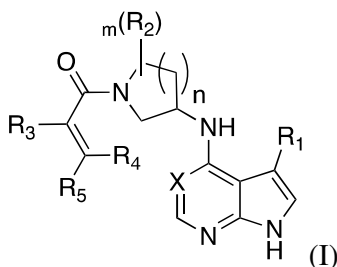


CLAIMS

What is claimed is:

1. A compound of Formula (I):



wherein:

X is N or CR₃;

n is 0, 1 or 2;

m is 0, 1, or 2;

R₁ is selected from COOR₆, C₁-C₅ alkyl-COOR₆, bicycloalkyl, C₁-C₅-alkyl-heterocyclyl, C₁-C₅-alkyl-C₃-C₆-cycloalkyl, C₃-C₆ cycloalkyl, C(O)C₁-C₅ alkyl, C(O)C₃-C₆ cycloalkyl, C(O)C₃-C₆-heterocyclyl, where cycloalkyl, bicycloalkyl, heterocyclyl, and alkyl are optionally substituted with one or more groups selected from C₁-C₅ alkyl, C₁-C₅ alkoxy, C₁-C₅ alkyl-C₁-C₅ alkoxy, CN, halogen, COOR₆, or C₁-C₅-alkyl-COOR₆;

R₂ is selected from H, C₁-C₅ alkyl, C₃-C₆ cycloalkyl, C₁-C₅-alkyl-C₃-C₆-cycloalkyl, CN, OH, C₁-C₅ alkoxy, and halogen where two R₂ groups on the same carbon may be joined with or without a heteroatom to make a spirocyclic ring system;

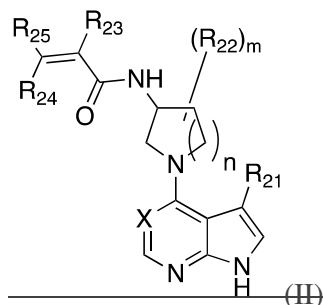
R₃ is selected from H, CN, C₁-C₆ alkyl, C₃-C₆ cycloalkyl;

R₄ is selected from H, C₁-C₆ alkyl;

R₅ is selected from H, C₁-C₆ alkyl, C₃-C₆ cycloalkyl, C₁-C₆ alkyl NH₂, C₁-C₆ alkyl NH(C₁-C₆ alkyl), C₁-C₆ alkyl N(C₁-C₆ alkyl)(C₁-C₆ alkyl), C₁-C₅ alkyl C₁-C₅ alkoxy or C₁-C₆ alkyl heterocyclyl;

R₆ is selected from H, C₁-C₅ alkyl, C₃-C₆ cycloalkyl, C₁-C₅-alkyl-C₃-C₆-cycloalkyl, C₁-C₅ alkyl-C₁-C₅ alkoxy, C₁-C₅ alkyl-OH, C₁-C₅ alkyl-NH₂, C₁-C₅ alkyl-NH-C₁-C₅ alkyl, and C₁-C₅ alkyl-N-(C₁-C₅ alkyl)(C₁-C₅ alkyl); and a derivative thereof.

2. A compound of Formula (II):



wherein:

X is N or CR₂₃;

n is 0, 1 or 2;

m is 0, 1, or 2;

R₂₁ is selected from COOR₂₆, C₁-C₅-alkyl COOR₂₆, bicycloalkyl, C₁-C₅-alkyl-heterocyclyl, C₁-C₅-alkyl C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl, C(O)C₁-C₅-alkyl, C(O)C₃-C₆-cycloalkyl, C(O)C₃-C₆-heterocyclyl, where cycloalkyl, bicycloalkyl, heterocyclyl, and alkyl are optionally substituted with one or more groups selected from C₁-C₅-alkyl, C₁-C₅-alkoxy, C₁-C₅-alkyl-C₁-C₅-alkoxy, CN, halogen, COOR₂₆, or C₁-C₅-alkyl COOR₂₆;

R₂₂ is selected from H, C₁-C₅-alkyl, C₃-C₆-cycloalkyl, C₁-C₅-alkyl C₃-C₆-cycloalkyl, CN, OH, C₁-C₅-alkoxy, halogen and where two R₂ groups on

The compound of Claim 1, wherein the same carbon may be joined with or without a heteroatom to make a spirocyclic ring system;

R₂₃ is selected from H, CN, C₁-C₆-alkyl, C₃-C₆-cycloalkyl;

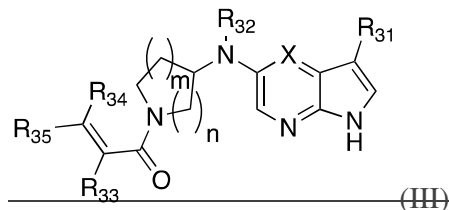
R₂₄ is selected from H, C₁-C₆-alkyl;

R₂₅ is selected from H, C₁-C₆-alkyl, C₃-C₆-cycloalkyl, C₁-C₆-alkyl NH₂, C₁-C₆-alkyl NH(C₁-C₆-alkyl), C₁-C₆-alkyl N(C₁-C₆-alkyl)(C₁-C₆-alkyl), C₁-C₅-alkyl C₁-C₅-alkoxy or C₁-C₆-alkyl heterocyclyl;

R₂₆ is selected from H, C₁-C₅-alkyl, C₃-C₆-cycloalkyl, C₁-C₅-alkyl C₃-C₆-cycloalkyl, C₁-C₅-alkyl C₁-C₅-alkoxy, C₁-C₅-alkyl OH, C₁-C₅-alkyl NH₂, C₁-C₅-alkyl NH-C₁-C₅-alkyl,

and C₁-C₅-alkyl N-(C₁-C₅-alkyl)(C₁-C₅-alkyl); and compound, or a derivative thereof, is selected from:

3. — A compound of Formula (III):



wherein:

~~X is CR₃₃ or N;~~

~~n is 1 or 2;~~

~~m is 0, 1 or 2 when n is 1, m is 1 when n is 2;~~

~~R₃₁ is selected from COOR₃₆, C₁-C₅-alkyl COOR₃₆, bicycloalkyl, C₁-C₅-alkyl heterocyclyl, C₁-C₅-alkyl C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl, C(O)C₁-C₅-alkyl, C(O)C₃-C₆-cycloalkyl, C(O)C₃-C₆-heterocyclyl, where cycloalkyl, bicycloalkyl, heterocyclyl, and alkyl are optionally substituted with one or more groups selected from C₁-C₅-alkyl, C₁-C₅-alkoxy, C₁-C₅-alkyl C₁-C₅-alkoxy, CN, halogen, COOR₃₆, or C₁-C₅-alkyl COOR₃₆;~~

~~R₃₂ is selected from H, C₁-C₅-alkyl, C₃-C₆-cycloalkyl, C₁-C₅-alkyl C₃-C₆-cycloalkyl;~~

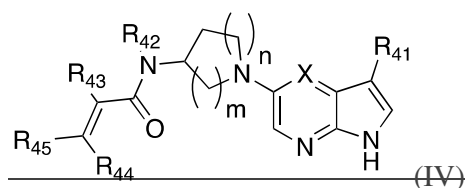
~~R₃₃ is selected from H, CN, C₁-C₆-alkyl, C₃-C₆-cycloalkyl;~~

~~R₃₄ is selected from H, C₁-C₆-alkyl;~~

~~R₃₅ is selected from H, C₁-C₆-alkyl, C₃-C₆-cycloalkyl, C₁-C₆-alkyl NH₂, C₁-C₆-alkyl NH(C₁-C₆-alkyl), C₁-C₆-alkyl N(C₁-C₆-alkyl)(C₁-C₆-alkyl), C₁-C₅-alkyl C₁-C₅-alkoxy;~~

~~R₃₆ is selected from H, C₁-C₅-alkyl, C₃-C₆-cycloalkyl, C₁-C₅-alkyl C₃-C₆-cycloalkyl, C₁-C₅-alkyl C₁-C₅-alkoxy, C₁-C₅-alkyl OH, C₁-C₅-alkyl NH₂, C₁-C₅-alkyl NH-C₁-C₅-alkyl, and C₁-C₅-alkyl N-(C₁-C₅-alkyl)(C₁-C₅-alkyl); and a derivative thereof.~~

4. — A compound of Formula (IV):



wherein:

X is CR₄₃ or N;

n is 1 or 2;

m is 0, 1 or 2 when n is 1, m is 1 when n is 2;

R₄₁ is selected from COOR₄₆, C₁-C₅-alkyl COOR₄₆, bicycloalkyl, C₁-C₅-alkyl heterocyclyl, C₁-C₅-alkyl C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl, C(O)C₁-C₅-alkyl, C(O)C₃-C₆-cycloalkyl, C(O)C₃-C₆-heterocyclyl, where cycloalkyl, bicycloalkyl, heterocyclyl, and alkyl are optionally substituted with one or more groups selected from C₁-C₅-alkyl, C₁-C₅-alkoxy, C₁-C₅-alkyl C₁-C₅-alkoxy, CN, halogen, COOR₄₆, or C₁-C₅-alkyl COOR₄₆;

R₄₂ is selected from H, C₁-C₅-alkyl, C₃-C₆-cycloalkyl, C₁-C₅-alkyl C₃-C₆-cycloalkyl;

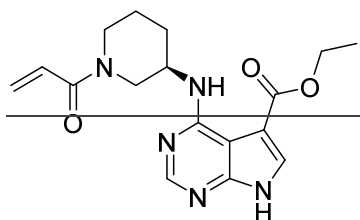
R₄₃ is selected from H, CN, C₁-C₆-alkyl, C₃-C₆-cycloalkyl;

R₄₄ is selected from H, C₁-C₆-alkyl;

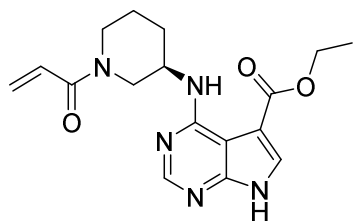
R₄₅ is selected from H, C₁-C₆-alkyl, C₃-C₆-cycloalkyl, C₁-C₆-alkyl NH₂, C₁-C₆-alkyl NH(C₁-C₆-alkyl), C₁-C₆-alkyl N(C₁-C₆-alkyl)(C₁-C₆-alkyl), C₁-C₅-alkyl C₁-C₅-alkoxy;

R₄₆ is selected from H, C₁-C₅-alkyl, C₃-C₆-cycloalkyl, C₁-C₅-alkyl C₃-C₆-cycloalkyl, C₁-C₅-alkyl C₁-C₅-alkoxy, C₁-C₅-alkyl OH, C₁-C₅-alkyl NH₂, C₁-C₅-alkyl NH-C₁-C₅-alkyl, and C₁-C₅-alkyl N-(C₁-C₅-alkyl)(C₁-C₅-alkyl); and a derivative thereof.

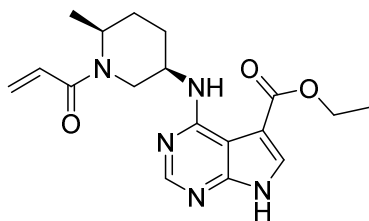
5. The compound of Claim 1, wherein the compound, or a derivative thereof, is selected from:



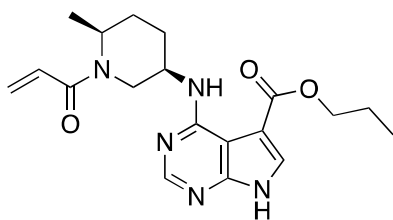
ethyl (*R*) 4-((1-acryloylpiperidin-3-yl)amino)-
7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate



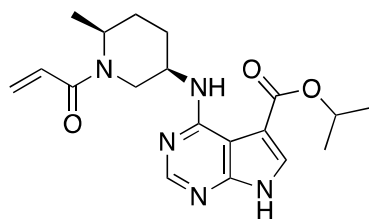
ethyl (*R*)-4-((1-acryloylpiperidin-3-yl)amino)-
7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate



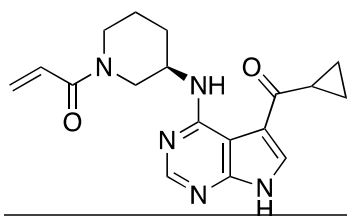
ethyl 4-(((3*R*,6*S*)-1-acryloyl-6-methylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate



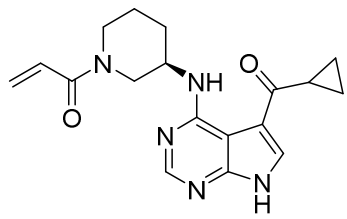
propyl 4-(((3*R*,6*S*)-1-acryloyl-6-methylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate

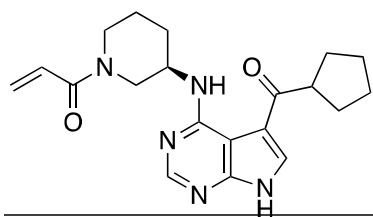


isopropyl 4-(((3*R*,6*S*)-1-acryloyl-6-methylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate

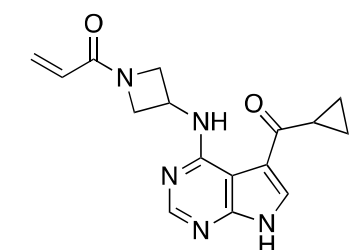
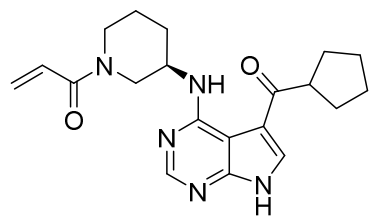


(*R*)-1-(3-((5-(cyclopropanecarbonyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one

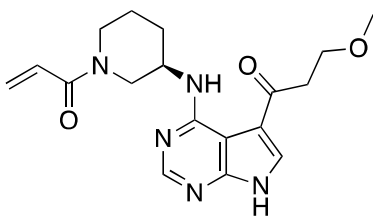




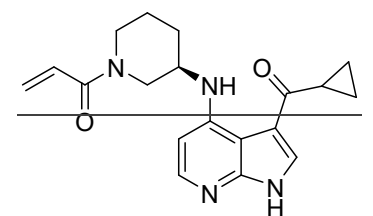
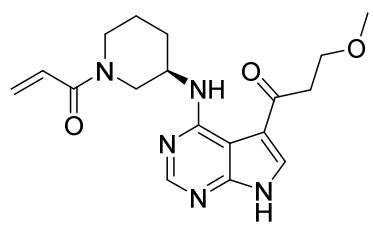
(*R*)-1-(3-((5-(cyclopentanecarbonyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-
yl)prop-2-en-1-one



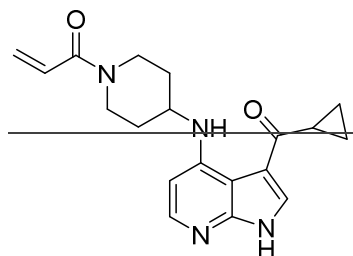
1-(3-((5-(cyclopropanecarbonyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)azetidin-1-
yl)prop-2-en-1-one



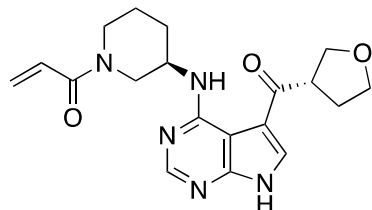
(*R*)-1-(3-((3-(3-methoxypropanoyl)-1*H*-
pyrrolo[2,3-*b*]pyridin-4-yl)amino)piperidin-1-
yl)prop-2-en-1-one



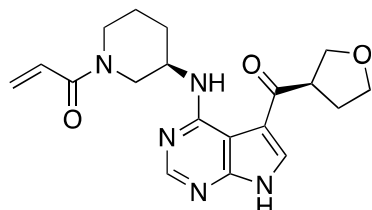
(*R*)-1-(3-((3-(cyclopropanecarbonyl)-1*H*-
pyrrolo[2,3-*b*]pyridin-4-yl)amino)piperidin-1-
yl)prop-2-en-1-one



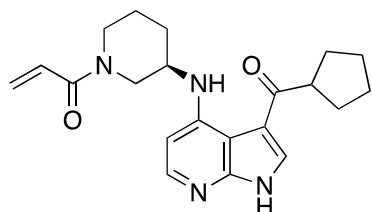
1-(4-((3-(cyclopropanecarbonyl)-1H-pyrrolo[2,3-b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



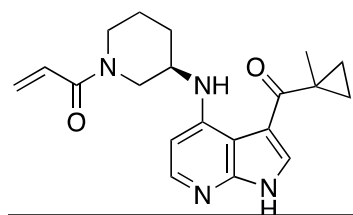
1-((R)-3-((5-((S)-tetrahydrofuran-3-carbonyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



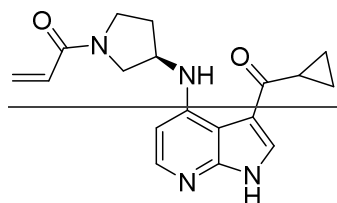
1-((R)-3-((5-((R)-tetrahydrofuran-3-carbonyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



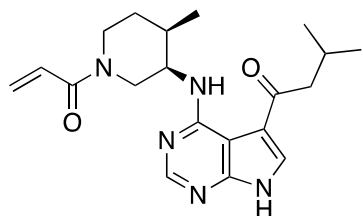
(R)-1-(3-((3-(cyclopentanecarbonyl)-1H-pyrrolo[2,3-b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



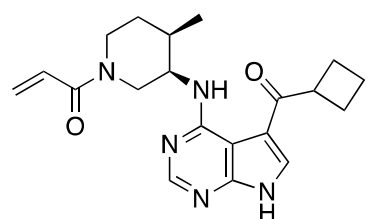
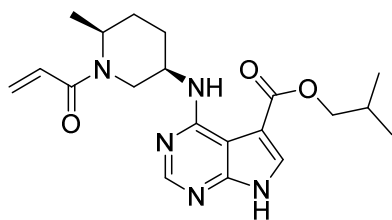
(R)-1-(3-((3-(1-methylcyclopropane-1-carbonyl)-1H-pyrrolo[2,3-b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



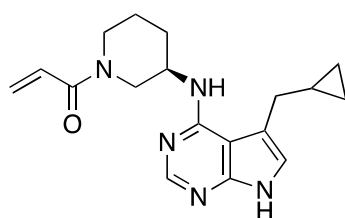
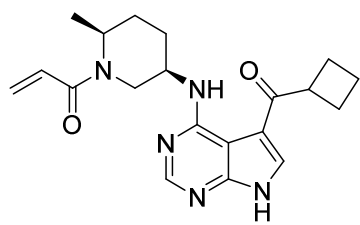
(R)-1-(3-((3-(cyclopropanecarbonyl)-1H-pyrrolo[2,3-b]pyridin-4-yl)amino)pyrrolidin-1-yl)prop-2-en-1-one



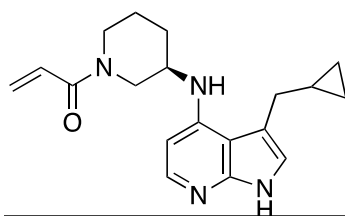
1-~~(isobutyl~~ 4-(((3*R*,6*S*)-1-acryloyl-6-methylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidin-5-yl)-3-methylbutan-1-onecarboxylate



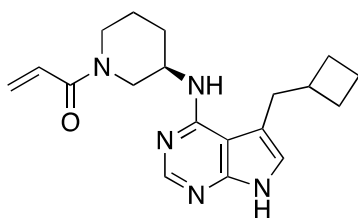
1-((2*S*,5*R*)-5-((5-(cyclobutanecarbonyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



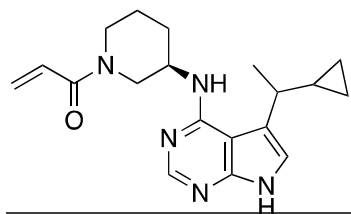
(*R*)-1-(3-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



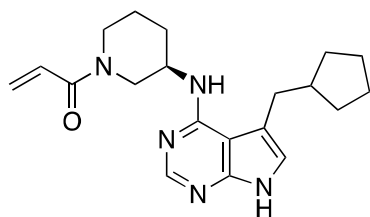
(*R*)-1-(3-((3-(cyclopropylmethyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



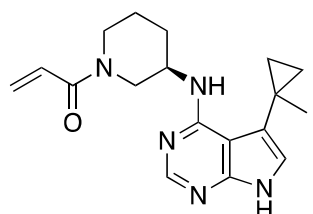
(*R*)-1-(3-((5-(cyclobutylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



