-6}alkyl, -N(C_{1-6}alkyl)(C_{1-6}alkyl), -O(C_{1-6}alkyl), -O-phenyl, -halo, =O, heterocycloalkyl, aryl, or heteroaryl, wherein at least one H of the aryl or heteroaryl may be substituted with -halo;

n is 0 or 1; and

R_{Y1} to R_{Y5} are each independently -H or -C_{1-6}alkyl, or R_{Y2} and R_{Y3} may be linked to each other to form 3- to 6-membered cycloalkyl, and R_{Y3} and R_{Y4} may be linked to each other to form phenyl.

[Claim 5]

The compound represented by Chemical Formula I, the optical isomer thereof, or the pharmaceutically acceptable salt thereof of claim 1, wherein

L is -(CH_2)m-, -C(=O)-, or null;

m is 0 or 1;

a ring Z is aryl, heteroaryl, hydroheteroaryl, 3- to 7-membered cycloalkyl, or 5- to 7-membered heterocycloalkyl in which at least one H of the aryl or hydroheteroaryl ring may be substituted with -C_{1-6}alkyl, -C_{1-6}cyanoalkyl, -C_{1-6}haloalkyl, -C_{1-6}alkenyl, -C_{2-6}alkynyl, -CN, -O-C_{1-6}alkyl, -O-C_{1-6}haloalkyl, -C(=O)-C_{1-6}alkyl, -C(=O)-C_{1-6}haloalkyl, -C(=O)O-C_{1-6}alkyl, -S(=O)$_2$-C_{1-6}alkyl, -C(=N-O-C_{1-6}alkyl)(C_{1-6}alkyl), =O, -halo, or Z_1, or two or more substituents of the aryl or hydroheteroaryl ring may be linked to each other to form a fused ring or a spiro ring, wherein at least one H of the

fused ring or spiro ring may be substituted with -C_{1-6}alkyl or Z_1;

Z_1 is 3- to 7-membered cycloalkyl, 5- to 7-membered heterocycloalkyl, 6- to 10-membered heterobicycloalkyl, 6- to 10-membered heterospiroalkyl, -C_{1-6}alkyl-heterocycloalkyl, -(C=O)-heterocycloalkyl, -NH-heterocycloalkyl, or heteroaryl in which the 5- to 7-membered heterocycloalkyl, 6- to 10-membered heterobicycloalkyl, 6- to 10-membered heterospiroalkyl, -C_{1-6}alkyl-heterocycloalkyl, -(C=O)-heterocycloalkyl, or -NH-heterocycloalkyl contains, in the ring, at least one selected from the group consisting of N, O, P, P(=O) and S, and at least one H of the 5- to 7-membered heterocycloalkyl, 6- to 10-membered heterobicycloalkyl, 6- to 10-membered heterospiroalkyl, -C_{1-6}alkyl-heterocycloalkyl, -(C=O)-heterocycloalkyl, -NH-heterocycloalkyl, or heteroaryl ring may be substituted with -C_{1-6}alkyl, -C_{1-6}aminoalkyl, -C_{1-6}haloalkyl, -C_{1-6}alkyl-S(=O)$_2$-C_{1-6}alkyl, =O, -N(C_{1-6}alkyl)(C_{1-6}alkyl), -halo, cycloalkyl, or Z_2;

Z_2 is 5- to 7-membered heterocycloalkyl, 6- to 10-membered heterobicycloalkyl, or -NH-heterocycloalkyl in which the 5- to 7-membered heterocycloalkyl, 6- to 10-membered heterobicycloalkyl, or -NH-heterocycloalkyl contains, in the ring, at least one selected from the group consisting of N, O, and S, and at least one H of the 5- to 7-membered heterocycloalkyl, 6- to 10-membered heterobicycloalkyl, or -NH-heterocycloalkyl ring may be substituted with -C_{1-6}alkyl, -C_{1-6}hydroxyalkyl, -C_{2-6}alkenyl, -C_{2-6}alkynyl, -C(=O)-C_{1-6}alkyl, -C_{1-6}alkyl-S(=O)$_2$-C_{1-6}alkyl, =O, -N(C_{1-6}alkyl)(C_{1-6}alkyl), 3- to 7-membered cycloalkyl, or Z_3; and

Z_3 is 5- to 7-membered heterocycloalkyl or 6- to 10-membered heterobicycloalkyl in which the 5- to 7-membered heterocycloalkyl or 6- to 10-membered heterobicycloalkyl contains, in the ring, at least one selected from the group consisting of N, O, and S, and at least one H of the 5- to 7-membered heterocycloalkyl

or 6- to 10-membered heterobicycloalkyl ring may be substituted with -C_{1-6}alkyl or 3- to 7-membered cycloalkyl.

