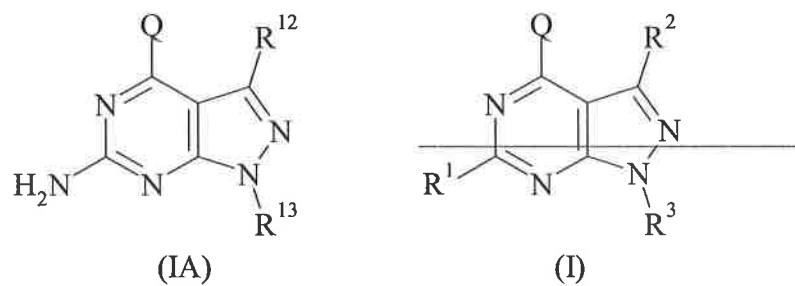


Claims:

1. A compound of formula (IA) or an *N*-oxide thereof, or a pharmaceutically acceptable salt or solvate thereof:

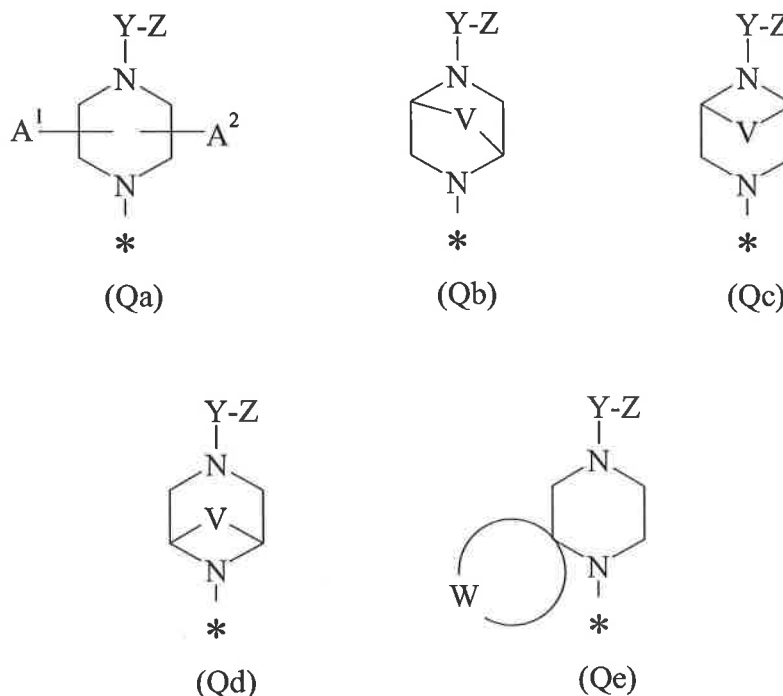
5



wherein

Q represents a group of formula (Qa), (Qb), (Qc), (Qd) or (Qe):

10

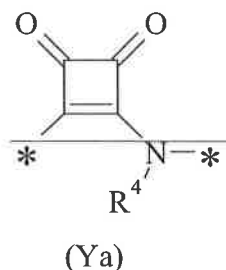


15 in which the asterisk (*) represents the point of attachment to the remainder of the molecule;

V represents -CH₂-, -C(CH₃)₂-, -CH₂CH₂-, -CH₂CH₂CH₂-, -CH₂OCH₂-, -CH₂SCH₂-, -CH₂S(O)CH₂-, -CH₂S(O)₂CH₂- or -CH₂N(R⁴)CH₂-;

W represents the residue of a C₃₋₇ cycloalkyl or C₃₋₇ heterocycloalkyl group;

Y represents a covalent bond, or a linker group selected from $-\text{C}(\text{O})-$, $-\text{S}(\text{O})-$, $-\text{S}(\text{O})_2-$, $-\text{C}(\text{O})\text{O}-$, $-\text{C}(\text{O})\text{N}(\text{R}^4)-$ and $-\text{C}(\text{O})\text{C}(\text{O})-$; and $-\text{S}(\text{O})_2\text{N}(\text{R}^4)-$, or a linker group of formula (Ya):



in which the asterisk (*) represents the point of attachment to the remainder of the molecule;