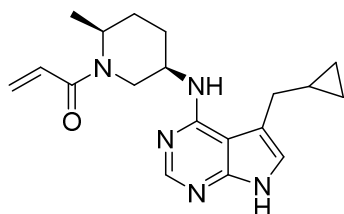
1-((3*R*)-3-((5-(1-cyclopropylethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



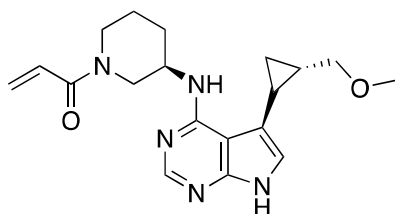
(*R*)-1-(3-((3-(cyclopentylmethyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



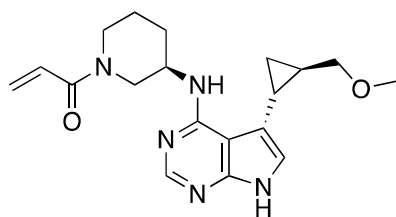
(*R*)-1-(3-((5-(1-methylcyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



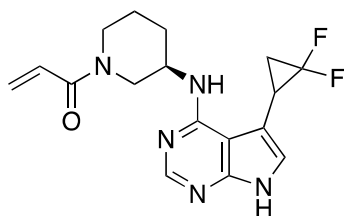
1-((2*S*,5*R*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



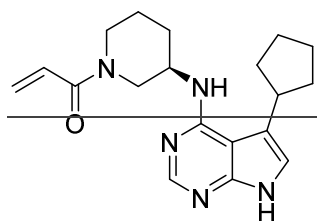
1-((*R*)-3-((5-((1*S*,2*S*)-2-(methoxymethyl)cyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



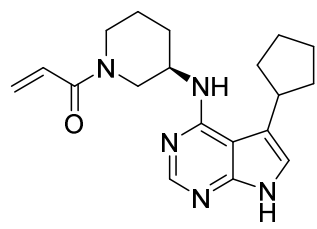
1-((*R*)-3-((5-((1*R*,2*R*)-2-(methoxymethyl)cyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



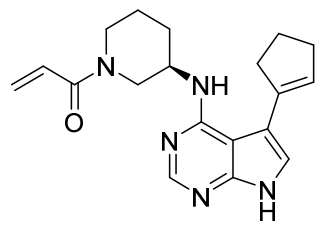
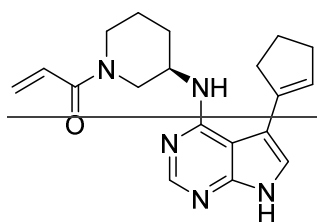
1-((3*R*)-3-((5-(2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one

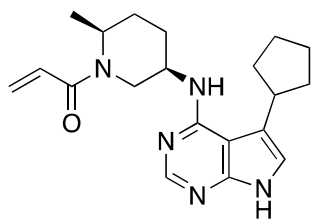


(*R*)-1-(3-((3-cyclopentyl-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one

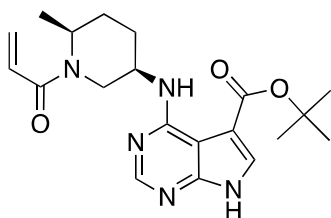


(*R*)-1-(3-((3-(cyclopent-1-en-1-yl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one

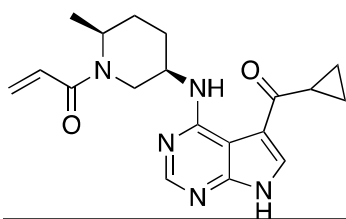




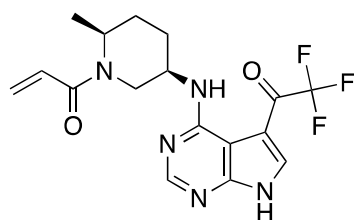
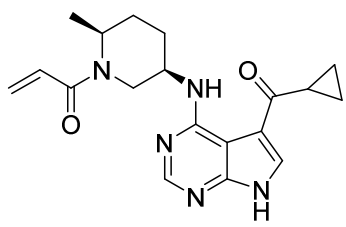
1-((2*S*,5*R*)-5-((5-cyclopentyl-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-
yl)prop-2-en-1-one



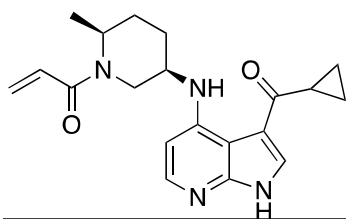
tert-butyl 4-(((3*R*,6*S*)-1-acryloyl-6-
methylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-
d]pyrimidine-5-carboxylate



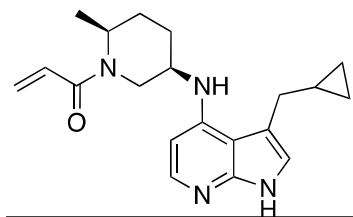
1-((2*S*,5*R*)-5-((5-(cyclopropanecarbonyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-
methylpiperidin-1-yl)prop-2-en-1-one



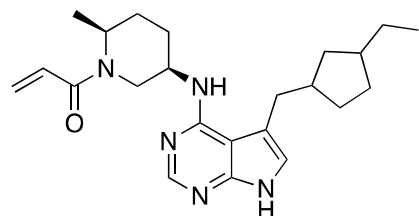
1-((2*S*,5*R*)-2-methyl-5-((5-(2,2,2-
trifluoroacetyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-
yl)amino)piperidin-1-yl)prop-2-en-1-one



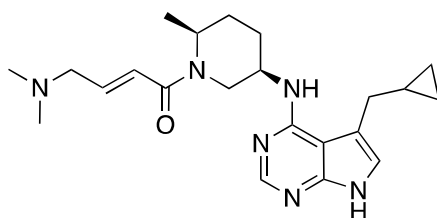
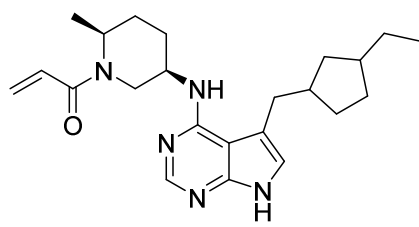
1-((2*S*,5*R*)-5-((3-(cyclopropanecarbonyl)-1*H*-
pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-
methylpiperidin-1-yl)prop-2-en-1-one



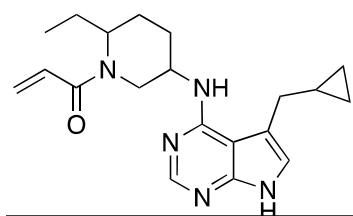
1-((2*S*,5*R*)-5-((3-(cyclopropylmethyl)-1*H*-
pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-
methylpiperidin-1-yl)prop-2-en-1-one



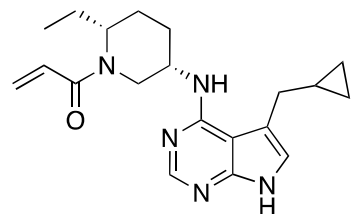
1-((2*S*,5*R*)-5-((5-((3-ethylcyclopentyl)methyl)-
7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-
methylpiperidin-1-yl)prop-2-en-1-one



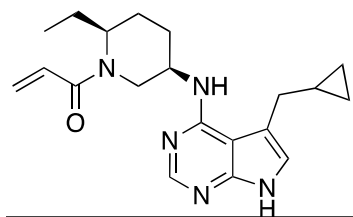
(*E*)-1-((2*S*,5*R*)-5-((5-(cyclopropylmethyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-
methylpiperidin-1-yl)-4-(dimethylamino)but-2-
en-1-one



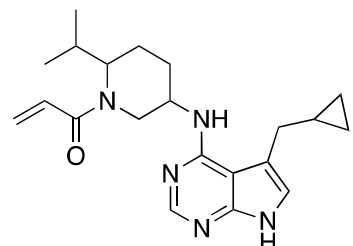
1-(5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-
yl)prop-2-en-1-one



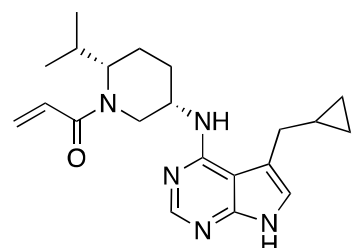
1-((2*R*,5*S*)-5-((5-(cyclopropylmethyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-
ethylpiperidin-1-yl)prop-2-en-1-one



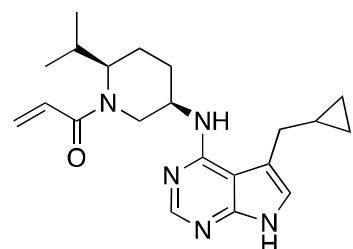
1-((2*S*,5*R*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-yl)prop-2-en-1-one ;



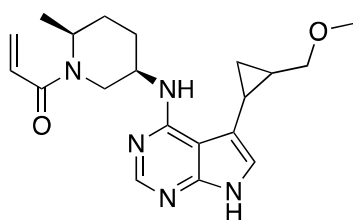
1-(5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one ;



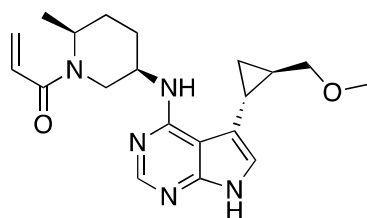
1-((2*S*,5*S*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one ;



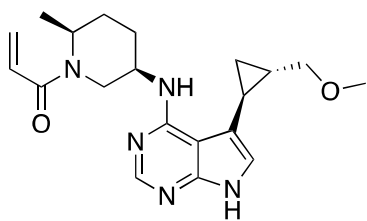
1-((2*R*,5*R*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one ;



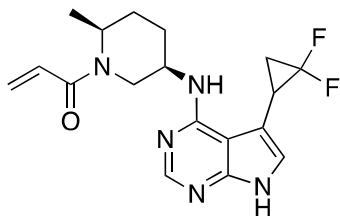
1-((2*S*,5*R*)-5-((5-(2-(methoxymethyl)cyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



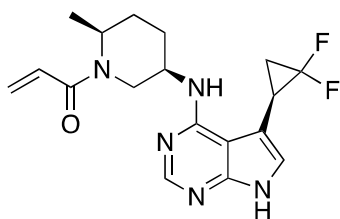
1-((2*S*,5*R*)-5-((5-((1*R*,2*R*)-2-(methoxymethyl)cyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



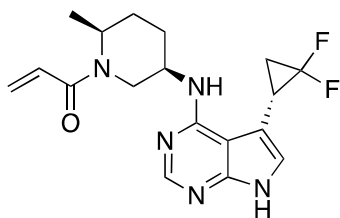
1-((2*S*,5*R*)-5-((5-((1*S*,2*S*)-2-(methoxymethyl)cyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



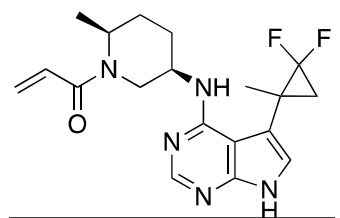
1-((2*S*,5*R*)-5-((5-(2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



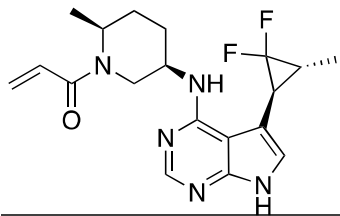
1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



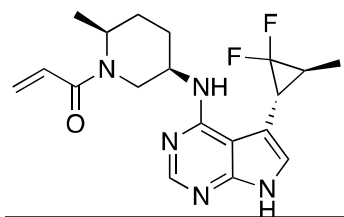
1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



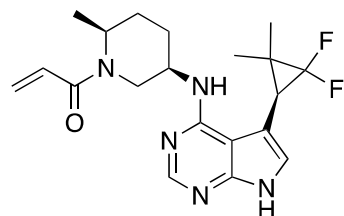
1-((2*S*,5*R*)-5-((5-(2,2-difluoro-1-methylcyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



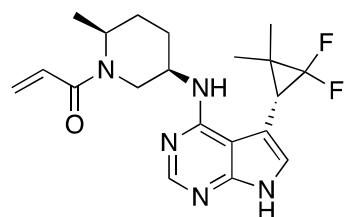
1-((2*S*,5*R*)-5-((5-((1*S*,3*R*)-2,2-difluoro-3-methylcyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



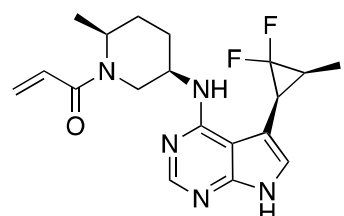
1-((2*S*,5*R*)-5-((5-((1*R*,3*S*)-2,2-difluoro-3-methylcyclopropyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



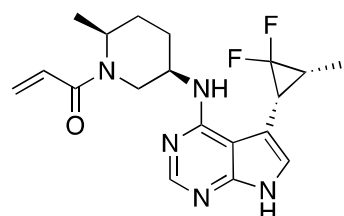
1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluoro-3,3-dimethylcyclopropyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



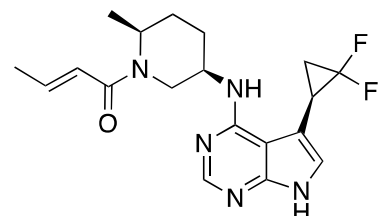
1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluoro-3,3-dimethylcyclopropyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



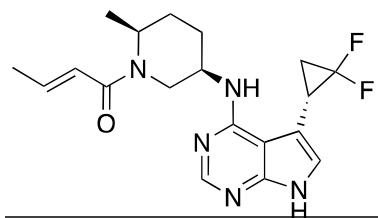
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d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



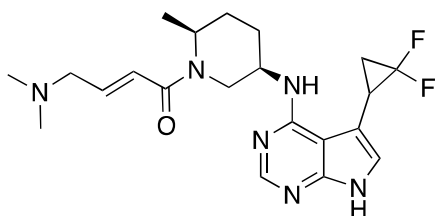
1-((2*S*,5*R*)-5-((5-((1*R*,3*R*)-2,2-difluoro-3-methylcyclopropyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



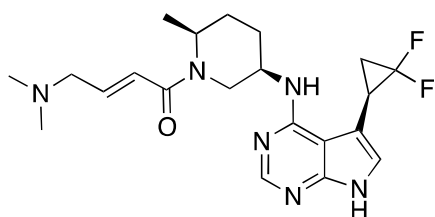
(*E*)-1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)but-2-en-1-one



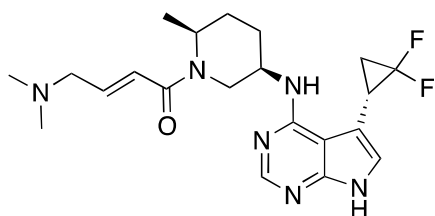
(*E*)-1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)but-2-en-1-one



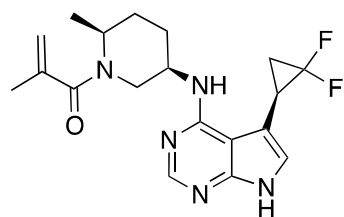
(*E*)-1-((2*S*,5*R*)-5-((5-(2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(dimethylamino)but-2-en-1-one



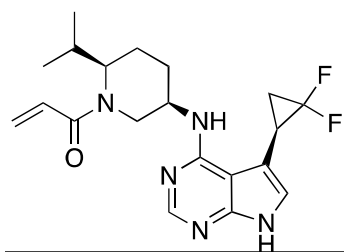
(*E*)-1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(dimethylamino)but-2-en-1-one



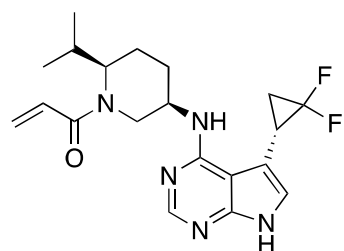
(*E*)-1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(dimethylamino)but-2-en-1-one



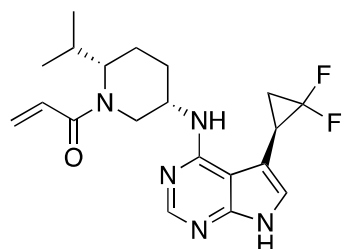
1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-2-methylprop-2-en-1-one



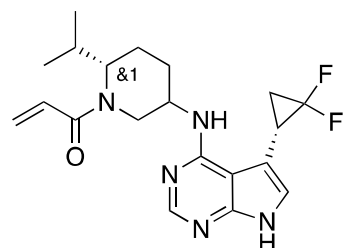
1-((2*R*,5*R*)-5-((5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one



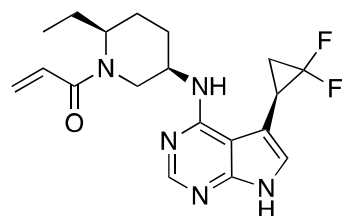
1-((2*R*,5*R*)-5-((*S*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-ylamino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one



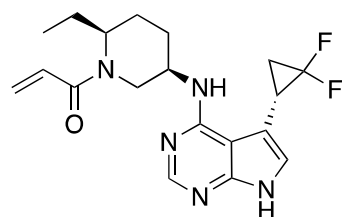
1-((2*S*,5*S*)-5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-ylamino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one



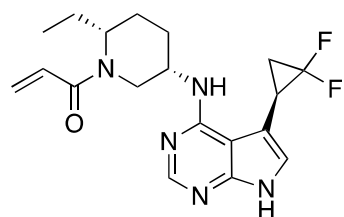
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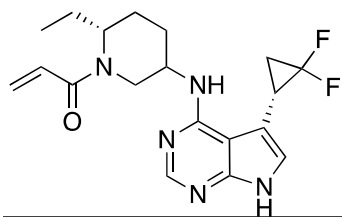
1-((2*S*,5*R*)-5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-ylamino)-2-ethylpiperidin-1-yl)prop-2-en-1-one



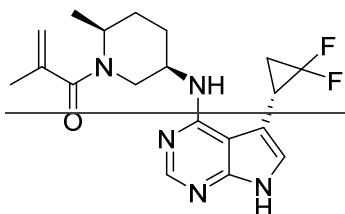
1-((2*S*,5*R*)-5-((*S*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-ylamino)-2-ethylpiperidin-1-yl)prop-2-en-1-one



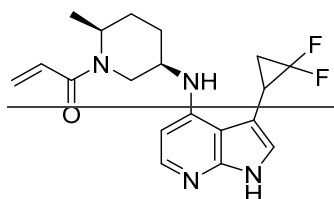
1-((2*R*,5*S*)-5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-ylamino)-2-ethylpiperidin-1-yl)prop-2-en-1-one



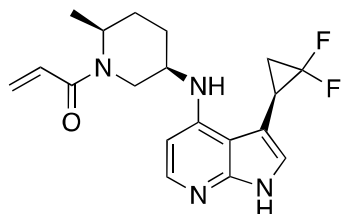
1-((2*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-
ethylpiperidin-1-yl)prop-2-en-1-one



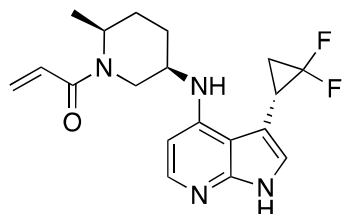
1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-
7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-
methylpiperidin-1-yl)-2-methylprop-2-en-1-one



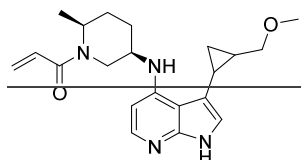
1-((2*S*,5*R*)-5-((3-(2,2-difluorocyclopropyl)-1*H*-
pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-
methylpiperidin-1-yl)prop-2-en-1-one



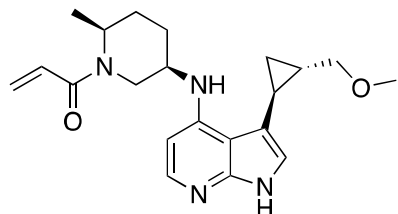
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1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-
methylpiperidin-1-yl)prop-2-en-1-one



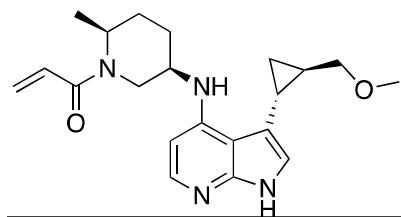
1-((2*S*,5*R*)-5-((3-((*S*)-2,2-difluorocyclopropyl)-
1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-
methylpiperidin-1-yl)prop-2-en-1-one