[Claim 6]

A compound, an optical isomer thereof, or a pharmaceutically acceptable salt thereof selected from the group consisting of the following compounds:

(1) (R)-N-(4-(4-methylpiperazin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(2) (S)-N-(4-(4-methylpiperazin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(3) (S)-6-(3-benzylisoxazolidin-2-yl)-N-(4-(4-methylpiperazin-1-yl)phenyl)pyrimidin-4-amine;

(4) (R)-N-(3-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(5) (R)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(6) (R)-N-(4-(4-(4-cyclopropylpiperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-amine;

(7) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-5-(1-methyl-1H-pyrazol-4-yl)-4-morpholinophenyl)pyrimidin-4-amine;

(8) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-5-(1-methyl-1H-pyrazol-4-yl)-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(9) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-5-(1-methyl-1H-pyrazol-5-yl)-4-morpholinophenyl)pyrimidin-4-amine;

(10) (R)-1'-(4-((6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-5-methoxy-2-(1-methyl-1H-pyrazol-4-yl)phenyl)-N,N-dimethyl-[1,4'-bipiperidin]-4-amine;

(11) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(3-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)-5-(methylsulfonyl)phenyl)pyrimidin-4-amine;

(12) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(3-(methylsulfonyl)-5-(4-morpholinopiperidin-1-yl)phenyl)pyrimidin-4-amine;

(13) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(3-(4-methylpiperazin-1-yl)-5-(methylsulfonyl)phenyl)pyrimidin-4-amine;

(14) (R)-2-(3-((6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-5-((4-methylpiperazin-1-yl)methyl)phenyl)-2-methylpropanenitrile;

(15) (R)-2-(3-((6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-5-(4-methylpiperazin-1-yl)phenyl)-2-methylpropanenitrile;

(16) (R)-N-(4-(4-methylpiperazin-1-yl)phenyl)-6-(3-(3-phenoxyphenyl)isoxazolidin-2-yl)pyrimidin-4-amine;

(17) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(18) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-methylpiperazin-1-yl)phenyl)pyrimidin-4-amine;

(19) (R)-N^1-(6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)-N^4-(2-(dimethylamino)ethyl)-N^4-methylbenzene-1,4-diamine;

(20) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-5-methyl-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(21) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(22) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-(dimethylamino)piperidin-1-yl)-2-methoxyphenyl)pyrimidin-4-amine;

(23) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)-3-(trifluoromethyl)phenyl)pyrimidin-4-amine;

(24) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)-3-(methylsulfonyl)phenyl)pyrimidin-4-amine;

(25) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(5-ethyl-2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(26) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(3-methoxy-4-(4-(4-methylpiperazin-1)-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(27) (R)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-(3-(trifluoromethyl)phenyl)isoxazolidin-2-yl)pyrimidin-4-amine;

(28) (R)-6-(3-(2-fluoro-3-(trifluoromethyl)phenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(29) (R)-6-(3-(3-fluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(30) (R)-6-(3-(2,5-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(31) (R)-6-(3-(3-chloro-4-fluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl) pyrimidin-4-amine;

(32) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(33) (R)-6-(3-(4-fluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(34) (R)-6-(3-(2,4-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-

methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(35) (R)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-(thiophen-2-yl)isoxazolidin-2-yl)pyrimidin-4-amine;

(36) (R)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-(naphthalen-1-yl)isoxazolidin-2-yl)pyrimidin-4-amine;

(37) (R)-6-(3-(3-ethynylphenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(38) (R)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-(6-methylpyridin-3-yl)isoxazolidin-2-yl)pyrimidin-4-amine;

(39) (R)-6-(3-(3-([1,2,4]triazolo[1,5-a]pyridin-7-yl)phenyl)isoxazolidin-2-yl)-N-(4-(4-methylpiperazin-1-yl)phenyl)pyrimidin-4-amine;

(40) (R)-6-(3-(3-fluoro-5-thiomorpholinophenyl)isoxazolidin-2-yl)-N-(4-(4-methylpiperazin-1-yl)phenyl)pyrimidin-4-amine;

(41) (R)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-(3-methoxyphenyl)isoxazolidin-2-yl)pyrimidin-4-amine;

(42) (R)-6-(3-methyl-3-phenylisoxazolidin-2-yl)-N-(4-(4-methylpiperazin-1-yl)phenyl)pyrimidin-4-amine;

(43) isopropyl (R)-3-(2-(6-((4-(4-methylpiperazin-1-yl)phenyl)amino)pyrimidin-4-yl)isoxazolidin-3-yl)benzoate;

(44) (R)-N-cyclohexyl-3-(2-(6-((4-(4-methylpiperazin-1-yl)phenyl)amino)pyrimidin-4-yl)isoxazolidin-3-yl)benzamide;

(45) (R)-6-(3-(3′,5-difluoro-[1,1′-biphenyl]-3-yl)isoxazolidin-2-yl)-N-(4-(4-methylpiperazin-1-yl)phenyl)pyrimidin-4-amine;

(46) (R)-N,N-dimethyl-7-(2-methyl-4-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)-7-azaspiro[3.5]nonan-2-amine;

(47) (R)-N,N-dimethyl-2-(2-methyl-4-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)-2-azaspiro[3.5]nonan-7-amine;

(48) (R)-3-(1-methylpiperidin-4-yl)-N-(6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)-1,2,3,4,4a,5-hexahydrobenzo[b]pyrazino[1,2-d][1,4]oxazin-8-amine;

(49) (6aR,8S)-8-(4-cyclopropylpiperazin-1-yl)-2-methoxy-N-(6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)-6,6a,7,8,9,10-hexahydrobenzo[b]pyrido[1,2-d][1,4]oxazin-3-amine;

(50) N-(4-(4-(5-ethylhexahydropyrrolo[3,4-c]pyrrol-2(1H)-yl)piperidin-1-yl)-2-methoxyphenyl)-6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(51) (R)-N-(2-methoxy-4-(4-((1-methylpiperidin-4-yl)amino)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(52) (R)-N-(2-methyl-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(53) (R)-N-(3-methyl-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(54) (R)-N-(4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(55) (R)-N-(2-ethoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(56) N-(4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)-2-(((R)-1,1,1-trifluoropropan-2-yl)oxy)phenyl)-6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(57) N-(2-methoxy-4-(4-((1R,4R)-5-methyl-2,5-diazabicyclo[2.2.1]heptan-2-yl)piperidin-1-yl)phenyl)-6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(58) (R)-N-(2-methoxy-4-(4-(oxetan-3-yl)piperazin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(59) N-(4-((1R,4R)-2-oxa-5-azabicyclo[2.2.1]heptan-5-yl)-2-methoxyphenyl)-6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(60) (R)-1-(4-(1-(3-methoxy-4-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)piperidin-4-yl)piperazin-1-yl)ethan-1-one;

(61) (R)-N-(4-(4-(4-cyclopropyl-3,3-dimethylpiperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(62) (R)-N-(2-methoxy-4-(4-(pyrrolidin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(63) (R)-N-(4-(4-(4-cyclopropylpiperazin-1-yl)-[1,4′-bipiperidin]-1′-yl)-2-methoxyphenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(64) (R)-N-(4-(2-(dimethylamino)ethoxy)-2-methoxyphenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(65) (R)-N-(4-((2-(dimethylamino)ethyl)thio)-2-methoxyphenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(66) (R)-N-(2-methoxy-4-thiomorpholinophenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(67) (R)-N-(2-methoxy-4-(4-methyl-1,4-diazepan-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(68) (R)-N-(4-(4-allylpiperazin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(69) N-(4-((R)-3-(dimethylamino)pyrrolidin-1-yl)phenyl)-6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(70) N-(4-((S)-2-((dimethylamino)methyl)pyrrolidin-1-yl)phenyl)-6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(71) (R)-N-(1-(1-(2-(dimethylamino)ethyl)piperidin-4-yl)-1H-pyrazol-4-yl)-6-(3-

phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(72) (R)-(4-methylpiperazin-1-yl)(4-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)methanone;

(73) (R)-6-(3-phenylisoxazolidin-2-yl)-N-(3-(trifluoromethyl)phenyl)pyrimidin-4-amine;

(74) N-(5-((1S,4S)-2-oxa-5-azabicyclo[2.2.1]heptan-5-yl)-2-fluoropyridin-3-yl)-6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(75) (R)-1-(4-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)pyrrolidin-2-one;

(76) (R)-2-methyl-5-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)isoindolin-1-one;

(77) (R)-6-(3-phenylisoxazolidin-2-yl)-N-(4-(piperazin-1-yl)phenyl)pyrimidin-4-amine;

(78) (R)-N-(6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)-1,2,3,4-tetrahydroisoquinolin-6-amine;

(79) (R)-N-(5-(4-(dimethylamino)piperidin-1-yl)pyridin-2-yl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(80) (R)-N-(8-(1-methyl-1H-pyrazol-5-yl)-2,3-dihydrobenzo[b][1,4]dioxin-5-yl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(81) (R)-1-cyclopropyl-4-(3-methoxy-4-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)-1,4-azaphosphinane 4-oxide;