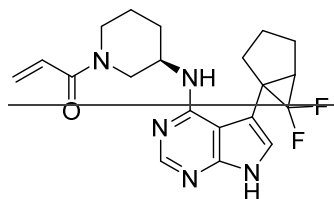
1-((2*S*,5*R*)-5-((3-(2-
(methoxymethyl)cyclopropyl)-1*H*-pyrrolo[2,3-
b]pyridin-4-yl)amino)-2-methylpiperidin-1-
yl)prop-2-en-1-one



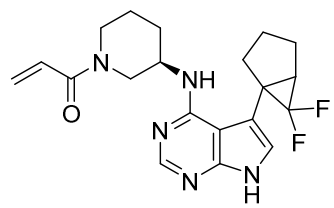
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(methoxymethyl)cyclopropyl)-1*H*-pyrrolo[2,3-
b]pyridin-4-yl)amino)-2-methylpiperidin-1-
yl)prop-2-en-1-one



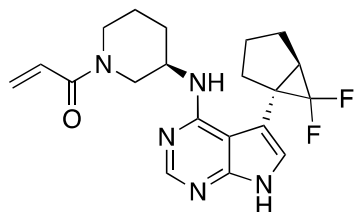
1-((2*S*,5*R*)-5-((3-((1*R*,2*R*)-2-(methoxymethyl)cyclopropyl)-1*H*-pyrrolo[2,3-
b]pyridin-4-yl)amino)-2-methylpiperidin-1-
yl)prop-2-en-1-one



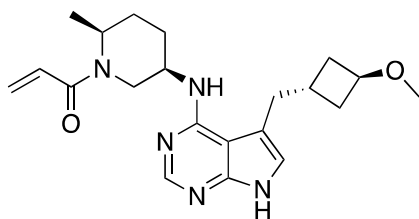
1-((3*R*)-3-((5-(6,6-difluorobicyclo[3.1.0]hexan-
1-yl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-
yl)amino)piperidin-1-yl)prop-2-en-1-one



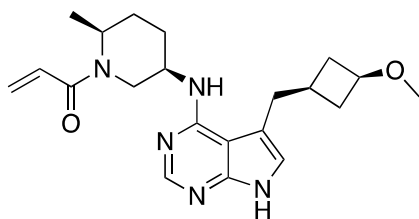
1-((*R*)-3-((5-((1*R*,5*S*)-6,6-
difluorobicyclo[3.1.0]hexan-1-yl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-
yl)prop-2-en-1-one



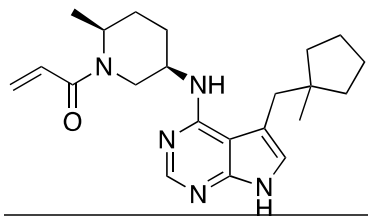
1-((*R*)-3-((5-((1*S*,5*R*)-6,6-
difluorobicyclo[3.1.0]hexan-1-yl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-
yl)prop-2-en-1-one



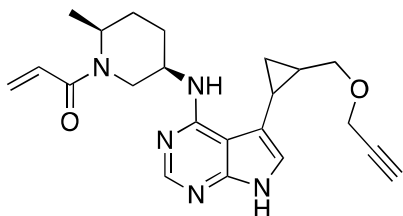
1-((2*S*,5*R*)-5-((5-(((1*r*,3*S*)-3-
methoxycyclobutyl)methyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-
yl)prop-2-en-1-one



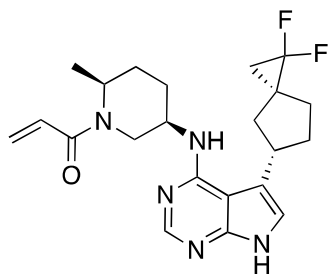
1-((2*S*,5*R*)-5-((5-(((1*s*,3*R*)-3-
methoxycyclobutyl)methyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-
yl)prop-2-en-1-one



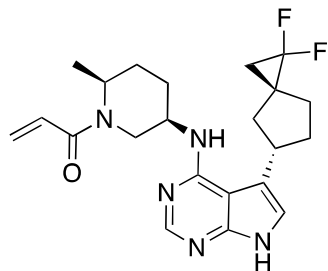
1-((2*S*,5*R*)-2-methyl-5-((5-((1-methylcyclopentyl)methyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



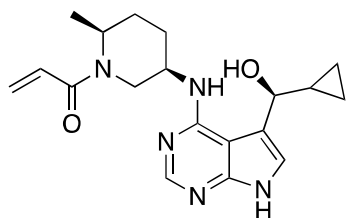
1-((2*S*,5*R*)-2-methyl-5-((5-(2-((prop-2-yn-1-yloxy)methyl)cyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



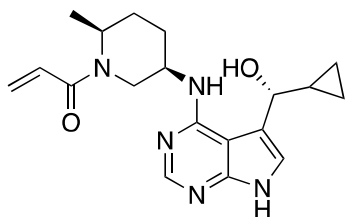
1-((2*S*,5*R*)-5-((5-((3*S*,5*S*)-1,1-difluorospiro[2.4]heptan-5-yl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



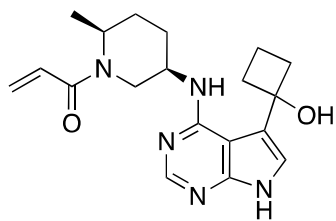
1-((2*S*,5*R*)-5-((5-((3*R*,5*S*)-1,1-difluorospiro[2.4]heptan-5-yl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



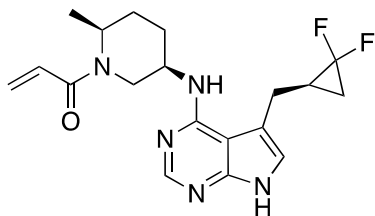
1-((2*S*,5*R*)-5-((5-((*S*)-cyclopropyl(hydroxy)methyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



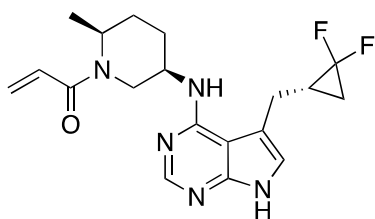
1-((2*S*,5*R*)-5-((5-((*R*)-cyclopropyl(hydroxy)methyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



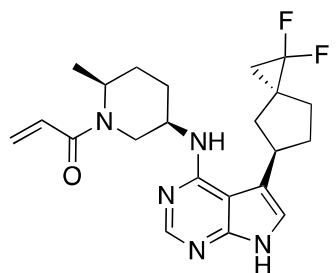
1-((2*S*,5*R*)-5-((5-(1-hydroxycyclobutyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



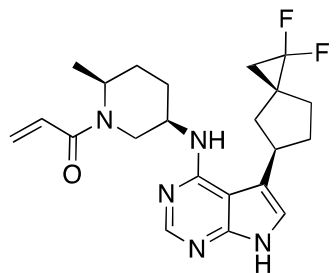
1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluorocyclopropyl)methyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



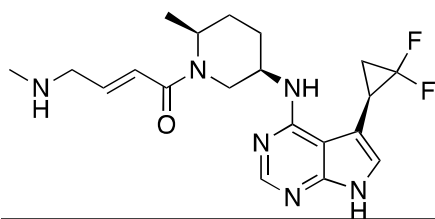
1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)methyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



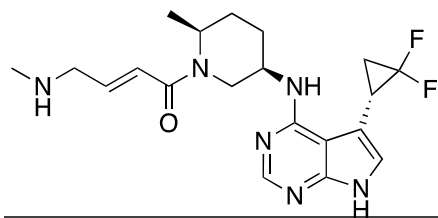
1-((2*S*,5*R*)-5-((5-((3*S*,5*R*)-1,1-difluorospiro[2.4]heptan-5-yl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



1-((2*S*,5*R*)-5-((5-((3*R*,5*R*)-1,1-difluorospiro[2.4]heptan-5-yl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



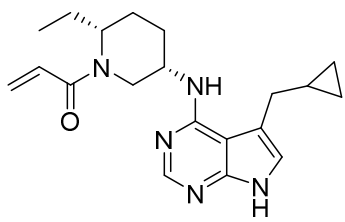
(*E*)-1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(methylamino)but-2-en-1-one



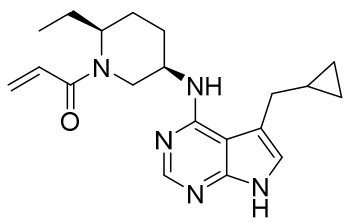
(*E*)-1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(methylamino)but-2-en-1-one

3. A pharmaceutical composition comprising the compound of claim 1 or a derivative thereof, and a pharmaceutically acceptable carrier, adjuvant, or vehicle.

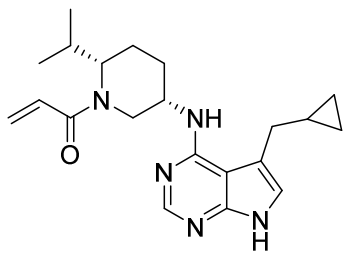
4. A compound, or a derivative thereof, selected from the group consisting of:



1-((2*R*,5*S*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-yl)prop-2-en-1-one

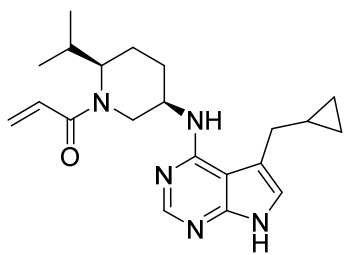


1-((2*S*,5*R*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-yl)prop-2-en-1-one



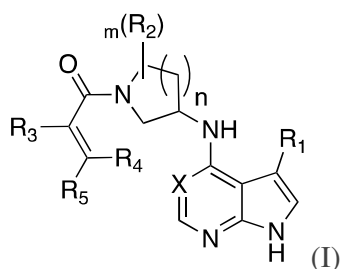
1-((2*S*,5*S*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one

and



1-((2*R*,5*R*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one

5. A compound of Formula (I):



wherein:

X is N;

n is 2;

m is 1;

R₁ is C₃-C₆ cycloalkyl, where the cycloalkyl, is substituted with one or more groups selected from C₁-C₅ alkyl and halogen;

R₂ is C₁-C₅alkyl;

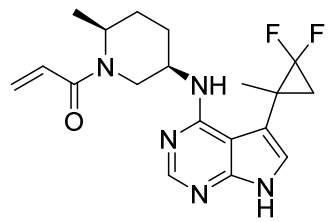
R₃ is H, or C₁-C₆ alkyl;

R₄ is H;

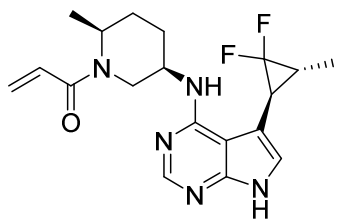
R₅ is selected from H, C₁-C₆ alkyl or C₁-C₆ alkyl NH(C₁-C₆ alkyl);

and a derivative thereof.

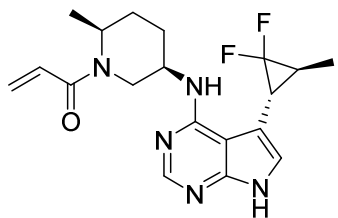
6. The compound of Claim 5, wherein the compound, or a derivative thereof, is selected from:



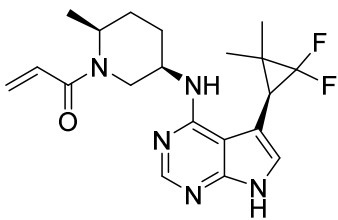
1-((2S,5R)-5-((5-(2,2-difluoro-1-methylcyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



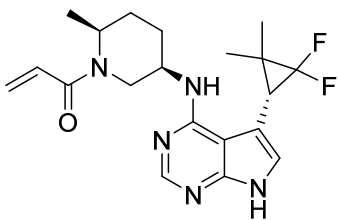
1-((2*S*,5*R*)-5-((5-((1*S*,3*R*)-2,2-difluoro-3-methylcyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



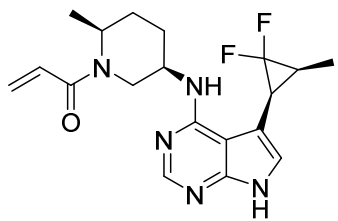
1-((2*S*,5*R*)-5-((5-((1*R*,3*S*)-2,2-difluoro-3-methylcyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



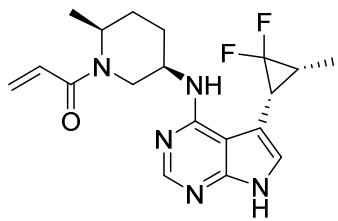
1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluoro-3,3-dimethylcyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



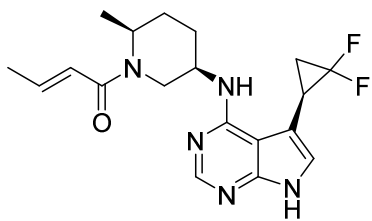
1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluoro-3,3-dimethylcyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



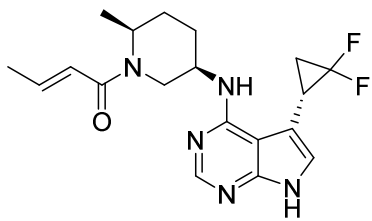
1-((2*S*,5*R*)-5-((5-((1*S*,3*S*)-2,2-difluoro-3-methylcyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



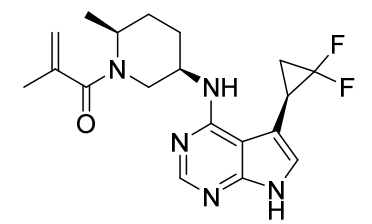
1-((2*S*,5*R*)-5-((5-((1*R*,3*R*)-2,2-difluoro-3-methylcyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



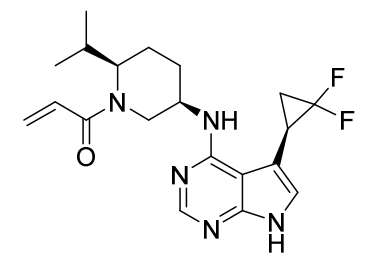
(E)-1-((2S,5R)-5-((5-((R)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)but-2-en-1-one



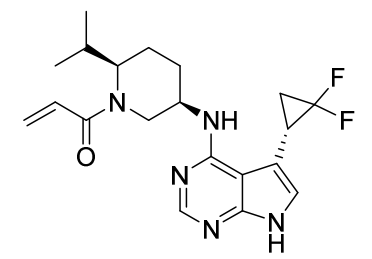
(E)-1-((2S,5R)-5-((5-((S)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)but-2-en-1-one



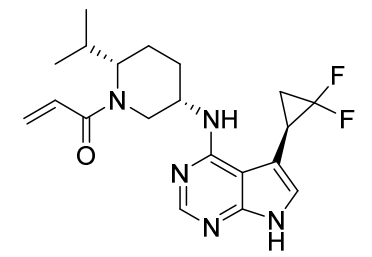
1-((2S,5R)-5-((5-((R)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-2-methylprop-2-en-1-one



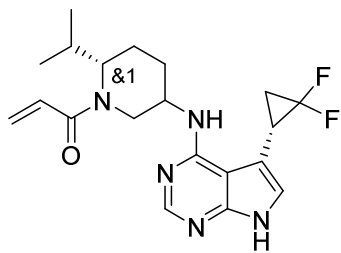
1-((2R,5R)-5-((5-((R)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one



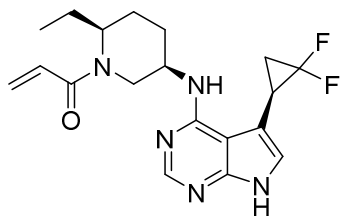
1-((2R,5R)-5-((5-((S)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one



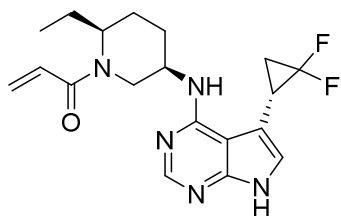
1-((2S,5S)-5-((5-((R)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one



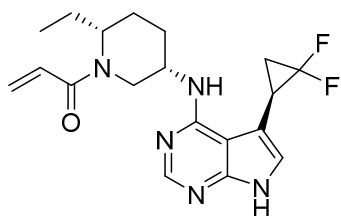
1-((2*S*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-
isopropylpiperidin-1-yl)prop-2-en-1-one



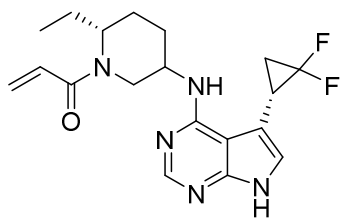
1-((2*S*,5*R*)-5-((*R*)-2,2-difluorocyclopropyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-
yl)prop-2-en-1-one



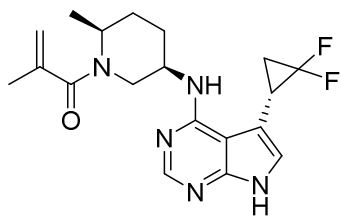
1-((2*S*,5*R*)-5-((*S*)-2,2-difluorocyclopropyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-
yl)prop-2-en-1-one



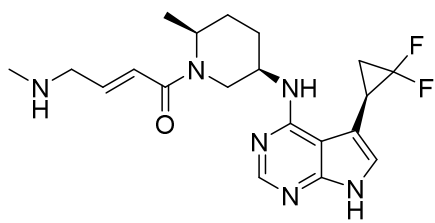
1-((2*R*,5*S*)-5-((*R*)-2,2-difluorocyclopropyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-
yl)prop-2-en-1-one



1-((2*R*)-5-((*S*)-2,2-difluorocyclopropyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-
yl)prop-2-en-1-one

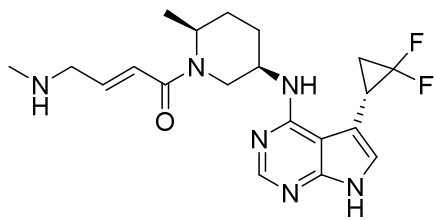


1-((2*S*,5*R*)-5-((*S*)-2,2-difluorocyclopropyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-
1-yl)-2-methylprop-2-en-1-one



(E)-1-((2S,5R)-5-((5-((R)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(methylamino)but-2-en-1-one

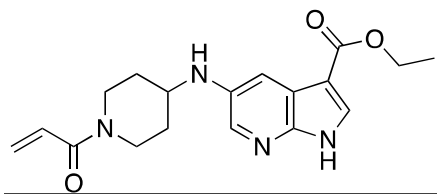
2
and



(E)-1-((2S,5R)-5-((5-((S)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(methylamino)but-2-en-1-one

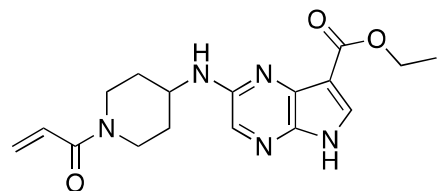
3

6. The compound of claim 3, wherein the 7. A compound, or a derivative thereof, is selected from the group consisting of:



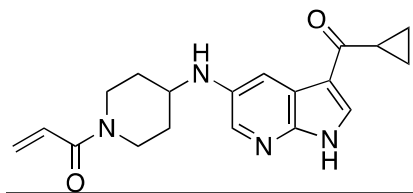
ethyl 5-((1-acryloylpiperidin-4-yl)amino)-1H-pyrrolo[2,3-b]pyridine-3-carboxylate

5



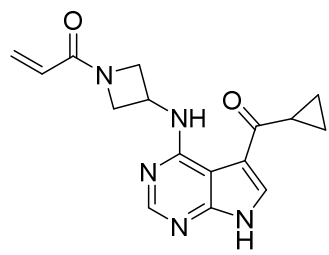
ethyl 2-((1-acryloylpiperidin-4-yl)amino)-5H-pyrrolo[2,3-b]pyrazine-7-carboxylate

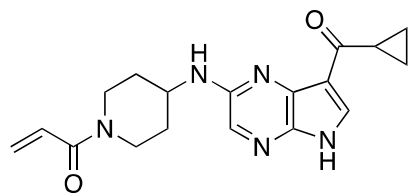
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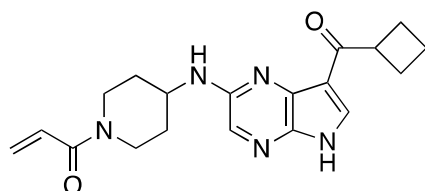
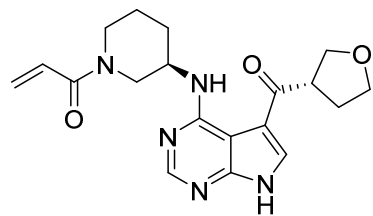
1-(4-((3-((5-(cyclopropanecarbonyl)-4H-pyrrolo[2,3-b]pyridin-5-yl)amino)piperidin-1-yl)prop-2-en-1-one