(82) N-(4-((2R,6S)-2,6-dimethylmorpholino)phenyl)-6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(83) 6-((R)-3-phenylisoxazolidin-2-yl)-N-((R)-7-(pyrrolidin-1-yl)-6,7,8,9-tetrahydro-5H-benzo[7]annulen-2-yl)pyrimidin-4-amine;

(84) (R)-N,N-dimethyl-1'-(4-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)-[1,4'-bipiperidin]-4-amine;

(85) (R)-N-(5-((6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-2-(4- (dimethylamino)-[1,4'-bipiperidin]-1'-yl)-4-methoxyphenyl)propionamide;

(86) 3-chloro-N-(5-((6-((R)-3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-2-(4-(hexahydropyrrolo[1,2-a]pyrazin-2(1H)-yl)piperidin-1-yl)-4-methoxyphenyl)propanamide;

(87) (R)-N-(5-((6-(3-(2,4-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-4-methoxy-2-(4-(4-methylpiperazin-1-yl)-[1,4'-bipiperidin]-1'-yl)phenyl)propionamide;

(88) (R)-7-(5-methoxy-2-methyl-4-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)-N,N-dimethyl-7-azaspiro[3.5]nonan-2-amine;

(89) (R)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-(naphthalen-2-yl)isoxazolidin-2-yl)pyrimidin-4-amine;

(90) (R)-6-(3-(3,4-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(91) (R)-N-(5-ethyl-2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-(4-fluorophenyl)isoxazolidin-2-yl)pyrimidin-4-amine;

(92) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(5-ethyl-2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(93) (R)-6-(3-(2,4-difluorophenyl)isoxazolidin-2-yl)-N-(5-ethyl-2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(94) (R)-6-(3-(2,5-difluorophenyl)isoxazolidin-2-yl)-N-(5-ethyl-2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(95) (R)-6-(3-(2,4-difluorophenyl)isoxazolidin-2-yl)-N-(3-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(96) (R)-6-(3-(4-fluorophenyl)isoxazolidin-2-yl)-N-(3-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(97) N-(4-(4-((1R,4R)-2-oxa-5-azabicyclo[2.2.1]heptan-5-yl)piperidin-1-yl)-2-methoxyphenyl)-6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(98) (R)-N-(4-(4-(diethylamino)piperidin-1-yl)-2-methoxyphenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(99) N-(2-methoxy-4-((R)-2-methyl-4-(1-methylpiperidin-4-yl)piperazin-1-yl)phenyl)-6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(100) isopropyl (R)-3-(2-(6-((2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)amino)pyrimidin-4-yl)isoxazolidin-3-yl)benzoate;

(101) (R)-N-(2-methoxy-4-(4-(1-methylpiperidin-4-yl)piperazin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(102) (R)-N-(3-methoxy-4-(4-(1-methylpiperidin-4-yl)piperazin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(103) (R)-6-(3-(2,5-difluorophenyl)isoxazolidin-2-yl)-N-(3-methyl-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(104) (R)-6-(3-(2,4-difluorophenyl)isoxazolidin-2-yl)-N-(3-methyl-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(105) (R)-6-(3-(4-chloro-2-fluorophenyl)isoxazolidin-2-yl)-N-(3-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(106) (R)-6-(3-(2,5-difluorophenyl)isoxazolidin-2-yl)-N-(3-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(107) (R)-N-(3-methyl-4-(4-methylpiperazin-1-yl)phenyl)-6-(3-phenylisoxazolidin-

2-yl)pyrimidin-4-amine;

(108) (R)-N-(2-methyl-4-morpholinophenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(109) (R)-N-(5-ethyl-2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(110) (R)-N-(2-methoxy-4-morpholinophenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(111) (R)-N4-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-2,4-diamine;

(112) (R)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-4-(3-phenylisoxazolidin-2-yl)-1,3,5-triazin-2-amine;

(113) (R)-2-methoxy-N4-(1-methylpiperidin-4-yl)-N1-(6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)benzene-1,4-diamine;

(114) (R)-N-(2-methoxy-5-methyl-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(115) (R)-1′-(3-methoxy-4-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)-N,N-dimethyl-[1,4'-bipiperidin]-4-amine;

(116) N-(4-(4-((1R,4R)-5-ethyl-2,5-diazabicyclo[2.2.1]heptan-2-yl)piperidin-1-yl)-2-methoxyphenyl)-6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(117) (R)-N-(3-ethyl-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(118) (R)-N-(4-(4-(4-ethylpiperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(119) (R)-N-(4-(4-(dimethylamino)piperidin-1-yl)-2-methoxyphenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(120) (R)-N-(2-methoxy-4-(4-morpholinopiperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(121) (R)-2-(4-(1-(2-methoxy-4-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)piperidin-4-yl)piperazin-1-yl)ethan-1-ol;

(122) (R)-1-(4-(4-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)piperazin-1-yl)ethan-1-one;

(123) (R)-N-(3,5-difluoro-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(124) (R)-N-(4-(4-(oxetan-3-yl)piperazin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(125) (R)-6-(3-(3-chloro-2-fluorophenyl)isoxazolidin-2-yl)-N-(3-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(126) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(3-methyl-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(127) (R)-N-(4-(4-(dimethylamino)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(128) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(3-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(129) (R)-6-(3-(4-chloro-3-fluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(130) (R)-6-(3-(3-chloro-2,4-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(131) (R)-6-(3-(3-(dimethylamino)phenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(132) (R)-N-(5-chloro-2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-

yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(133) (R)-N-(1-methyl-1H-pyrazol-4-yl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(134) tert-butyl (R)-7-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)-3,4-dihydroisoquinoline-2(1H)-carboxylate;

(135) (R)-N-(4-(9-methyl-3,9-diazaspiro[5.5]undecan-3-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(136) N-(4-(6-methyl-3,6-diazabicyclo[3.1.1]heptan-3-yl)phenyl)-6-((R)-3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(137) (R)-3-(3-methoxy-4-((6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)oxazolidin-2-one;

(139) (R)-N-(4-(4-methylpiperazin-1-yl)-3-(2,2,2-trifluoroethoxy)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(140) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-(3-fluoro-4-(4-methylpiperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)pyrimidin-4-amine;

(141) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(1-methylpiperidin-4-yl)phenyl)pyrimidin-4-amine;

(142) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(5-isopropyl-2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(143) (R)-N-(5-cyclopropyl-2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(144) (R)-N-(4-(4-methylpiperazin-1-yl)-2-(3-((methylsulfonyl)methyl)azetidin-1-yl)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(145) (R)-1-(5-((6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-4-methoxy-2-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)ethan-1-one;

(146) (R,E)-1-(5-((6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-4-methoxy-2-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)ethan-1-one O-methyl oxime;

(147) (R)-N-(2-methoxy-5-(1-methyl-1H-pyrazol-4-yl)-6-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)pyridin-3-yl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(148) (R)-6-(3-(4-fluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-5-(1-methyl-1H-pyrazol-4-yl)-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(149) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-5-(1-methyl-1H-pyrazol-4-yl)-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(150) (R)-N-(6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)-5'-methoxyspiro[cyclopropane-1,3'-indoline]-6'-amine;

(151) (R)-6'-((6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-5'-methoxyspiro[cyclopropane-1,3'-indolin]-2'-one;

(152) (R)-1-(6-((6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-5-methoxy-1'-methylspiro[indolin-3,4'-piperidin]-1-yl)-2,2,2-trifluoroethan-1-one;

(153) (R)-6-((6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-7-methoxyspiro[benzo[b][1,4]oxazin-2,1'-cyclopropane]-3(4H)-one;

(154) (R)-N-(6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)-5-methoxy-1'-methylspiro[indolin-3,4'-piperidin]-6-amine;

(155) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(4-(1-methylpiperidin-4-yl)-2,3-dihydrobenzofuran-7-yl)pyrimidin-4-amine;

(156) (R)-N-(6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)-3-methoxy-7-(4-methylpiperazin-1-yl)-9H-carbazol-2-amine;

(157) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(4-(piperidin-4-yl)-2,3-dihydrobenzofuran-7-yl)pyrimidin-4-amine;

(158) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(4-(1-methyl-1H-pyrazol-5-yl)-2,3-dihydrobenzofuran-7-yl)pyrimidin-4-amine;

(159) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(2,3-dihydrobenzofuran-7-yl)pyrimidin-4- amine;

(160) (R)-6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)-N-(4-(1-(1-methylpiperidin-4-yl)-1H-pyrazol-4-yl)-2,3-dihydrobenzofuran-7-yl)pyrimidin-4-amine;

(161) (R)-N-(2-(4-(4-cyclopropylpiperazin-1-yl)piperidin-1-yl)-5-((6-(3-(3,5-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-4-methoxyphenyl)propionamide;

(162) (R)-N-(5-(1-methyl-1H-pyrazol-4-yl)-4-(4-methylpiperazin-1-yl)-2,3-dihydrobenzofuran-7-yl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(163) (R)-N-(2-(4-(4-cyclopropylpiperazin-1-yl)piperidin-1-yl)-4-methoxy-5-((6-(3-(thiophene-2-yl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)propionamide;