,

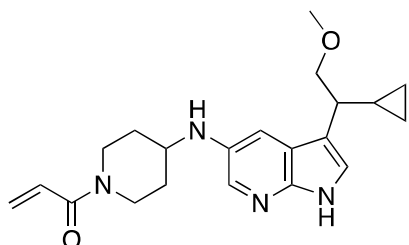
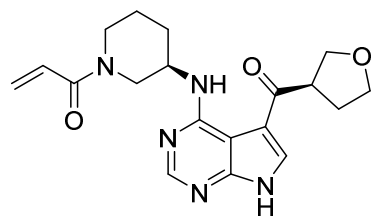




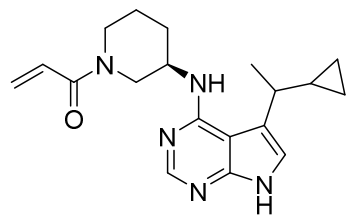
1-(4-((7-(cyclopropanecarbonyl)-5H-((R)-3-((5-
((S)-tetrahydrofuran-3-carbonyl)-7H-pyrrolo[2,3-
b]pyrazin-2-yl)amino)piperidin-1-
yl)prop-2-en-1-one

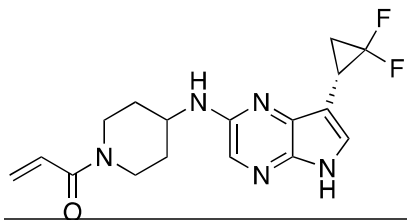


1-(4-((7-(cyclobutanecarbonyl)-5H-((R)-3-((5-
((R)-tetrahydrofuran-3-carbonyl)-7H-pyrrolo[2,3-
b]pyrazin-2-yl)amino)piperidin-1-
yl)prop-2-en-1-one

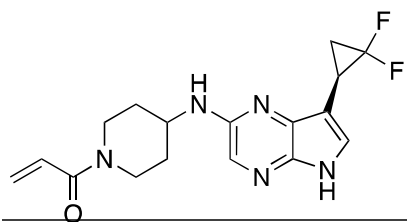
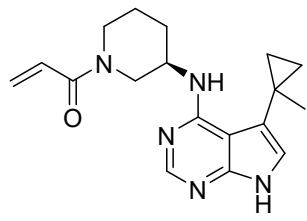


1-(4-((3R)-3-((5-(1-cyclopropyl-2-
methoxyethyl)-1H-cyclopropylethyl)-7H-
pyrrolo[2,3-b]pyridin-5-yl)amino)piperidin-1-yl)prop-2-en-1-one

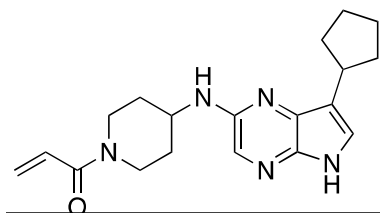
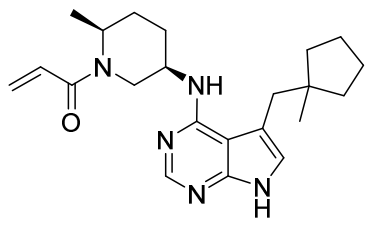




(*SR*)-1-(4-((7-(2,2-difluorocyclopropyl)-5*H*-(5-(1-methylcyclopropyl)-7*H*-pyrrolo[2,3-*b*]pyrazin-2-yl)amino)piperidin-1-yl)prop-2-en-1-one



(*R*)-1-(4-((7-(2,2-difluorocyclopropyl)-5*H*-methyl-5-(5-(1-methylcyclopentyl)methyl)-7*H*-pyrrolo[2,3-*b*]pyrazin-2-yl)amino)piperidin-1-yl)prop-2-en-1-one



1-(4-((7-cyclopentyl-5*H*-pyrrolo[2,3-*b*]pyrazin-2-yl)amino)piperidin-1-yl)prop-2-en-1-one

8. A pharmaceutical composition comprising: ~~one or more compounds selected from the compounds of Formula (I), Formula (II), Formula (III), Formula (IV), and derivatives~~ compound of claim 4, or a derivative thereof, and a pharmaceutically acceptable excipient.

9. A pharmaceutical composition comprising the compound of claim 5, or a derivative thereof, and a pharmaceutically acceptable carrier, adjuvant, or vehicle excipient.

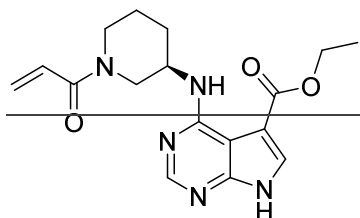
8. ~~A method of inhibiting ITK or JAK3 activity in a population of cells, said method comprising: administering, to a population of cells, one or more compounds selected from the compounds of Formula (I), Formula (II), Formula (III), Formula (IV), and derivatives thereof in an amount effective to inhibit ITK or JAK3 activity in the population of cells.~~

10. A pharmaceutical composition comprising the compound of claim 6, or a derivative thereof, and a pharmaceutically acceptable excipient.

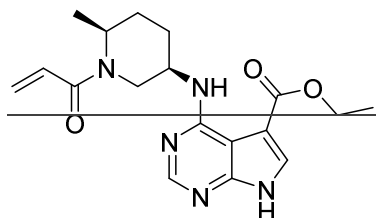
11. A pharmaceutical composition comprising the compound of claim 7, or a derivative thereof, and a pharmaceutically acceptable excipient.

9. ~~12. The method~~compound of claim 8Claim 1, wherein the ~~population of cells is a population of human cells.~~

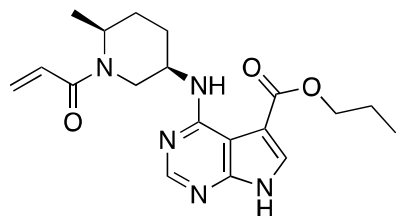
10. ~~The method of claim 8, wherein the one or more compounds is a compound, or a derivative thereof, of Formula (I) selected from~~is:



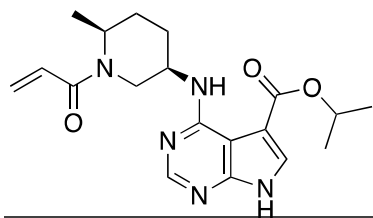
ethyl (*R*)-4-(((1-acryloylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate ;



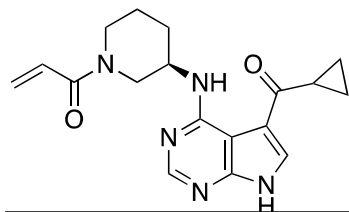
ethyl 4-(((3*R*,6*S*)-1-acryloyl-6-methylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate ;



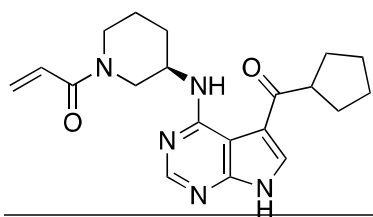
propyl 4-(((3*R*,6*S*)-1-acryloyl-6-methylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate ;



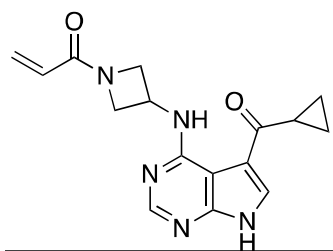
isopropyl 4-(((3*R*,6*S*)-1-acryloyl-6-methylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate ;



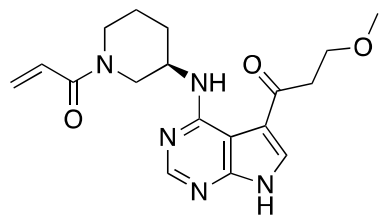
(*R*)-1-(3-((5-(cyclopropanecarbonyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one ;



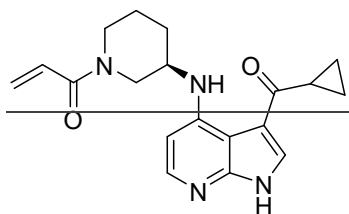
(*R*)-1-(3-((5-(cyclopentanecarbonyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one ;



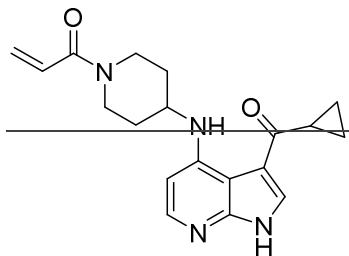
1-(3-((5-(cyclopropanecarbonyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)azetidin-1-yl)prop-2-en-1-one ;



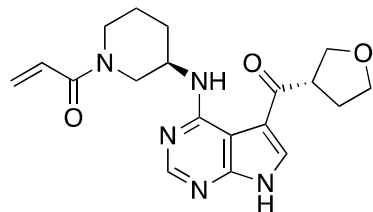
(*R*)-1-(3-((3-(3-methoxypropanoyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one ;



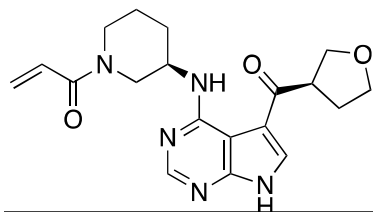
(*R*)-1-(3-((3-(cyclopropanecarbonyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one ;



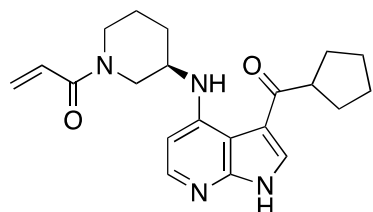
1-((3-(cyclopropanecarbonyl)-1H-pyrrolo[2,3-
b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-
one



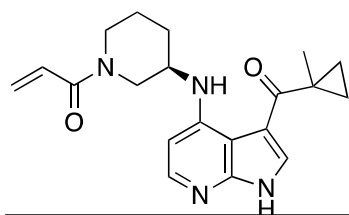
1-((R)-3-((S)-tetrahydrofuran-3-carbonyl)-7H-
pyrrolo[2,3-d]pyrimidin-4-yl)amino)piperidin-1-
yl)prop-2-en-1-one



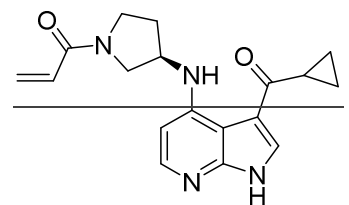
1-((R)-3-((R)-tetrahydrofuran-3-carbonyl)-7H-
pyrrolo[2,3-d]pyrimidin-4-yl)amino)piperidin-1-
yl)prop-2-en-1-one



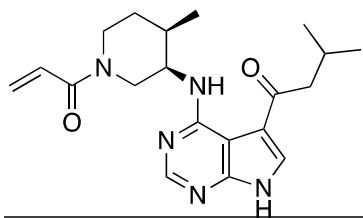
(R)-1-((3-(cyclopentanecarbonyl)-1H-
pyrrolo[2,3-b]pyridin-4-yl)amino)piperidin-1-
yl)prop-2-en-1-one



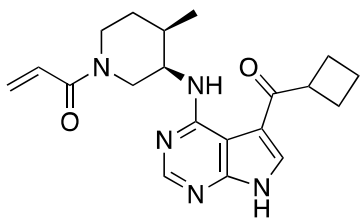
(R)-1-((3-(1-methylcyclopropane-1-carbonyl)-
1H-pyrrolo[2,3-b]pyridin-4-yl)amino)piperidin-1-
yl)prop-2-en-1-one



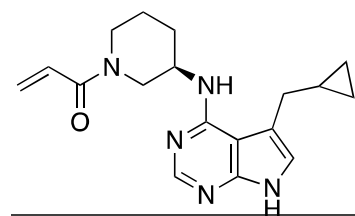
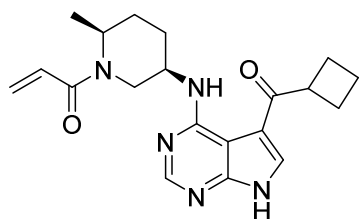
(R)-1-((3-(cyclopropanecarbonyl)-1H-
pyrrolo[2,3-b]pyridin-4-yl)amino)pyrrolidin-1-
yl)prop-2-en-1-one



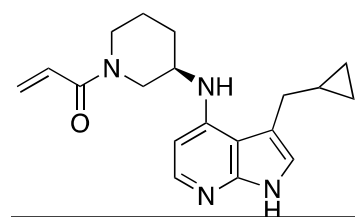
~~1-(4-(((3R,6S)-1-acryloyl-6-methylpiperidin-3-yl)amino)-7H-pyrrolo[2,3-d]pyrimidin-5-yl)-3-methylbutan-1-one~~ ;



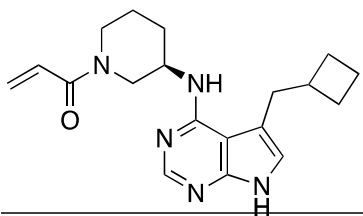
1-((2S,5R)-5-((5-(cyclobutanecarbonyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



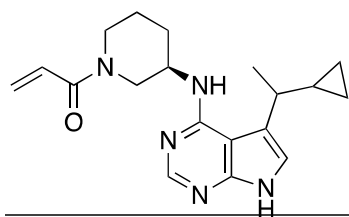
~~(R)-1-(3-((5-(cyclopropylmethyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one~~ ;



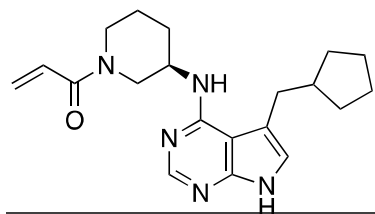
~~(R)-1-(3-((3-(cyclopropylmethyl)-1H-pyrrolo[2,3-b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one~~ ;



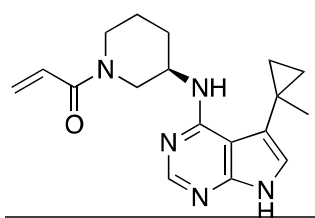
~~(R)-1-(3-((5-(cyclobutylmethyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one~~ ;



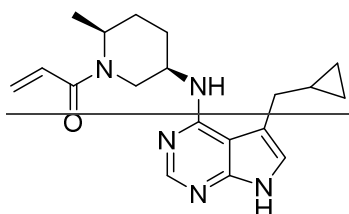
1-((3*R*)-3-((5-(1-cyclopropylethyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-
1-one



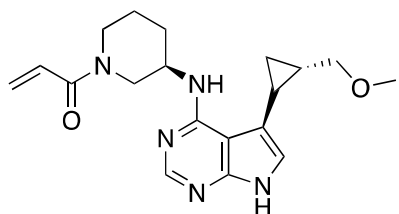
(*R*)-1-(3-((3-(cyclopentylmethyl)-1*H*-pyrrolo[2,3-
b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-
one



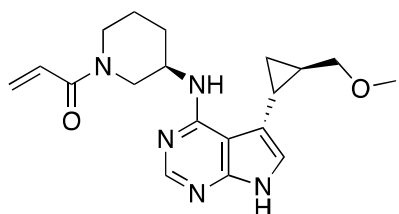
(*R*)-1-(3-((5-(1-methyleyclopropyl)-7*H*-
pyrrolo[2,3-d]pyrimidin-4-yl)amino)piperidin-1-
yl)prop-2-en-1-one



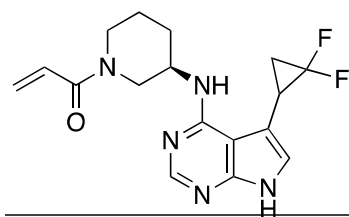
1-((2*S*,5*R*)-5-((5-(cyclopropylmethyl)-7*H*-
pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-
methylpiperidin-1-yl)prop-2-en-1-one



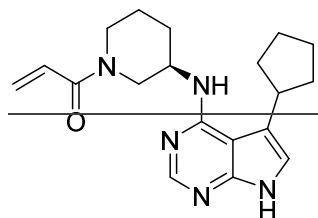
1-((*R*)-3-((5-((1*S*,2*S*)-2-
(methoxymethyl)cyclopropyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-
1-one



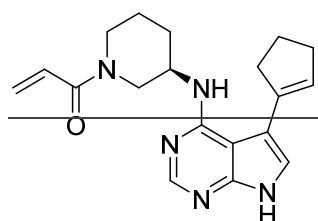
1-((*R*)-3-((5-((1*R*,2*R*)-2-
(methoxymethyl)cyclopropyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-
1-one



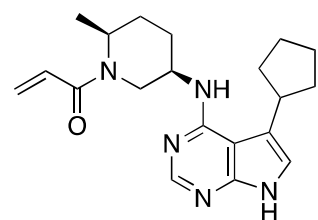
1-((3*R*)-3-((5-(2,2-difluorocyclopropyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-
yl)prop-2-en-1-one



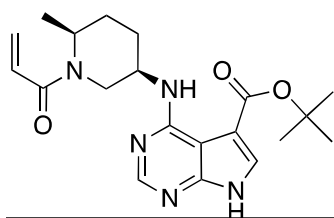
(*R*)-1-(3-((3-cyclopentyl-1*H*-pyrrolo[2,3-*b*]pyridin-
4-yl)amino)piperidin-1-yl)prop-2-en-1-one



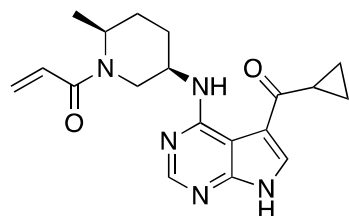
(*R*)-1-(3-((3-(cyclopent-1-en-1-yl)-1*H*-pyrrolo[2,3-
b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-
one



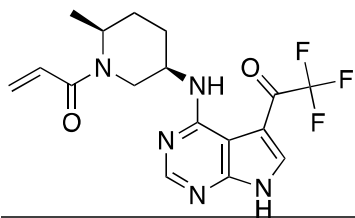
1-((2*S*,5*R*)-5-((5-cyclopentyl-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-
yl)prop-2-en-1-one



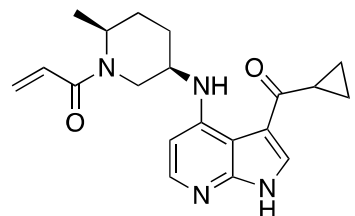
tert-butyl 4-(((3*R*,6*S*)-1-acryloyl-6-
methylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-
d]pyrimidine-5-carboxylate



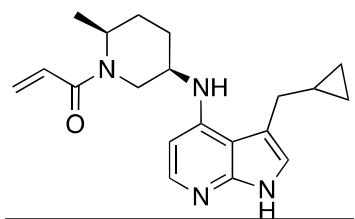
1-((2*S*,5*R*)-5-((5-(cyclopropanecarbonyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-
methylpiperidin-1-yl)prop-2-en-1-one



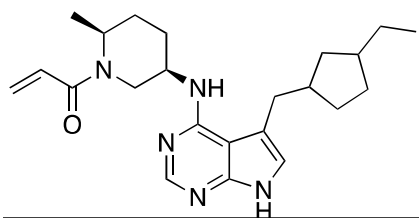
1-((2*S*,5*R*)-2-methyl-5-((5-(2,2,2-trifluoroacetyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



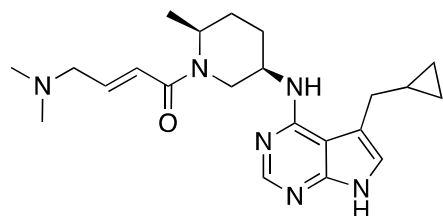
1-((2*S*,5*R*)-5-((3-(cyclopropanecarbonyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



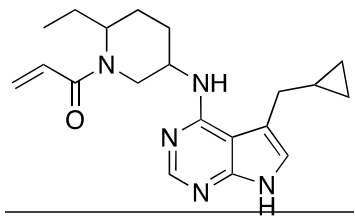
1-((2*S*,5*R*)-5-((3-(cyclopropylmethyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



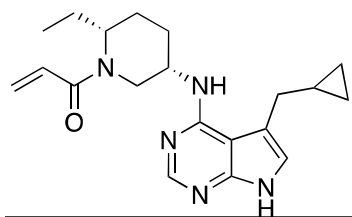
1-((2*S*,5*R*)-5-((5-((3-ethylcyclopentyl)methyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



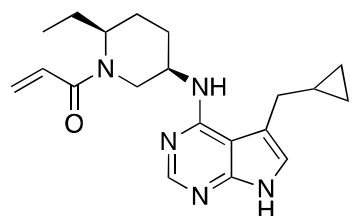
(*E*)-1-((2*S*,5*R*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(dimethylamino)but-2-en-1-one



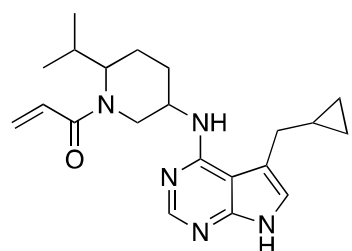
1-(5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-yl)prop-2-en-1-one



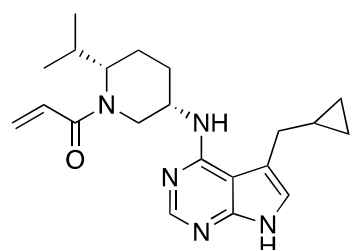
1-((2*R*,5*S*)-5-((5-(cyclopropylmethyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-
ethylpiperidin-1-yl)prop-2-en-1-one



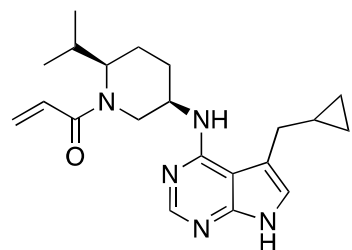
1-((2*S*,5*R*)-5-((5-(cyclopropylmethyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-
ethylpiperidin-1-yl)prop-2-en-1-one



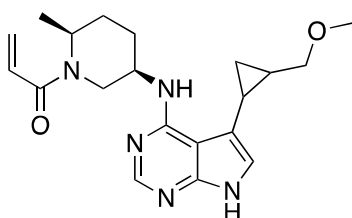
1-(5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-
yl)prop-2-en-1-one



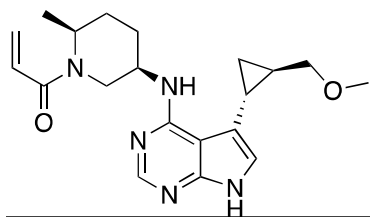
1-((2*S*,5*S*)-5-((5-(cyclopropylmethyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-
isopropylpiperidin-1-yl)prop-2-en-1-one



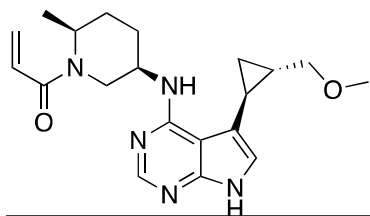
1-((2*R*,5*R*)-5-((5-(cyclopropylmethyl)-7*H*-
pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-
isopropylpiperidin-1-yl)prop-2-en-1-one



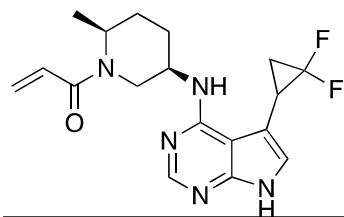
1-((2*S*,5*R*)-5-((5-(2-(methoxymethyl)cyclopropyl)-
7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-
methylpiperidin-1-yl)prop-2-en-1-one



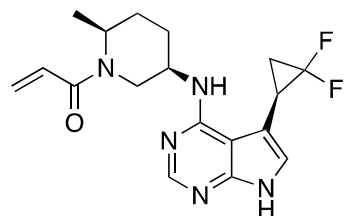
1-((2S,5R)-5-((5-((1R,2R)-2-(methoxymethyl)cyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



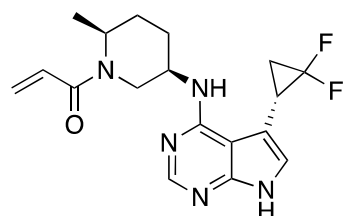
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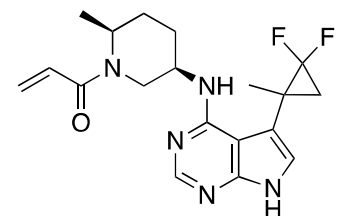
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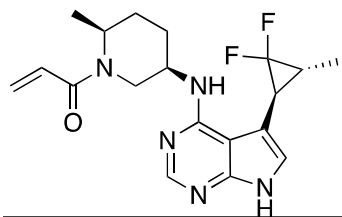
1-((2S,5R)-5-((5-((R)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



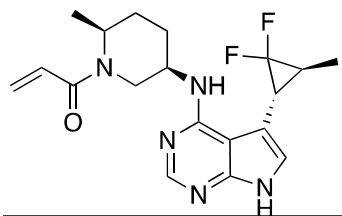
1-((2S,5R)-5-((5-((S)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



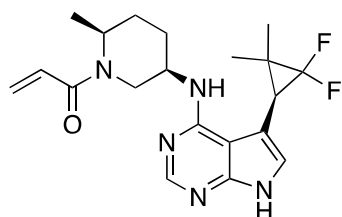
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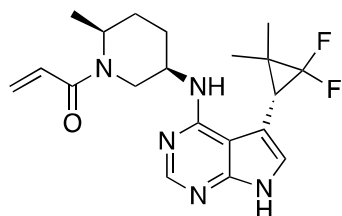
1-((2*S*,5*R*)-5-((5-((1*S*,3*R*)-2,2-difluoro-3-methylcyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



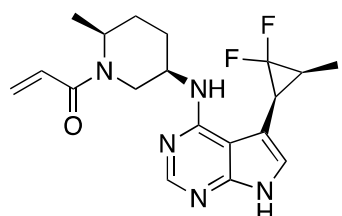
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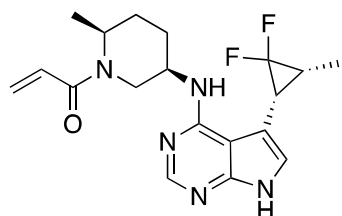
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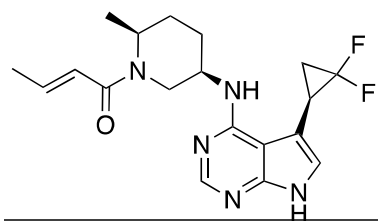
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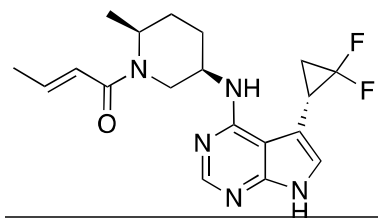
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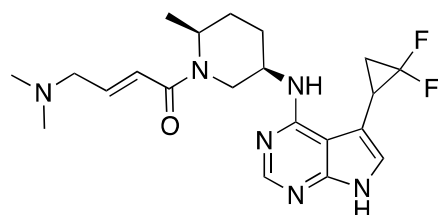
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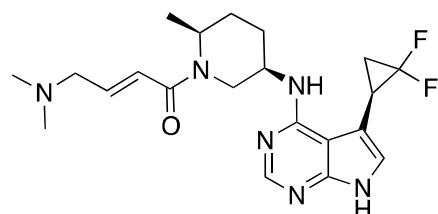
(*E*)-1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)but-2-en-1-one



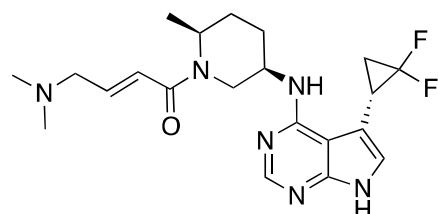
(*E*)-1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)but-2-en-1-one



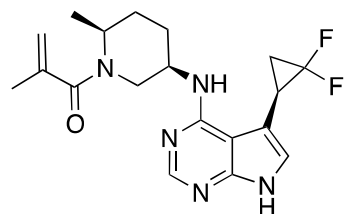
(*E*)-1-((2*S*,5*R*)-5-((5-(2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(dimethylamino)but-2-en-1-one



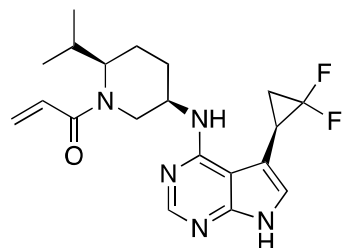
(*E*)-1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(dimethylamino)but-2-en-1-one



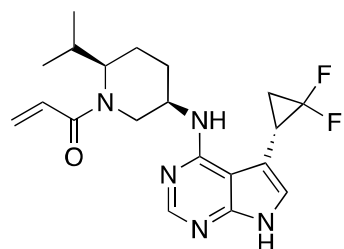
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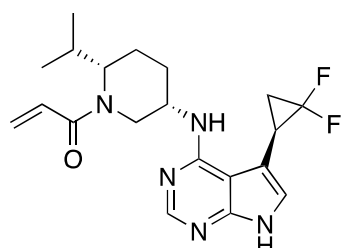
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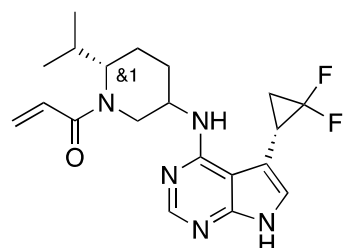
1-((2*R*,5*R*)-5-((5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one



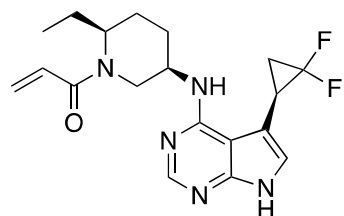
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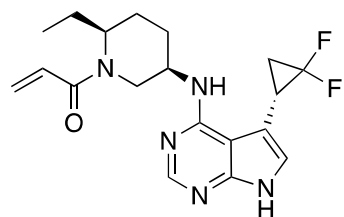
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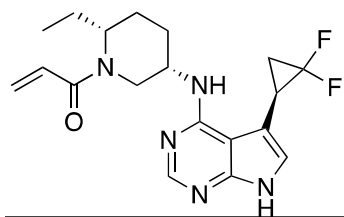
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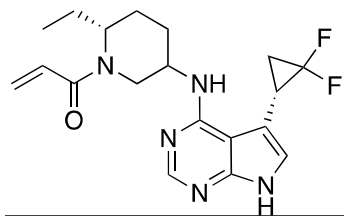
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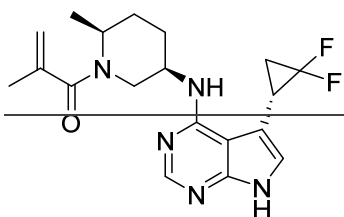
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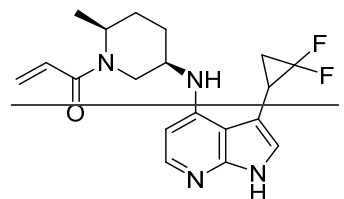
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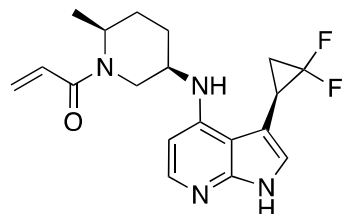
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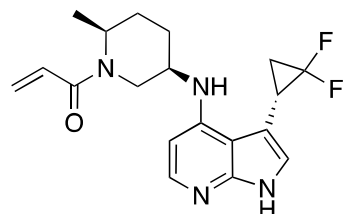
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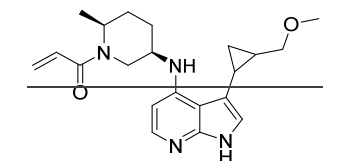
1-((2*S*,5*R*)-5-((3-(2,2-difluorocyclopropyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



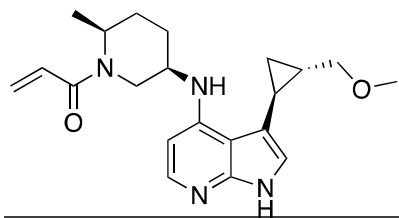
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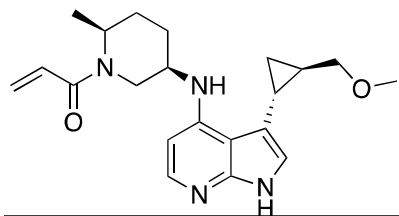
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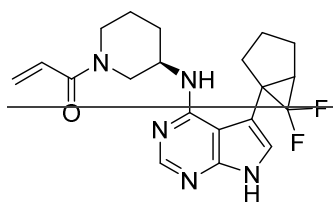
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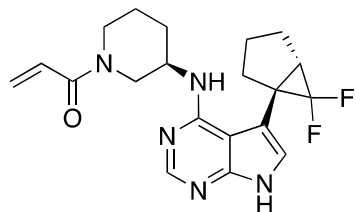
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b]pyridin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



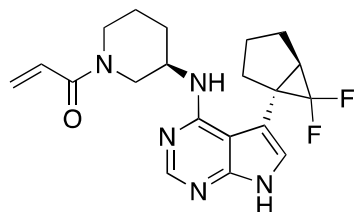
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b]pyridin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



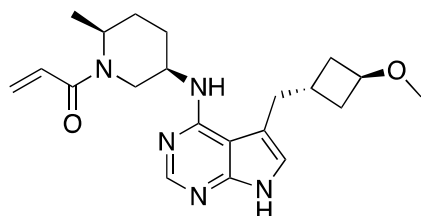
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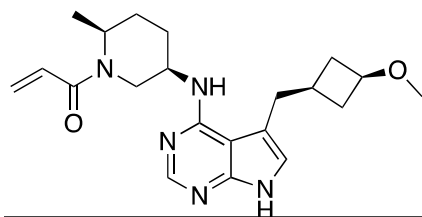
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d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



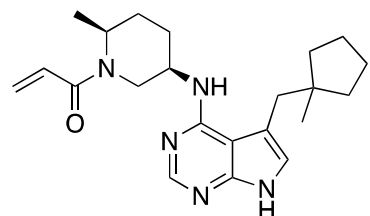
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d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



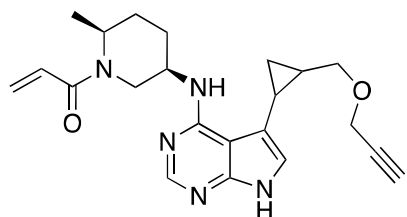
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d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



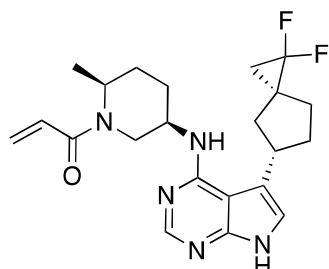
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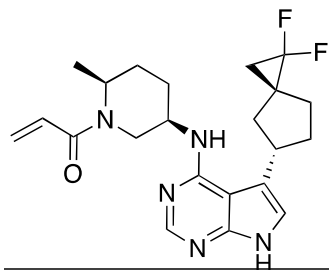
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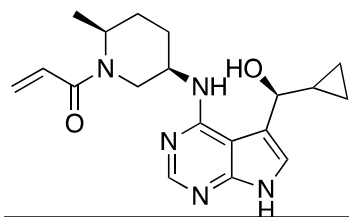
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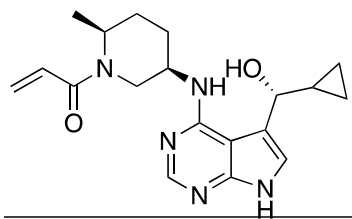
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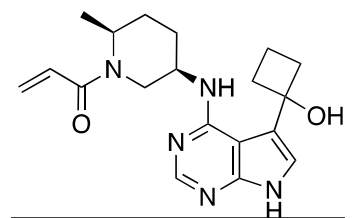
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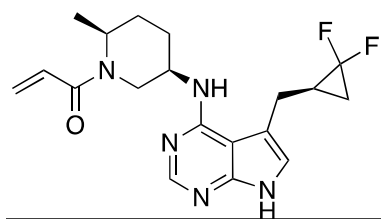
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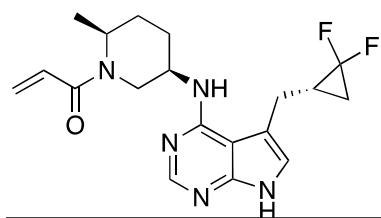
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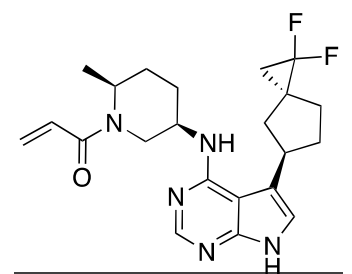
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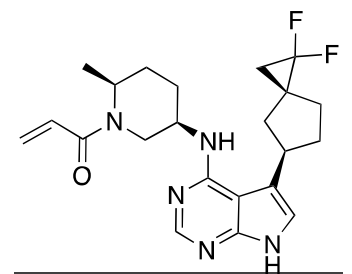
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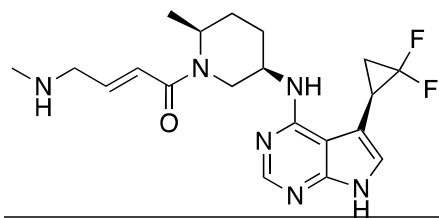
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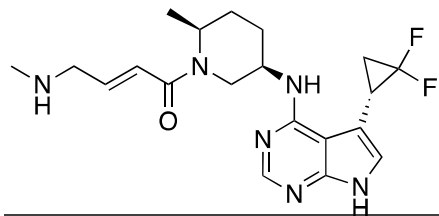
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1-((2*S*,5*R*)-5-((5-(((3*R*,5*R*)-1,1-difluorospiro[2.4]heptan-5-yl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one

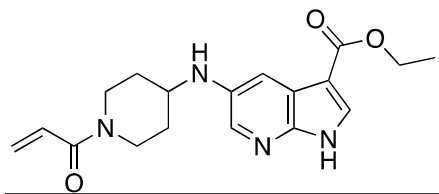


(*E*)-1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(methylamino)but-2-en-1-one and

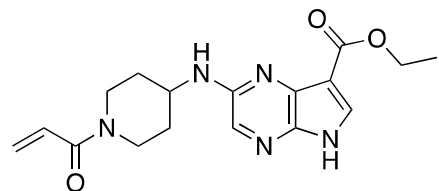


(*E*)-1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(methylamino)but-2-en-1-one

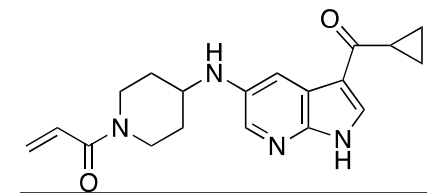
11. 13. The method compound of claim 8Claim 1, wherein the one or more compounds is a compound, or a derivative thereof, of Formula (III) selected from is:



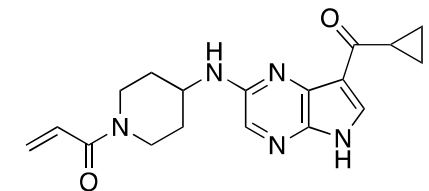
ethyl 5-((1-acryloylpiperidin-4-yl)amino)-1*H*-pyrrolo[2,3-*b*]pyridine-3-carboxylate



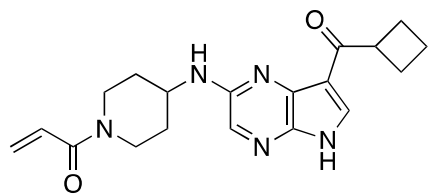
ethyl 2-((1-acryloylpiperidin-4-yl)amino)-5*H*-pyrrolo[2,3-*b*]pyrazine-7-carboxylate



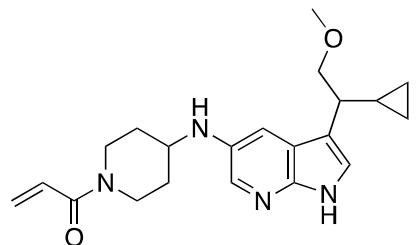
1-(4-((3-(cyclopropanecarbonyl)-1*H*-pyrrolo[2,3-*b*]pyridin-5-yl)amino)piperidin-1-yl)prop-2-en-1-one



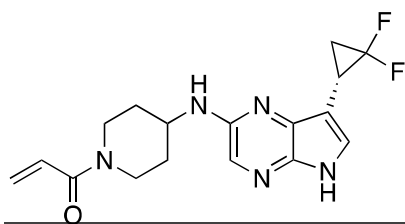
1-(4-((7-(cyclopropanecarbonyl)-5*H*-pyrrolo[2,3-*b*]pyrazin-2-yl)amino)piperidin-1-yl)prop-2-en-1-one



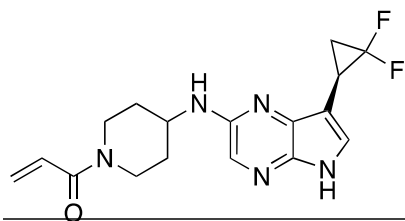
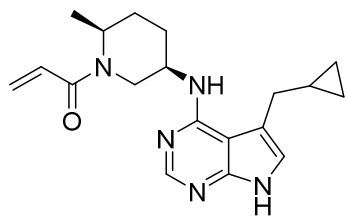
~~1-(4-((7-(cyclobutanecarbonyl)-5H-pyrrolo[2,3-b]pyrazin-2-yl)amino)piperidin-1-yl)prop-2-en-1-one~~



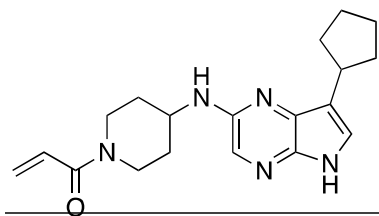
~~1-(4-((3-(1-cyclopropyl-2-methoxyethyl)-1H-pyrrolo[2,3-b]pyridin-5-yl)amino)piperidin-1-yl)prop-2-en-1-one~~



~~(S)-1-(4-((7-(2,2-difluorocyclopropyl)-5H-((2S,5R)-5-((5-(cyclopropylmethyl)-7H-pyrrolo[2,3-b]pyrazin-2-yl)pyrimidin-4-yl)amino)piperidin)-2-methylpiperidin-1-yl)prop-2-en-1-one~~



~~(R)-1-(4-((7-(2,2-difluorocyclopropyl)-5H-pyrrolo[2,3-b]pyrazin-2-yl)amino)piperidin-1-yl)prop-2-en-1-one~~



~~1-(4-((7-cyclopentyl)-5H-pyrrolo[2,3-b]pyrazin-2-yl)amino)piperidin-1-yl)prop-2-en-1-one~~

~~12. A method of treating an ITK-mediated or JAK3-mediated disorder in a subject in need thereof, comprising: administering to the subject one or more compounds selected from the compounds of Formula (I), Formula (II), Formula (III), Formula (IV), and~~

derivatives thereof in an amount effective to treat the ITK-mediated or JAK3-mediated disorder.