(164) (R)-N-(5-(1-methyl-1H-pyrazol-4-yl)-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)-2-(2,2,2-trifluoroethoxy)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(165) (R)-N-(5-(1-methyl-1H-pyrazol-4-yl)-4-(4-morpholinopiperidin-1-yl)-2-(2,2,2-trifluoroethoxy)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(166) (R)-N-(5-(1-methyl-1H-pyrazol-4-yl)-4-(4-methylpiperazin-1-yl)-2-(2,2,2-trifluoroethoxy)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(167) (R)-N-(5-(1-methyl-1H-pyrazol-4-yl)-4-morpholino-2-(2,2,2-

trifluoroethoxy)phenyl)-6-(3-phenylisoxazolidin-2-yl)pyrimidin-4-amine;

(168) (S)-6-(3-(5-fluoropyridin-3-yl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(169) (R)-6-(3-(5-fluoropyridin-3-yl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(170) (R)-3-fluoro-5-(2-(6-((2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)amino)pyrimidin-4-yl)isoxazolidin-3-yl)benzonitrile;

(171) (S)-3-fluoro-5-(2-(6-((2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)amino)pyrimidin-4-yl)isoxazolidin-3-yl)benzonitrile;

(172) tert-butyl (R)-3-(4-((6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)isoxazolidin-2-carboxylate;

(173) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-((R)-2-methylisoxazolidin-3-yl)phenyl)pyrimidin-4-amine;

(174) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-((R)-isoxazolidin-3-yl)phenyl)pyrimidin-4-amine;

(175) tert-butyl (S)-3-(4-((6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)isoxazolidin-2-carboxylate;

(176) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-((S)-2-methylisoxazolidin-3-yl)phenyl)pyrimidin-4-amine;

(177) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-((S)-isoxazolidin-3-yl)phenyl)pyrimidin-4-amine;

(178) (R)-6-(3-(1-methyl-1H-pyrazol-4-yl)isoxazolidin-2-yl)-N-(4-(4-methylpiperazin-1-yl)phenyl)pyrimidin-4-amine;

(179) (R)-6-(3-(furan-2-yl)isoxazolidin-2-yl)-N-(4-(4-methylpiperazin-1-yl)phenyl)pyrimidin-4-amine;

(180) (R)-6-(3-(5-chloropyridin-3-yl)isoxazolidin-2-yl)-N-(4-(4-methylpiperazin-1-yl)phenyl)pyrimidin-4-amine;

(181) (S)-6-(3-(5-chloropyridin-3-yl)isoxazolidin-2-yl)-N-(4-(4-methylpiperazin-1-yl)phenyl)pyrimidin-4-amine;

(182) (R)-6-(3-(5-chloropyridin-3-yl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(183) (S)-6-(3-(5-chloropyridin-3-yl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(184) (R)-6-(3-(3-(difluoromethyl)phenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(185) (S)-6-(3-(3-(difluoromethyl)phenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(186) tert-butyl (R)-3-(3-((6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)isoxazolidin-2-carboxylate;

(187) tert-butyl (S)-3-(3-((6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)phenyl)isoxazolidin-2-carboxylate;

(188) (R)-N-(6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)cyclopropanecarboxamide;

(189) (R)-N-(6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)benzamide;

(190) (R)-N-(cyclopentylmethyl)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-amine;

(191) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-fluorobenzyl)pyrimidin-4-amine;

(192) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(1-(methylsulfonyl)piperidin-4-yl)pyrimidin-4-amine;

(193) (R)-6-((6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-5-methoxy-2-methylisoindolin-1-one;

(194) (R)-3-((6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-1H-indazol-6-carbonitrile;

(195) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-(9-(1-fluoro-2-methylpropan-2-yl)-3,9-diazaspiro[5.5]undecan-3-yl)-2-methoxy-5-(1-methyl-1H-pyrazol-4-yl)phenyl)pyrimidin-4-amine;

(196) (R)-N-(2,5-dichloro-4-(9-(1-fluoro-2-methylpropan-2-yl)-3,9-diazaspiro[5.5]undecan-3-yl)phenyl)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-amine;

(197) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(3-methyl-5-(3-((methylsulfonyl)methyl)azetidin-1-yl)-4-(4-morpholinopiperidin-1-yl)phenyl)pyrimidin-4-amine;

(198) (R)-N-(5-(3-chloro-1-methyl-1H-pyrazol-4-yl)-2-methoxy-4-(4-methylpiperazin-1-yl)phenyl)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-amine;

(199) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-methylpiperazin-1-yl)-5-vinylphenyl)pyrimidin-4-amine;

(200) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(5-ethynyl-2-methoxy-4-(4-methylpiperazine-1-yl)phenyl)pyrimidin-4-amine;

(201) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(3-methoxy-6-(1-methyl-1H-pyrazol-4-yl)-5-(4-methylpiperazin-1-yl)pyridin-2-yl)pyrimidin-4-amine;

(202) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-5-(1-methyl-1H-pyrazol-4-yl)-6-(4-methylpiperazin-1-yl)pyridin-3-yl)pyrimidin-4-amine;

(203) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(3-(1-methyl-1H-pyrazol-4-

yl)-5-((2R,3S)-2-methyl-3-((methylsulfonyl)methyl)azetidin-1-yl)-4-morpholinophenyl)pyrimidin-4-amine;

(204) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N4-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-N2-methylpyrimidin-2,4-diamine;

(205) (R)-4-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)pyridin-2-amine;

(206) (R)-N-(4-(4-(4-allylpiperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-amine;

(207) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-(4-ethylpiperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)pyrimidin-4-amine;

(208) (R)-N-(4-(4-(4-cyclobutylpiperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-amine;

(209) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-(oxetan-3-yl)piperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(210) (R)-N-(4-(4-(4-(cyclopropylmethyl)piperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-amine;

(211) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(6-methyl-2,6-diazaspiro[3.3]heptan-2-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(212) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-((R)-3-(dimethylamino)pyrrolidin-1-yl)piperidin-1-yl)-2-methoxyphenyl)pyrimidin-4-amine;

(213) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-((R)-3,4-dimethylpiperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)pyrimidin-4-amine;

(214) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-((S)-3,4-

dimethylpiperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)pyrimidin-4-amine;

(215) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-((3S,5R)-4-ethyl-3,5-dimethylpiperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)pyrimidin-4-amine;

(216) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-((S)-2,4-dimethylpiperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)pyrimidin-4-amine;

(217) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-((R)-2,4-dimethylpiperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)pyrimidin-4-amine;

(218) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(3-(4-methylpiperazin-1-yl)azetidin-1-yl)phenyl)pyrimidin-4-amine;

(219) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-(6-ethyl-3,6-diazabicyclo[3.1.1]heptan-3-yl)piperidin-1-yl)-2-methoxyphenyl)pyrimidin-4-amine;

(220) 6-((R)-3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-(3-ethyl-3,6-diazabicyclo[3.1.1]heptan-6-yl)piperidin-1-yl)-2-methoxyphenyl)pyrimidin-4-amine;

(221) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-methyl-1,4)-diazepan-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine;

(222) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(4-(4-(4-isopropylpiperazin-1-yl)piperidin-1-yl)-2-methoxyphenyl)pyrimidin-4-amine;

(223) (R)-1-(1-(4-((6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-3-methoxyphenyl)piperidin-4-yl)-4-methylpiperazin-2-one;

(224) (R)-4-(1-(4-((6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)pyrimidin-4-yl)amino)-3-methoxyphenyl)piperidin-4-yl)-1-methylpiperazin-2-one;

(225) (R)-1-methyl-5-(2-(6-((4-(4-methylpiperazin-1-yl)phenyl)amino)pyrimidin-4-yl)isoxazolidin-3-yl)pyridin-2(1H)-one;

(226) (R)-5-(2-(6-((2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)amino)pyrimidin-4-yl)isoxazolidin-3-yl)-1-methylpyridin-2(1H)-one;

(227) (S)-1-methyl-5-(2-(6-((4-(4-methylpiperazin-1-yl)phenyl)amino)pyrimidin-4-yl)isoxazolidin-3-yl)pyridin-2(1H)-one;

(228) (S)-5-(2-(6-((2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)amino)pyrimidin-4-yl)isoxazolidin-3-yl)-1-methylpyridin-2(1H)-one;

(229) N-(4-(4-methylpiperazin-1-yl)phenyl)-6-(3-phenylbenzo[d]isoxazol-2(3H)-yl)pyrimidin-4-amine;

(230) N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(3-phenylbenzo[d]isoxazol-2(3H)-yl)pyrimidin-4-amine;

(231) (S)-N-(4-(4-methylpiperazin-1-yl)phenyl)-6-(7-phenyl-5-oxa-6-azaspiro[2.4]heptan-6-yl)pyrimidin-4-amine;

(232) (R)-N-(4-(4-methylpiperazin-1-yl)phenyl)-6-(7-phenyl-5-oxa-6-azaspiro[2.4]heptan-6-yl)pyrimidin-4-amine;