13. — 14. The method compound of elaim 12 Claim 1, wherein the subject is a human subject.

14. — The method according to claim 12, wherein the ITK-mediated or JAK3-mediated disorder is selected from an autoimmune disorder, a chronic and/or acute inflammatory disorder, auto-inflammatory disorder, arthritis, rheumatoid arthritis, juvenile rheumatoid arthritis, systemic-onset juvenile rheumatoid arthritis, systemic-onset juvenile idiopathic arthritis, Still's disease, adult-onset Still's disease, seronegative spondyloarthropathies, osteoarthritis, enthesitis, enthesopathy, infectious arthritis, Lyme disease, inflammatory arthritis, inflammatory bowel disease-associated arthritis, myositis, autoimmune myositis, carditis, myocarditis, dermatomyositis, juvenile dermatomyositis, idiopathic arthritis, juvenile idiopathic arthritis, systemic juvenile idiopathic arthritis, ankylosing spondylitis, gout, scleroderma, juvenile scleroderma, Reiter's syndrome, spondylitis, spondyloarthritis, spondyloarthropathy, lupus, systemic lupus erythematosus (SLE), pediatric systemic lupus erythematosus, cutaneous lupus, subacute cutaneous lupus, chronic cutaneous lupus, discoid lupus, psoriatic arthritis, reactive arthritis, Sjogren's syndrome, polymyositis, polymyalgia rheumatica, mixed connective tissue disease, vasculitis, large vessel vasculitis, small vessel vasculitis, vasculitis syndromes including Takayasu's arteritis, Wegener's granulomatosis, giant cell arteritis, polyarteritis nodosa, sarcoidosis, familial Mediterranean fever, a Cryopyrin-associated periodic syndrome, Muckle-Wells syndrome, familial cold auto-inflammatory syndrome, neonatal-onset multisystem inflammatory disease, TNF receptor-associated periodic syndrome, gastrointestinal disorders, inflammatory bowel disease, irritable bowel syndrome, spastic colon, Crohn's disease, ulcerative colitis, acute and chronic pancreatitis, celiac disease, primary biliary cirrhosis, primary sclerosing cholangitis, periodontitis, gingivitis, esophagitis, gastritis, eosinophilic gastritis, gastric and duodenal ulcers, peritonitis, enteritis, colitis, pulmonary respiratory disorders, pulmonary inflammation, sinusitis, rhinitis, pneumonia, bronchitis, pulmonary fibrosis, idiopathic pulmonary fibrosis, asthma, bronchial asthma, allergic asthma, eosinophilic asthma, Churg-Strauss syndrome, bronchiolitis, bronchiolitis obliterans, chronic obstructive pulmonary disease (COPD), interstitial lung disease, endocrinologic disorders, diabetes, Type I diabetes, Hashimoto's thyroiditis, Graves' disease, Addison's disease, autoimmune hemolytic

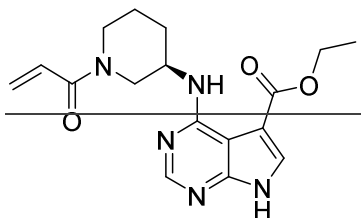
~~anemia, autoimmune atrophic gastritis of pernicious anemia, autoimmune encephalomyelitis, autoimmune orchitis, Goodpasture's disease, autoimmune thrombocytopenia, sympathetic ophthalmia, neurological/ neuromuscular disorders, neurodegenerative disorders, multiple sclerosis Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis (ALS), familial ALS, Alzheimer's disease, myasthenia gravis (Lambert Eaton myasthenic syndrome (LEMS)), Guillain Barret syndrome, meningitis, encephalitis, traumatic brain injury, nephropathies, immunologically mediated glomerulonephropathy, autoimmune nephropathy, membranous glomerulopathy, chronic progressive nephropathies, diabetic nephropathy, renal fibrosis, ischemic/reperfusion injury associated, HIV associated nephropathy, ureteral obstructive nephropathy, glomerulosclerosis, proteinuria, nephrotic syndrome, polycystic kidney disease, autosomal dominant polycystic kidney disease, diabetic kidney disease, ocular disorders, dry eye, uveitis, keratoconjunctivitis sicca, scleritis, episcleritis, keratitis, keratopathy, chorditis, retinal vasculitis, optic neuritis, retinopathy, diabetic retinopathy, immune mediated retinopathy, macular degeneration, wet macular degeneration, dry (age related) macular degeneration, ocular malignancies, allergy and allergic reactions including hypersensitivity reactions, Type I hypersensitivity reactions, anaphylaxis, Type II hypersensitivity reactions, Goodpasture's Disease, autoimmune hemolytic anemia, Type III hypersensitivity reaction diseases, the Arthus reaction, serum sickness, Type IV hypersensitivity reactions, contact dermatitis, allograft rejection, disorders of fibrosis and scarring, hepatic fibrosis, pulmonary fibrosis, idiopathic pulmonary fibrosis, low grade scarring, scleroderma, increased fibrosis, keloids, post surgical scars, dermatologic disorders, psoriasis, atopy, atopic dermatitis, acne, acne vulgaris, comedonal acne, inflammatory acne, nodulo cystic acne, scarring acne, acne keloidalis nuchae, hidradenitis suppurativa, neutrophilic dermatoses, pyoderma gangrenosum, acute febrile neutrophilic dermatosis (Sweet's syndrome), erythema elevatum diutinum (EED), neutrophilic eccrine hidradenitis, histiocytoid neutrophilic dermatosis, bowel bypass syndrome dermatosis, Behcet's disease, palisading neutrophilic granulomatous dermatitis neutrophilic urticarial dermatosis, alopecia, nonscarring alopecia, alopecia areata (AA), patchy AA, alopecia totalis (AT), alopecia universalis (AU), androgenetic alopecia (AGA), male and female pattern AGA, ophiasis pattern alopecia areata, sisaihp pattern alopecia areata, telogen effluvium, tinea capitis, hypotrichosis, hereditary hypotrichosis simplex, scarring alopecia, lichen planopilaris, central~~

centrifugal cicatricial alopecia, frontal fibrosing alopecia, eyebrow alopecia, intranasal hair alopecia, vitiligo, segmental vitiligo, unisegmental vitiligo, bisegmental vitiligo, multisegmental vitiligo, non-segmental vitiligo, acral vitiligo, facial vitiligo, acrofacial vitiligo, centrofacial vitiligo, mucosal vitiligo, confetti vitiligo, trichrome vitiligo, marginal inflammatory vitiligo, quadrichrome vitiligo, blue vitiligo, Koebner phenomenon, vulgaris vitiligo, generalized vitiligo, universal vitiligo, mixed vitiligo (nonsegmental associated with segmental vitiligo), focal vitiligo, solitary mucosal vitiligo, vitiligo with leukotrichia, vitiligo without leukotrichia, immunobullous diseases, bullous pemphigoid, cicatricial pemphigoid, pemphigus vulgaris, linear IgA disease, dermatologic drug reactions, pruritus (itch), atopic pruritus, xerotic pruritus, pruritus associated with psoriasis (psoriatic itch), acute pruritus, chronic pruritus, idiopathic pruritus, chronic idiopathic itch, hepatobiliary associated itch, renal associated itch, lichen simplex chronicus associated pruritus, prurigo nodularis, Type II diabetes, hypophysitis, idiopathic thrombocytopenic purpura, metal induced autoimmunity, autoimmune deafness, Meniere's disease, interstitial cystitis, enterocolitis, ocular inflammation, non-small cell lung carcinoma, skin cancer, organ transplant rejection, bone marrow transplant rejection, graft vs. host reaction, graft vs. host disease, allograft rejections, acute allograft rejection, chronic allograft rejection, early transplantation, diabetes, a myeloproliferative disorder, a rejection, bone resorption diseases, asthma, bronchial asthma, atopy, autoimmune thyroid disorders, chronic atypical neutrophilic dermatosis with lipodystrophy and elevated temperature syndrome (CANDLE Syndrome), SAVI (stimulator of interferon genes (STING) associated vasculopathy with onset in infancy), nephropathies, myocarditis, secondary hematologic manifestations of autoimmune diseases, anemias, autoimmune hemolytic syndromes, autoimmune and inflammatory hepatitis, autoimmune ovarian failure, autoimmune orchitis, autoimmune thrombocytopenia, silicone implant associated autoimmune disease, drug induced autoimmunity, HIV related autoimmune syndromes; acute and chronic infection, sepsis syndromes, sepsis, septic shock, endotoxic shock, exotoxin-induced toxic shock, gram negative sepsis, gram positive sepsis, fungal sepsis, toxic shock syndrome; hyperoxia induced inflammations, reperfusion injury, post surgical trauma, tissue injury, pain, acute pain, chronic pain, neuropathic pain, or fibromyalgia; autoimmune disorders, chronic inflammatory disorders, acute inflammatory disorders, auto-inflammatory disorders, fibrotic disorders, metabolic disorders, neoplasias, or cardiovascular or cerebrovascular disorders, a skin disorder, pruritus, a hair loss

~~disorder, a cancer, a neoplasm, an inflammatory condition, connective tissue diseases and an autoimmune condition, a neoplasm, a malignancy, a myeloproliferative disorder, a hematopoietic neoplasm, a myeloid neoplasm, a lymphoid neoplasm, including myelofibrosis, primary myelofibrosis, polycythemia vera, essential thrombocythemia, acute and chronic leukemias, lymphomas, cutaneous lymphomas including mycosis fungoides, other myeloid malignancies, and myelodysplastic syndrome, atopic dermatitis, psoriasis, psoriasis vulgaris, skin sensitization, skin irritation, skin rash, contact dermatitis, allergic contact sensitization, allergic dermatitis, inflammatory dermatoses, neutrophilic dermatoses, pruritis, atopic itch, atopic dermatitis-associated itch, autoimmune responses, autoimmune connective tissue disease, bacterial infection, biliary itch, broad activation of the immune responses, body louse, bullous diseases, brachioradial pruritus, brain tumors, chronic idiopathic pruritus, contact dermatitis, cholestasis, cutaneous larva migrans, cutaneous T-cell lymphoma, nervous system damage, dandruff, delusional parasitosis, dermatomyositis, dermatosis of pregnancy, diabetes mellitus, drug eruptions, dysregulation of neuronal processes and sensory perception, eczema, eosinophilic folliculitis, foreign objects or devices on skin, fungal infection, gestational pemphigoid, head lice, herpes, hidradenitis suppurativa, pyoderma gangrenosum, hives, Hodgkin's disease, hyperparathyroidism, idiopathic chronic itch, inflammation, insect infestation, insect bites, insect stings, intrahepatic cholestasis of pregnancy, iron deficiency anemia, increased accumulation of exogenous opioids or synthetic opioids, internal cancer, jaundice, lichen planus, lichen sclerosus, lupus erythematosus, lymphoma, lymphoma-associated itch, leukemia-associated itch, malignancy, mastocytosis, menopause, multiple sclerosis, neoplasm, nerve irritation, neurogenic itch, neuropathic itch, notalgia paresthetica, notalgia obsessional-compulsive disorders, paresthetica, parasitic infection, popular urticaria, pediculosis, peripheral neuropathy, photodermatitis, polycythemia vera, psychiatric disease, psychogenic itch, pruritic popular eruption of HIV, pruritic urticarial papules and plaques of pregnancy (PUPP), psoriasis-associated itch, psoriatic itch, pubic lice, punctate palmoplantar keratoderma, renal itch, rheumatoid arthritis, scabies, scar growth, shaving, seborrheic dermatitis, stasis dermatitis, sunburn, swimmer's itch, systemic immune senescence, tactile hallucinations, Th17-associated inflammation, thyroid illness, uremia, uremic itch, urticaria, urticarial itch, varicella, viral infection, wound or scab healing, xerosis, chilblain lupus erythematosus, polychondritis, relapsing polychondritis, an immunologically mediated nephropathy, prostate cancer,~~

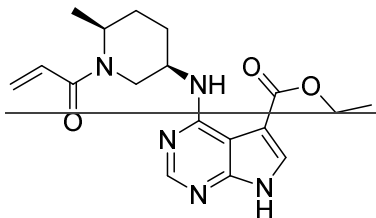
renal cancer, hepatic cancer, breast cancer, thyroid cancer, Kaposi's sarcoma, Castleman's disease, pancreatic cancer, lymphoma, leukemia, multiple myeloma, polycythemia vera (PV), essential thrombocythemia (ET), myeloid metaplasia with myelofibrosis (MMM), primary myelofibrosis (PMF), chronic myelogenous leukemia (CML), chronic myelomonocytic leukemia (CMML), hypereosinophilic syndrome (HES), idiopathic myelofibrosis (IMF), systemic mast cell disease (SMCD), systemic sclerosis/scleroderma, lupus nephritis, wound healing, surgical scarring, spinal cord injury, CNS scarring, acute lung injury, cystic fibrosis, adult respiratory distress syndrome, acute lung injury, drug induced lung injury, glomerulonephritis, chronic kidney disease, diabetic nephropathy, hypertension induced nephropathy, alimentary track or gastrointestinal fibrosis, hepatic or biliary fibrosis, liver fibrosis, nonalcoholic steatohepatitis, hepatitis C, or hepatocellular carcinoma, cirrhosis, primary biliary cirrhosis or cirrhosis due to fatty liver disease, alcoholic steatosis, nonalcoholic steatosis, radiation induced fibrosis, head and neck fibrosis, gastrointestinal fibrosis, pulmonary fibrosis, primary sclerosing cholangitis, restenosis, cardiac fibrosis, endomyocardial fibrosis, atrial fibrosis, ophthalmic scarring, fibrosclerosis, fibrotic cancers, fibroids, fibroma, fibroadenomas, fibrosarcomas, transplant arteriopathy, mediastinal fibrosis, myelofibrosis, retroperitoneal fibrosis, progressive massive fibrosis, nephrogenic systemic fibrosis, obesity, steroid resistance, glucose intolerance, metabolic syndrome, angiogenesis disorders, multiple myeloma, leukemias, acute lymphocytic leukemia, acute and chronic myelogenous leukemia, chronic lymphocytic leukemia, acute lymphoblastic leukemia, promyelocytic leukemia, lymphomas, B cell lymphoma, T cell lymphoma, mantle cell lymphoma, hairy cell lymphoma, Burkitt's lymphoma, mast cell tumors, Hodgkin's disease, non Hodgkin's disease, myelodysplastic syndrome, fibrosarcoma, rhabdomyosarcoma; astrocytoma, neuroblastoma, glioma and schwannomas; melanoma, seminoma, teratocarcinoma, osteosarcoma, xeroderma pigmentosum, keratoacanthoma, thyroid follicular cancer, Kaposi's sarcoma, melanoma, teratoma, rhabdomyosarcoma, metastatic and bone disorders, as well as cancer of the bone, mouth/pharynx, esophagus, larynx, stomach, intestine, colon, rectum, liver, nerve, brain, glioma, glioblastoma multiforme, head and neck, throat, ovary, uterus, testis, bladder, kidney, gall bladder, cervix, atherosclerosis, restenosis of an atherosclerotic coronary artery, acute coronary syndrome, myocardial infarction, cardiac allograft vasculopathy, stroke, spinal cord injury, neuronal ischemia, peripheral neuropathy, and a combination thereof.

15. ~~The method of claim 12, wherein the one or more compounds is a compound compound, or a derivative thereof of Formula (I) selected from, is:~~



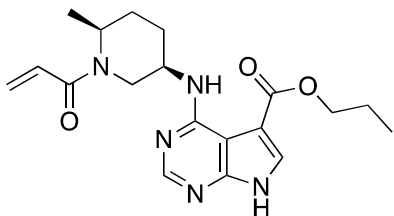
ethyl (*R*)-4-((1-acryloylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate

5



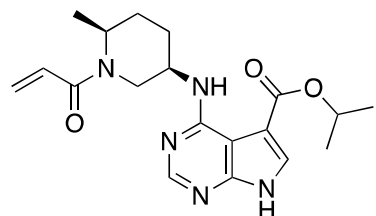
ethyl 4-(((3*R*,6*S*)-1-acryloyl-6-methylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate

5



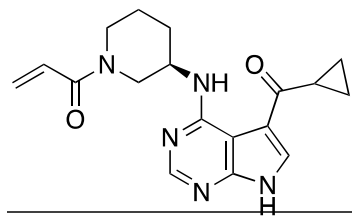
propyl 4-(((3*R*,6*S*)-1-acryloyl-6-methylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate

5



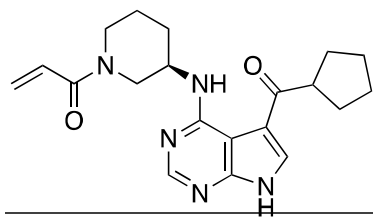
isopropyl 4-(((3*R*,6*S*)-1-acryloyl-6-methylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate

5



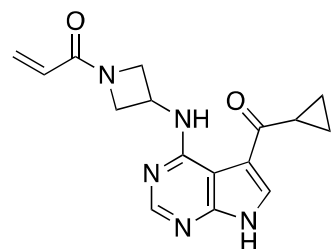
(*R*)-1-(3-((5-(cyclopropanecarbonyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one

5

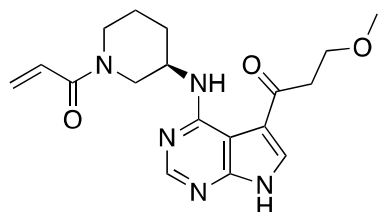


(*R*)-1-(3-((5-(cyclopentanecarbonyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one

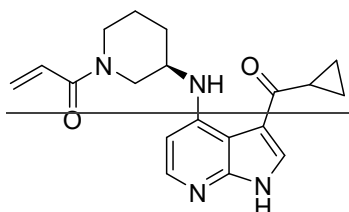
5



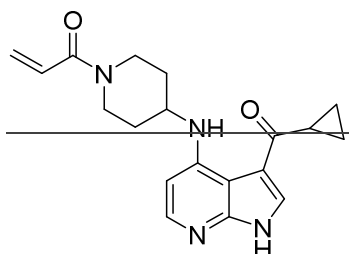
1-(3-((5-(cyclopropanecarbonyl)-7H-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)azetidin-1-yl)prop-2-en-1-one



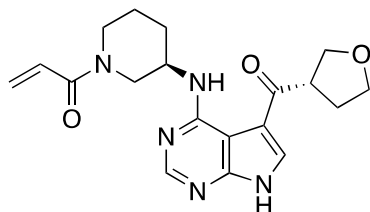
(R)-1-(3-((3-(3-methoxypropanoyl)-1H-pyrrolo[2,3-
b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



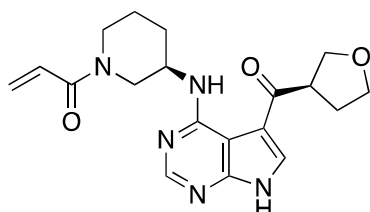
(R)-1-(3-((3-(cyclopropanecarbonyl)-1H-pyrrolo[2,3-
b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



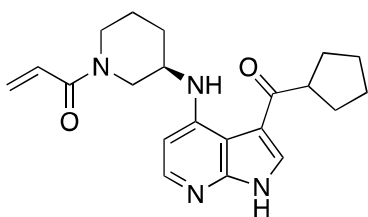
1-(4-((3-(cyclopropanecarbonyl)-1H-pyrrolo[2,3-
b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



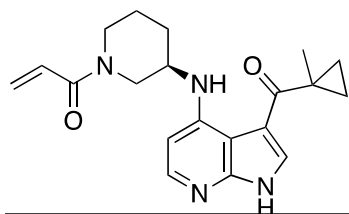
1-((R)-3-((5-((S)-tetrahydrofuran-3-carbonyl)-7H-
pyrrolo[2,3-d]pyrimidin-4-yl)amino)piperidin-1-
yl)prop-2-en-1-one



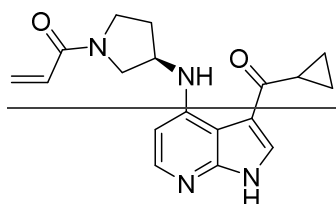
1-((R)-3-((5-((R)-tetrahydrofuran-3-carbonyl)-7H-
pyrrolo[2,3-d]pyrimidin-4-yl)amino)piperidin-1-
yl)prop-2-en-1-one



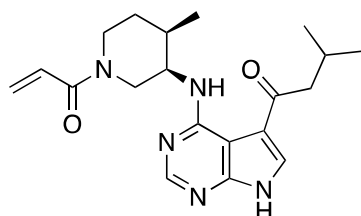
~~(R)-1-(3-((3-(cyclopentanecarbonyl)-1H-pyrrolo[2,3-b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one~~



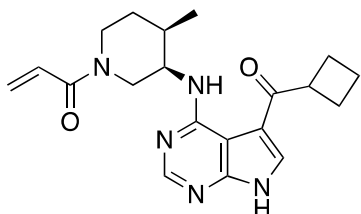
~~(R)-1-(3-((3-(1-methylcyclopropane-1-carbonyl)-1H-pyrrolo[2,3-b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one~~



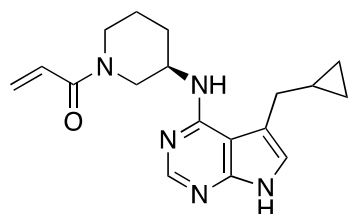
~~(R)-1-(3-((3-(cyclopropanecarbonyl)-1H-pyrrolo[2,3-b]pyridin-4-yl)amino)pyrrolidin-1-yl)prop-2-en-1-one~~



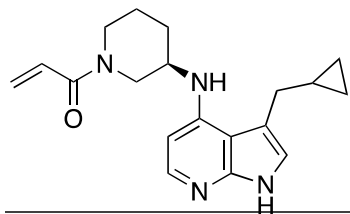
~~1-(4-(((3R,6S)-1-acryloyl-6-methylpiperidin-3-yl)amino)-7H-pyrrolo[2,3-d]pyrimidin-5-yl)-3-methylbutan-1-one~~



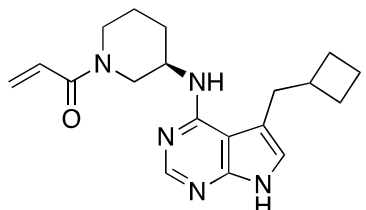
~~1-((2S,5R)-5-((5-(cyclobutanecarbonyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one~~



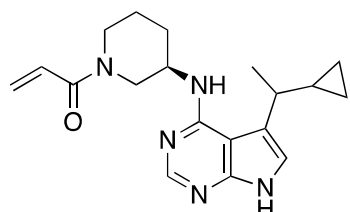
~~(R)-1-(3-((5-(cyclopropylmethyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one~~



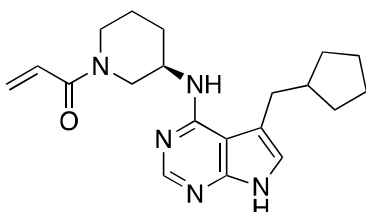
(R)-1-(3-((3-(cyclopropylmethyl)-1H-pyrrolo[2,3-b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



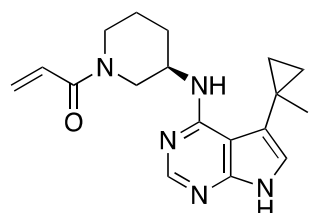
(R)-1-(3-((5-(cyclobutylmethyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



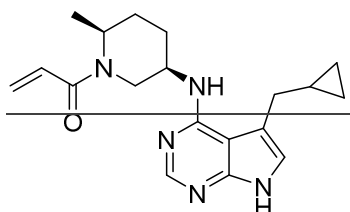
1-((3R)-3-((5-(1-cyclopropylethyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



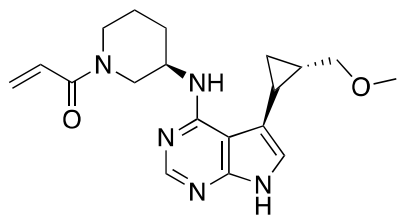
(R)-1-(3-((3-(cyclopentylmethyl)-1H-pyrrolo[2,3-b]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



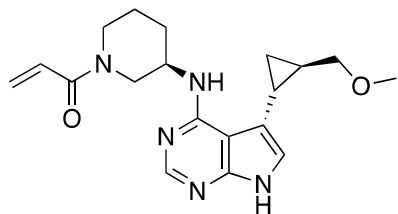
(R)-1-(3-((5-(1-methylecyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



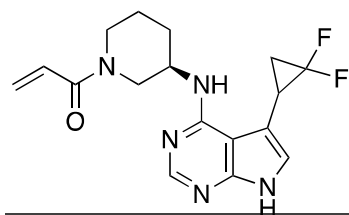
1-((2S,5R)-5-((5-(cyclopropylmethyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



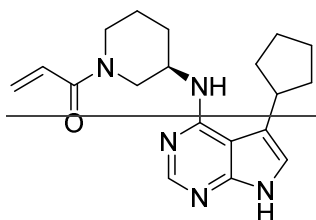
1-((*R*)-3-((5-((1*S*,2*S*)-2-(methoxymethyl)cyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



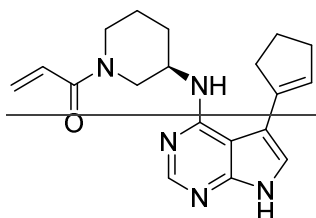
1-((*R*)-3-((5-((1*R*,2*R*)-2-(methoxymethyl)cyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



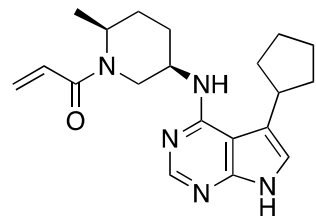
1-((3*R*)-3-((5-(2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



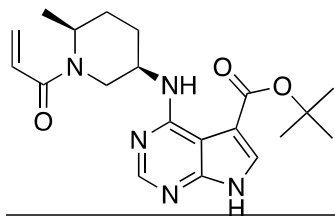
(*R*)-1-(3-((3-cyclopentyl-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



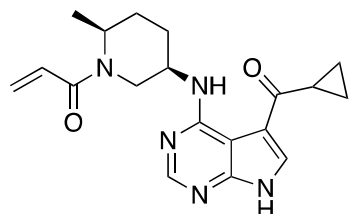
(*R*)-1-(3-((3-(cyclopent-1-en-1-yl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



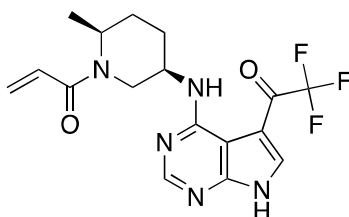
1-((2*S*,5*R*)-5-((5-cyclopentyl-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



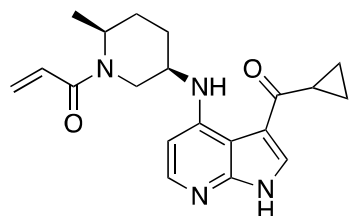
tert-butyl 4-(((3*R*,6*S*)-1-acryloyl-6-methylpiperidin-3-yl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylate



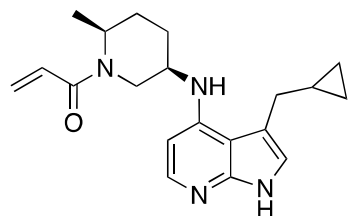
1-((2*S*,5*R*)-5-((5-(cyclopropanecarbonyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



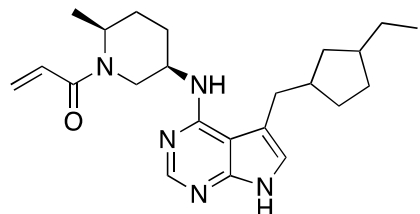
1-((2*S*,5*R*)-2-methyl-5-((5-(2,2,2-trifluoroacetyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



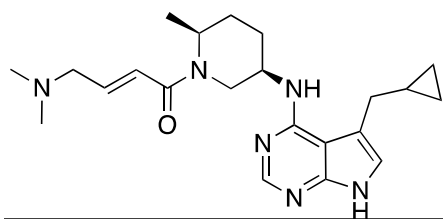
1-((2*S*,5*R*)-5-((3-(cyclopropanecarbonyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



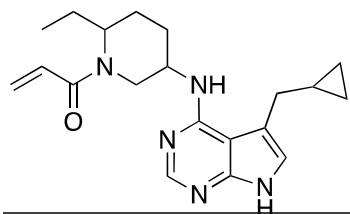
1-((2*S*,5*R*)-5-((3-(cyclopropylmethyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



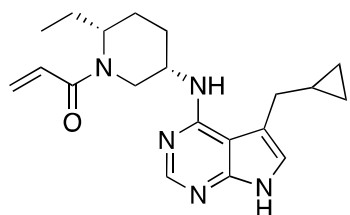
1-((2*S*,5*R*)-5-((3-((3-ethylcyclopentyl)methyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



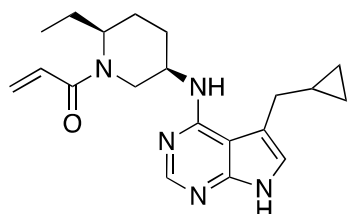
(*E*)-1-((2*S*,5*R*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(dimethylamino)but-2-en-1-one ;



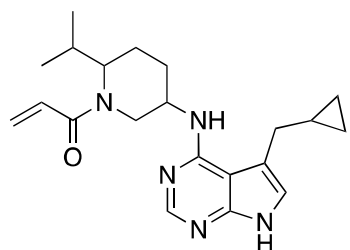
1-(5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-yl)prop-2-en-1-one ;



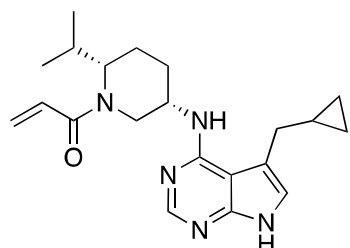
1-((2*R*,5*S*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-yl)prop-2-en-1-one ;



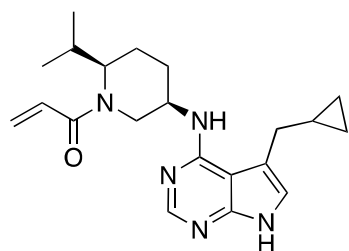
1-((2*S*,5*R*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-yl)prop-2-en-1-one ;



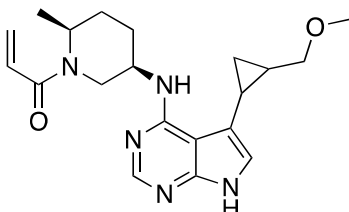
1-(5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one ;



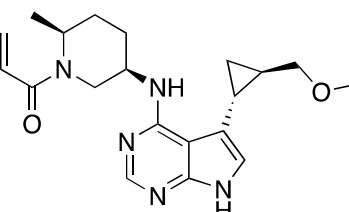
1-((2*S*,5*S*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one ;



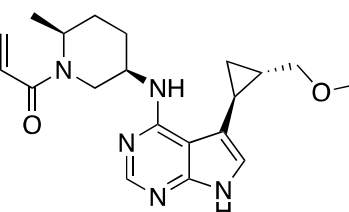
1-((2*R*,5*R*)-5-((5-(cyclopropylmethyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-
yl)prop-2-en-1-one



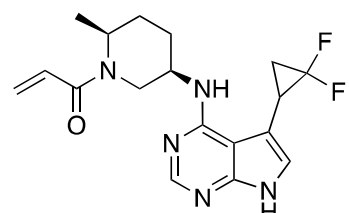
1-((2*S*,5*R*)-5-((5-(2-(methoxymethyl)cyclopropyl)-7*H*-
pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-
1-yl)prop-2-en-1-one



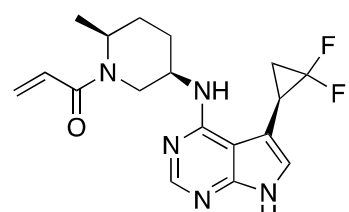
1-((2*S*,5*R*)-5-((5-((1*R*,2*R*)-2-
(methoxymethyl)cyclopropyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-
en-1-one



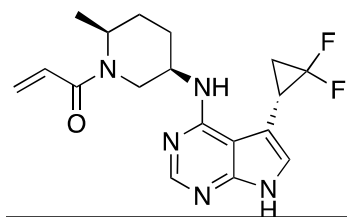
1-((2*S*,5*R*)-5-((5-((1*S*,2*S*)-2-
(methoxymethyl)cyclopropyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-
en-1-one



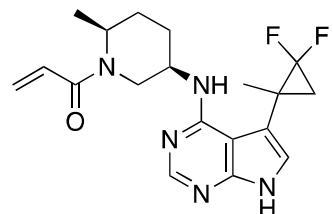
1-((2*S*,5*R*)-5-((5-(2,2-difluorocyclopropyl)-7*H*-
pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-
1-yl)prop-2-en-1-one



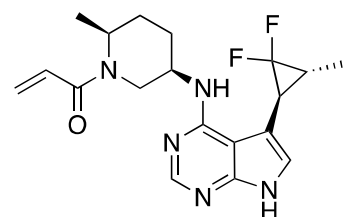
1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluorocyclopropyl)-7*H*-
pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-
yl)prop-2-en-1-one



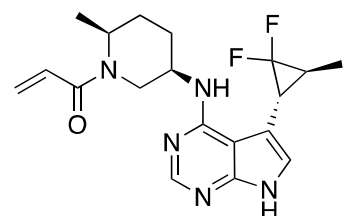
1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



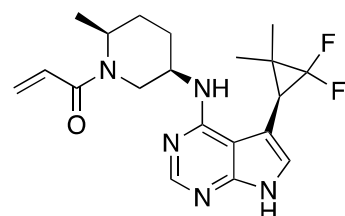
1-((2*S*,5*R*)-5-((5-(2,2-difluoro-1-methylecyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



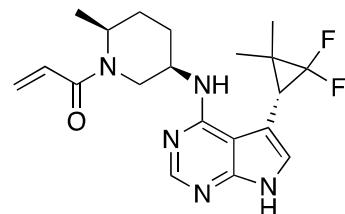
1-((2*S*,5*R*)-5-((5-((1*S*,3*R*)-2,2-difluoro-3-methylecyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



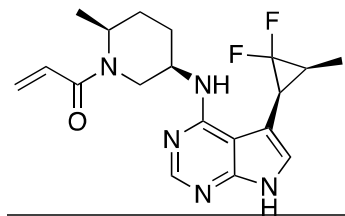
1-((2*S*,5*R*)-5-((5-((1*R*,3*S*)-2,2-difluoro-3-methylecyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



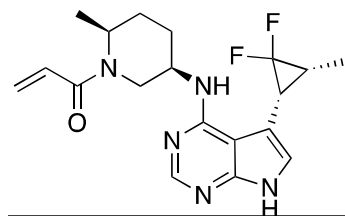
1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluoro-3,3-dimethylecyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



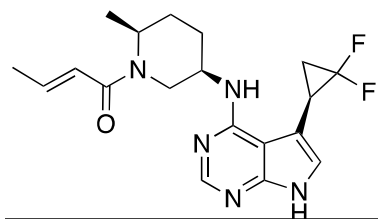
1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluoro-3,3-dimethylecyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



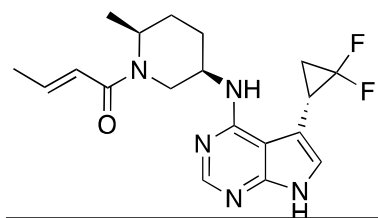
1-((2S,5R)-5-((5-((1S,3S)-2,2-difluoro-3-methylcyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



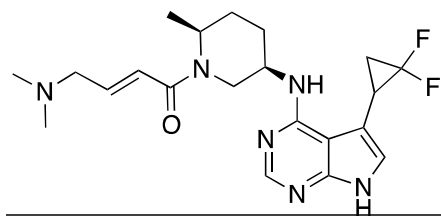
1-((2S,5R)-5-((5-((1R,3R)-2,2-difluoro-3-methylcyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



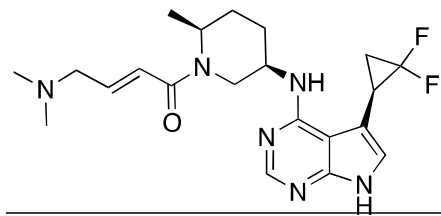
(E)-1-((2S,5R)-5-((5-((R)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)but-2-en-1-one ;



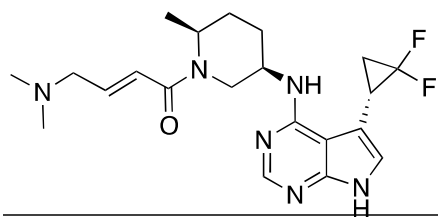
(E)-1-((2S,5R)-5-((5-((S)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)but-2-en-1-one ;



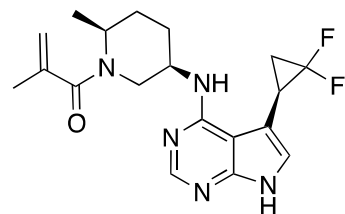
(E)-1-((2S,5R)-5-((5-(2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(dimethylamino)but-2-en-1-one ;



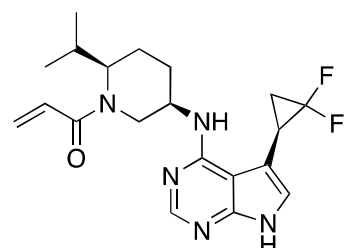
(E)-1-((2S,5R)-5-((5-((R)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(dimethylamino)but-2-en-1-one ;



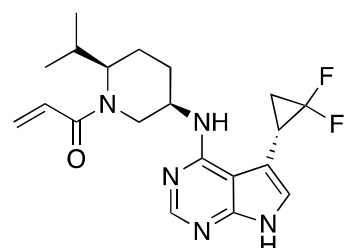
~~(E)-1-((2S,5R)-5-((5-((S)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(dimethylamino)but-2-en-1-one~~ ;



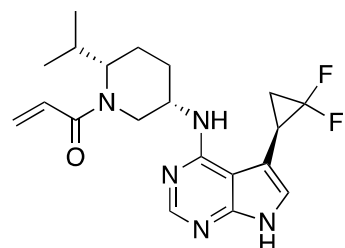
~~1-((2S,5R)-5-((5-((R)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-2-methylprop-2-en-1-one~~ ;