(233) (S)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(7-phenyl-5-oxa-6-azaspiro[2.4]heptan-6-yl)pyrimidin-4-amine;

(234) (R)-N-(2-methoxy-4-(4-(4-methylpiperazin-1-yl)piperidin-1-yl)phenyl)-6-(7-phenyl-5-oxa-6-azaspiro[2.4]heptan-6-yl)pyrimidin-4-amine;

(235) (R)-6-(3-isopropylisoxazolidin-2-yl)-N-(4-(4-methylpiperazin-1-yl)phenyl)pyrimidin-4-amine;

(236) (S)-6-(3-isopropylisoxazolidin-2-yl)-N-(4-(4-methylpiperazin-1-yl)phenyl)pyrimidin-4-amine; and

(237) (R)-6-(3-(2,3-difluorophenyl)isoxazolidin-2-yl)-N-(2-methoxy-4-(4-(4-(2-

(methylsulfonyl)ethyl)piperazin-1-yl)piperidin-1-yl)phenyl)pyrimidin-4-amine.

[Claim 7]

A pharmaceutical composition for the treatment or prevention of cancer, comprising, as an active ingredient, the compound according to any one of claims 1 to 6, the optical isomer thereof, or the pharmaceutically acceptable salt thereof.

[Claim 8]

The pharmaceutical composition of claim 7, wherein the pharmaceutical composition is for inhibiting EGFR and/or HER2.

[Claim 9]

The pharmaceutical composition of claim 8, wherein the pharmaceutical composition is for inhibiting any one or more selected from the group consisting of EGFR Del19/C797S, EGFR L858R/C797S, EGFR L861Q, EGFR G719A, EGFR S768I, EGFR L718Q, EGFR G724S, EGFR d746-750, EGFR d746-750/C797A, EGFR d746-750/C797S, EGFR d746-750/T790M/C797S, EGFR D761Y, EGFR G719C, EGFR G719D, EGFR G719S, EGFR L747S, EGFR L792F, EGFR L858R, EGFR L792F/L858R, ERBB2/HER2, and ERBB4/HER4.

[Claim 10]

The pharmaceutical composition of claim 7, wherein the cancer is one or more selected from the group consisting of pseudomyxoma, intrahepatic biliary tract cancer, hepatoblastoma, liver cancer, thyroid cancer, colon cancer, testicular cancer, myelodysplastic syndrome, glioblastoma, oral cancer, labial cancer, mycosis fungoides,

acute myeloid leukemia, acute lymphocytic leukemia, basal cell cancer, ovarian epithelial cancer, ovarian germ cell cancer, male breast cancer, brain cancer, pituitary adenoma, multiple myeloma, gallbladder cancer, biliary tract cancer, colorectal cancer, chronic myelogenous leukemia, chronic lymphocytic leukemia, retinoblastoma, choroidal melanoma, ampulla of vater cancer, bladder cancer, peritoneal cancer, parathyroid cancer, adrenal cancer, sinus cancer, non-small cell lung cancer, tongue cancer, astrocytoma, small cell lung cancer, pediatric brain cancer, pediatric lymphoma, pediatric leukemia, small intestine cancer, meningioma, esophageal cancer, glioma, renal pelvic cancer, kidney cancer, heart cancer, duodenal cancer, malignant soft tissue cancer, malignant bone cancer, malignant lymphoma, malignant mesothelioma, malignant melanoma, eye cancer, vulvar cancer, ureter cancer, urethral cancer, cancer of unknown primary site, gastric lymphoma, gastric cancer, gastric carcinoma, gastrointestinal stromal cancer, Wilms cancer, breast cancer, sarcoma, penile cancer, pharyngeal cancer, gestational choriocarcinoma, cervical cancer, endometrial cancer, uterine sarcoma, prostate cancer, metastatic bone cancer, metastatic brain cancer, mediastinal cancer, rectal cancer, rectal carcinoma, vaginal cancer, spinal cord cancer, acoustic tumor, pancreatic cancer, salivary gland cancer, Kaposi's sarcoma, Paget's disease, tonsil cancer, squamous cell carcinoma, lung adenocarcinoma, lung cancer, lung squamous cell carcinoma, skin cancer, anal cancer, rhabdomyosarcoma, laryngeal cancer, pleural cancer, blood cancer, and thymus cancer.

[Claim 11]

Use of the compound, the optical isomer thereof, or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 6 for use in preparation of a medicament to treat or prevent EGFR- and/or HER2-related cancers.

[Claim 12]

Use of the pharmaceutical composition according to claim 7 in the manufacture of a medicament for the treatment or prevention of EGFR- and/or HER2-related cancers.