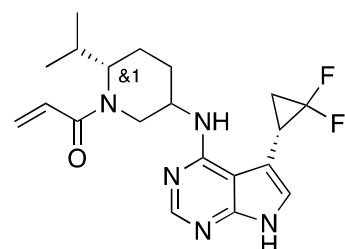
~~1-((2R,5R)-5-((5-((R)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one~~ ;



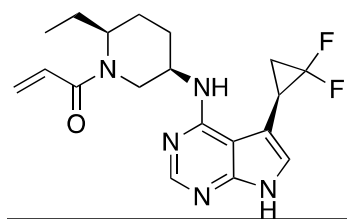
~~1-((2R,5R)-5-((5-((S)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one~~ ;



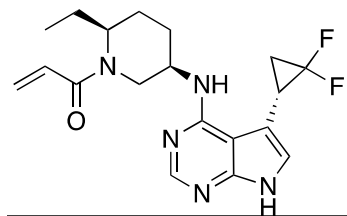
~~1-((2S,5S)-5-((5-((R)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one~~ ;



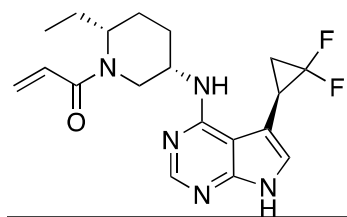
~~1-((2S)-5-((5-((S)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one~~ ;



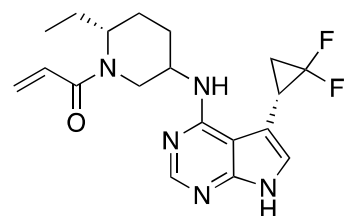
1-((2*S*,5*R*)-5-((5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-yl)prop-2-en-1-one ;



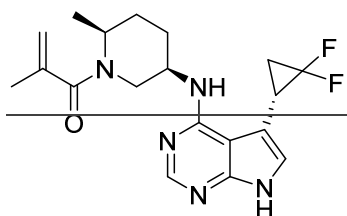
1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-yl)prop-2-en-1-one ;



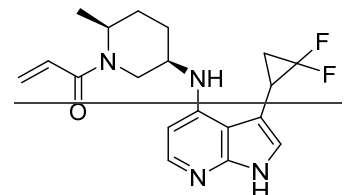
1-((2*R*,5*S*)-5-((5-((*R*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-yl)prop-2-en-1-one ;



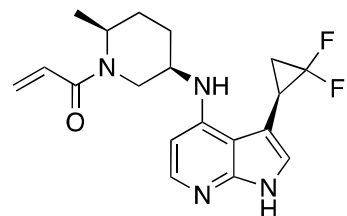
1-((2*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-yl)prop-2-en-1-one ;



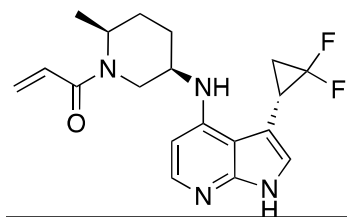
1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-2-methylprop-2-en-1-one ;



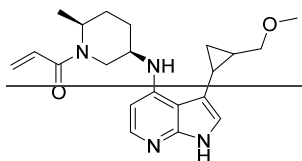
1-((2*S*,5*R*)-5-((3-(2,2-difluorocyclopropyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



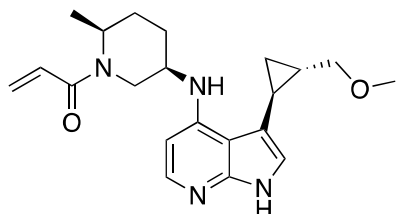
1-((2*S*,5*R*)-5-((3-((*R*)-2,2-difluorocyclopropyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



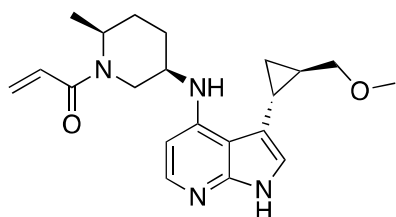
1-((2*S*,5*R*)-5-((3-((*S*)-2,2-difluorocyclopropyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



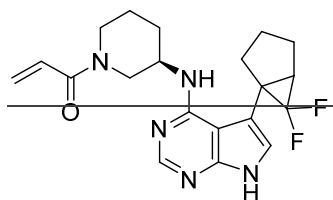
1-((2*S*,5*R*)-5-((3-(2-(methoxymethyl)cyclopropyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



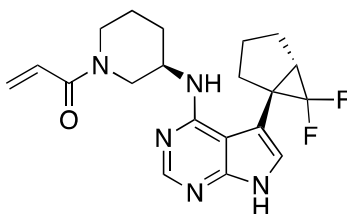
1-((2*S*,5*R*)-5-((3-((1*S*,2*S*)-2-(methoxymethyl)cyclopropyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



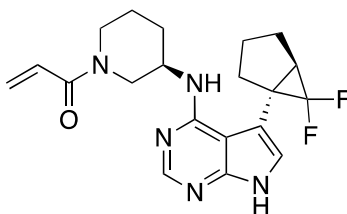
1-((2*S*,5*R*)-5-((3-((1*R*,2*R*)-2-(methoxymethyl)cyclopropyl)-1*H*-pyrrolo[2,3-*b*]pyridin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



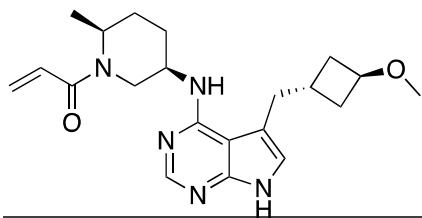
1-((3*R*)-3-((5-(6,6-difluorobicyclo[3.1.0]hexan-1-yl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one ;



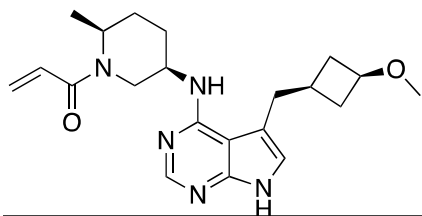
1-((*R*)-3-((5-((1*R*,5*S*)-6,6-difluorobicyclo[3.1.0]hexan-1-yl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one ;



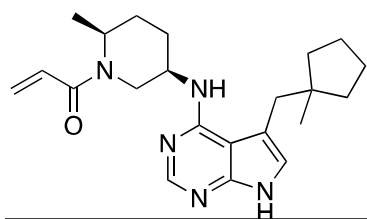
1-((*R*)-3-((5-((1*S*,5*R*)-6,6-difluorobicyclo[3.1.0]hexan-1-yl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one ;



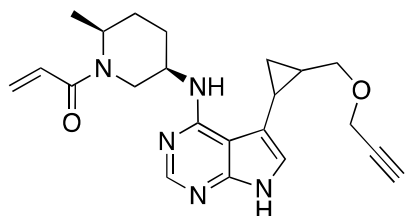
1-((2*S*,5*R*)-5-((5-(((1*r*,3*S*)-3-methoxycyclobutyl)methyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



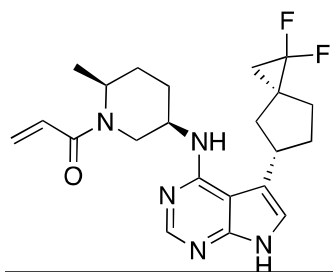
1-((2*S*,5*R*)-5-((5-(((1*s*,3*R*)-3-methoxycyclobutyl)methyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



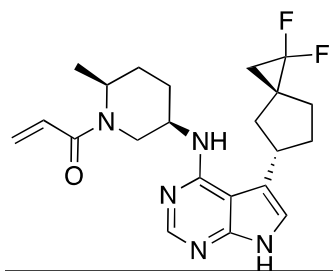
1-((2*S*,5*R*)-2-methyl-5-((5-((1-methylcyclopentyl)methyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



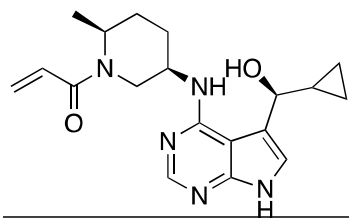
1-((2*S*,5*R*)-2-methyl-5-((5-(2-((prop-2-yn-1-yloxy)methyl)cyclopropyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)piperidin-1-yl)prop-2-en-1-one



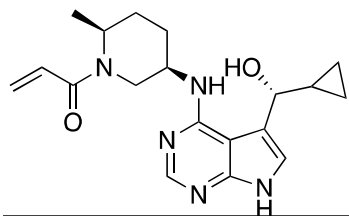
1-((2*S*,5*R*)-5-((5-((3*S*,5*S*)-1,1-difluorospiro[2.4]heptan-5-yl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



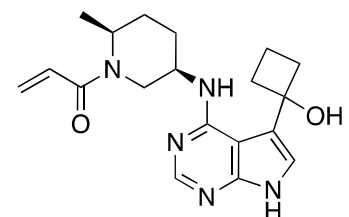
1-((2*S*,5*R*)-5-((5-((3*R*,5*S*)-1,1-difluorospiro[2.4]heptan-5-yl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one



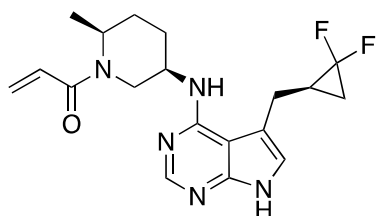
1-((2S,5R)-5-((S)-cyclopropyl(hydroxy)methyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



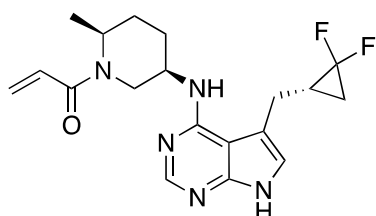
1-((2S,5R)-5-((R)-cyclopropyl(hydroxy)methyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



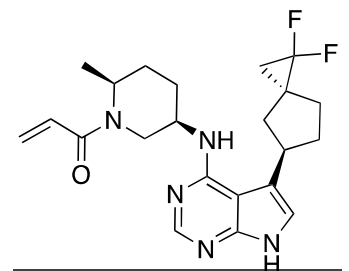
1-((2S,5R)-5-((1-hydroxycyclobutyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



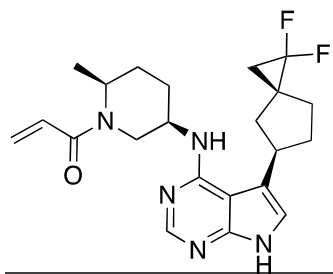
1-((2S,5R)-5-(((R)-2,2-difluorocyclopropyl)methyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



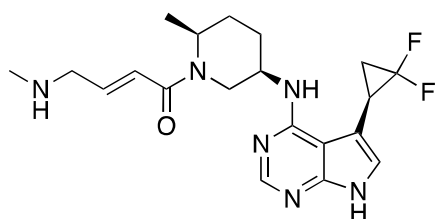
1-((2S,5R)-5-(((S)-2,2-difluorocyclopropyl)methyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



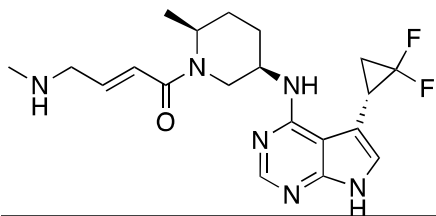
1-((2S,5R)-5-((3S,5R)-1,1-difluorospiro[2.4]heptan-5-yl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one ;



1-((2S,5R)-5-((5-((3R,5R)-1,1-difluorospiro[2.4]heptan-5-yl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one

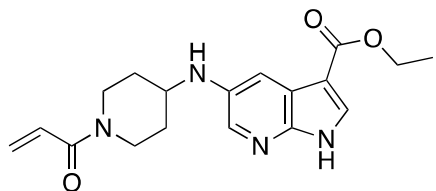


(E)-1-((2S,5R)-5-((5-((R)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(methylamino)but-2-en-1-one

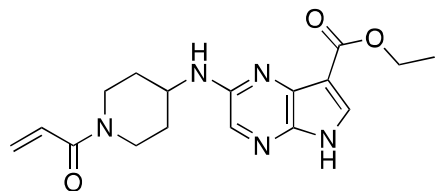


(E)-1-((2S,5R)-5-((5-((S)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)-4-(methylamino)but-2-en-1-one

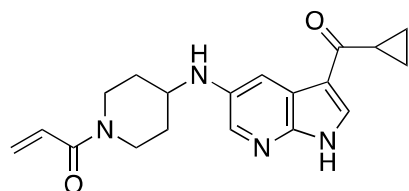
15. The method compound of claim 12, wherein the one or more compounds is a compound, or a derivative thereof of Formula (III) selected from, is:



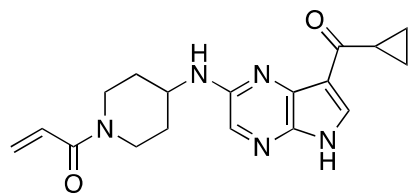
ethyl 5-((1-acryloylpiperidin-4-yl)amino)-1H-pyrrolo[2,3-b]pyridine-3-carboxylate



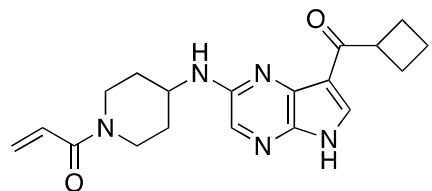
ethyl 2-((1-acryloylpiperidin-4-yl)amino)-5H-pyrrolo[2,3-b]pyrazine-7-carboxylate



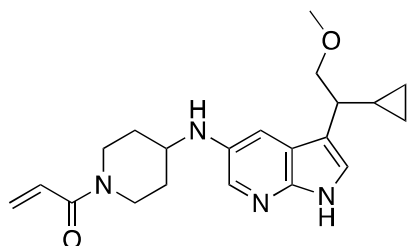
1-((3-(cyclopropanecarbonyl)-1H-pyrrolo[2,3-b]pyridin-5-yl)amino)piperidin-1-yl)prop-2-en-1-one



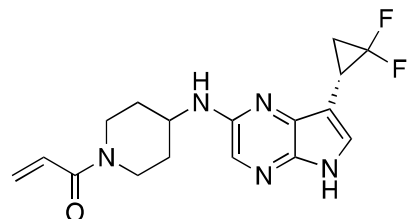
1-(4-((7-(cyclopropanecarbonyl)-5H-pyrrolo[2,3-
b]pyrazin-2-yl)amino)piperidin-1-yl)prop-2-en-1-
one



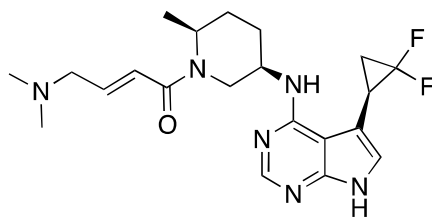
1-(4-((7-(cyclobutanecarbonyl)-5H-pyrrolo[2,3-
b]pyrazin-2-yl)amino)piperidin-1-yl)prop-2-en-1-
one



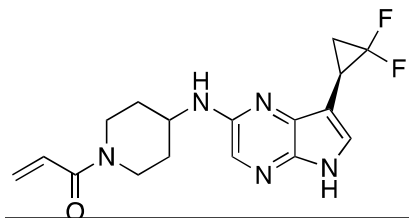
1-(4-((3-(1-cyclopropyl-2-methoxyethyl)-1H-
pyrrolo[2,3-b]pyridin-5-yl)amino)piperidin-1-
yl)prop-2-en-1-one

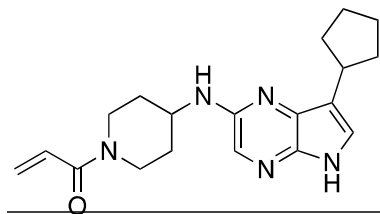


(SE)-1-(4-((7-((2S,5R)-5-((5-((R)-2,2-
difluorocyclopropyl)-5H-7H-pyrrolo[2,3-b]pyrazin-2-
d]pyrimidin-4-yl)amino)piperidin-1-yl)prop-4-(dimethylamino)but-2-en-1-one



(R)-1-(4-((7-(2,2-difluorocyclopropyl)-5H-
pyrrolo[2,3-b]pyrazin-2-yl)amino)piperidin-1-
yl)prop-2-en-1-one



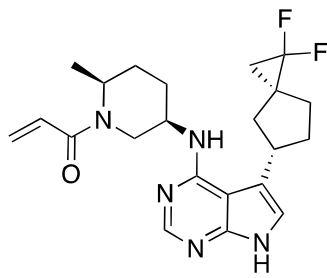


1-((4-((7-cyclopentyl-5H-pyrrolo[2,3-b]pyrazin-2-yl)amino)piperidin-1-yl)prop-2-en-1-one

17. ~~The method of claim 12 further comprising the sequential or co administration of a pharmaceutical agent.~~
18. ~~The method according to claim 17, wherein the pharmaceutical agent is selected from taxanes, inhibitors of ber abl, inhibitors of EGFR, DNA damaging agents, antimetabolites, paclitaxel, imatinib, dasatinib, nilotinib, erlotinib, gefitinib, cisplatin, oxaliplatin, carboplatin, anthracyclines, AraC, 5 FU, camptothecin, doxorubicin, idarubicin, paclitaxel, docetaxel, vincristine, a MEK inhibitor, U0126, a KSP inhibitor, vorinostat, pembrolizumab, nivolumab, atezolizumab, avelumab, tremelimumab, and durvalumab.~~

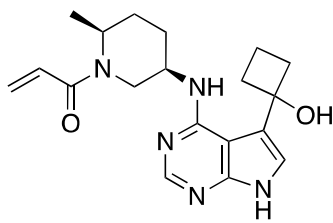
~~Use of a compound selected from the compounds of Formula (I), Formula (II), Formula (III), Formula (IV), and derivatives thereof for the manufacture of a medicament to treat an ITK-mediated or JAK3-mediated disease.~~

16. The compound of Claim 1, wherein the compound, or a derivative thereof, is:



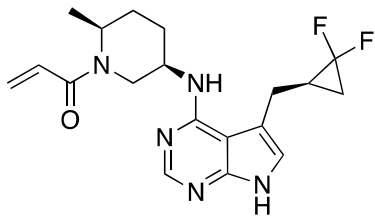
1-((2S,5R)-5-((5-((3S,5S)-1,1-difluorospiro[2.4]heptan-5-yl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one.

17. The compound of Claim 1, wherein the compound, or a derivative thereof, is:



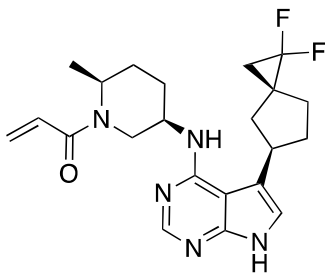
1-((2S,5R)-5-((5-(1-hydroxycyclobutyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one.

18. The compound of Claim 1, wherein the compound, or a derivative thereof, is:



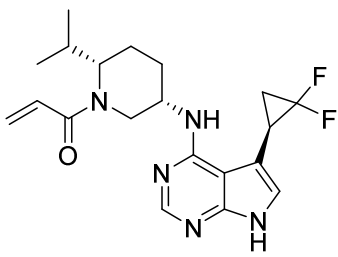
1-((2S,5R)-5-(((R)-2,2-difluorocyclopropyl)methyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one.

19. The compound of Claim 1, wherein the compound, or a derivative thereof, is:



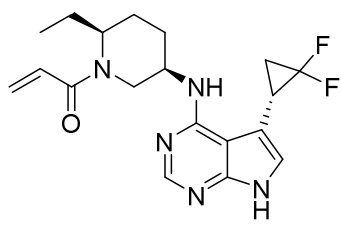
1-((2S,5R)-5-(((3R,5R)-1,1-difluorospiro[2.4]heptan-5-yl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-methylpiperidin-1-yl)prop-2-en-1-one.

20. The compound of Claim 5, wherein the compound, or a derivative thereof, is



1-((2S,5S)-5-(((R)-2,2-difluorocyclopropyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl)amino)-2-isopropylpiperidin-1-yl)prop-2-en-1-one.

21. The compound of Claim 5, wherein the compound, or a derivative thereof, is



1-((2*S*,5*R*)-5-((5-((*S*)-2,2-difluorocyclopropyl)-7*H*-pyrrolo[2,3-
d]pyrimidin-4-yl)amino)-2-ethylpiperidin-1-yl)prop-2-en-1-one.

19.