Z represents hydrogen; or Z represents C_{1-6} alkyl, C_{2-6} alkenyl, C_{3-7} cycloalkyl, C_{3-7} cycloalkyl(C_{1-6})alkyl, C_{3-7} heterocycloalkyl, C_{3-7} heterocycloalkyl(C_{1-6})alkyl, aryl, aryl(C_{1-6})alkyl, heteroaryl or heteroaryl(C_{1-6})alkyl, any of which groups may be optionally substituted by one, two or more three substituents independently selected from halogen, cyano, nitro, C_{1-6} alkyl, trifluoromethyl, cyano(C_{1-6})alkyl, (C_{3-7})heterocycloalkyl, halo(C_{3-7})heterocycloalkyl, (C_{1-6})alkyl(C_{3-7})heterocycloalkyl, (C_{2-6})alkoxycarbonyl(C_{3-7})heterocycloalkyl, dihalo(C_{3-7})heterocycloalkyl, (C_{3-7})heterocycloalkyl(C_{1-6})alkyl, (C_{1-6})alkyl-
 (C_{3-7})heterocycloalkyl(C_{1-6})alkyl, heteroaryl, hydroxy, oxo, C_{1-6} alkoxy, difluoromethoxy, trifluoromethoxy, trifluoroethoxy, (C_{3-7})heterocycloalkoxy, (C_{2-6})alkoxycarbonyl(C_{3-7})heterocycloalkoxy, (C_{3-7})heterocycloalkyl(C_{1-6})alkoxy, aryloxy, haloaryloxy, (C_{1-6})alkoxyaryloxy, C_{1-3} alkylenedioxy, dihalo(C_{1-3})alkylenedioxy, arylcarbonyloxy, C_{1-6} alkylthio, C_{1-6} alkylsulfinyl, C_{1-6} alkylsulfonyl, amino, C_{1-6} alkylamino, di(C_{1-6})alkylamino, di(C_{1-6})alkylamino(C_{1-6})alkyl, arylamino, C_{2-6} alkylcarbonylamino, C_{2-6} alkoxy-carbonylamino, C_{1-6} alkylsulfonylamino, formyl, C_{2-6} alkylcarbonyl, C_{3-6} cycloalkyl-carbonyl, C_{3-6} heterocycloalkylcarbonyl, carboxy, C_{2-6} alkoxycarbonyl, aryloxycarbonyl, aminocarbonyl, C_{1-6} alkylaminocarbonyl, di(C_{1-6})alkylaminocarbonyl, aminosulfonyl, C_{1-6} alkylaminosulfonyl and di(C_{1-6})alkylaminosulfonyl;

A^1 represents hydrogen, cyano or trifluoromethyl; or A^1 represents C_{1-6} alkyl, optionally substituted by one or more substituents independently selected from fluoro, $-\text{OR}^a$, trifluoromethoxy, $-\text{NR}^b\text{R}^c$, $-\text{CO}_2\text{R}^d$ and $-\text{CONR}^b\text{R}^c$; or A^1 represents C_{3-7} cycloalkyl;

A² represents hydrogen or C₁₋₆ alkyl;

R¹² represents hydrogen, trifluoromethyl or C₁₋₆ alkyl;

R¹³ represents hydrogen or C₁₋₆ alkyl;

- 5 R¹ and R² independently represent hydrogen, halogen, cyano, nitro, hydroxy, trifluoromethyl, trifluoromethoxy, -OR^a, -SR^a, -SOR^a, -SO₂R^a, -NR^bR^e, -CH₂NR^bR^e, -NR^eCOR^d, -CH₂NR^eCOR^d, -NR^eCO₂R^d, -NHCONR^bR^e, -NR^eSO₂R^e, -N(SO₂R^e)₂, -NHSO₂NR^bR^e, -COR^d, -CO₂R^d, -CONR^bR^e, -CON(OR^a)R^b or -SO₂NR^bR^e; or C₁₋₆ alkyl, C₃₋₇ cycloalkyl, C₃₋₇ cycloalkyl(C₁₋₆)alkyl, aryl, aryl(C₁₋₆)alkyl, C₃₋₇ heterocycloalkyl, C₃₋₇ heterocycloalkyl(C₁₋₆)alkyl, C₃₋₇ heterocycloalkenyl, heteroaryl or heteroaryl(C₁₋₆)alkyl;
- 10 any of which groups may be optionally substituted by one or more substituents;

R³ represents hydrogen; or R³ represents C₁₋₆ alkyl, optionally substituted by one or more halogen atoms;

R⁴ represents hydrogen; or R⁴ represents C₁₋₆ alkyl, optionally substituted by one or more substituents independently selected from -OR^a and -NR^bR^c;

R^a represents hydrogen; or R^a represents C₁₋₆ alkyl, aryl, aryl(C₁₋₆)alkyl, heteroaryl or heteroaryl(C₁₋₆)alkyl, any of which groups may be optionally substituted by one or more two substituents independently selected from C₁₋₆ alkoxy and oxo;

5 R^b and R^e independently represents hydrogen or trifluoromethyl; or C₁₋₆ alkyl, C₃₋₇ cycloalkyl, C₃₋₇ cycloalkyl(C₁₋₆)alkyl, aryl, aryl(C₁₋₆)alkyl, C₃₋₇ heterocycloalkyl, C₃₋₇ heterocycloalkyl-(C₁₋₆)alkyl, heteroaryl or heteroaryl(C₁₋₆)alkyl, any of which groups may be optionally substituted by one or more two substituents independently selected from C₁₋₆ alkoxy, C₁₋₆ alkylthio, C₁₋₆ alkylsulphinyl, C₁₋₆ alkylsulphonyl, hydroxy, cyano, C₂₋₆ alkoxycarbonyl, di(C₁₋₆)alkylamino and C₂₋₆ alkoxycarbonylamino; or and

10 R^c represents hydrogen; or C₁₋₆ alkyl, C₃₋₇ cycloalkyl or C₃₋₇ heterocycloalkyl, any of which groups may be optionally substituted by one or two substituents independently selected from C₂₋₆ alkylcarbonyl and C₂₋₆ alkoxycarbonyl; or

R^b and R^c, when taken together with the nitrogen atom to which they are both attached, represent azetidin-1-yl, pyrrolidin-1-yl, oxazolidin-3-yl, isoxazolidin-2-yl, 15 thiazolidin-3-yl, isothiazolidin-2-yl, piperidin-1-yl, morpholin-4-yl, thiomorpholin-4-yl, piperazin-1-yl, homopiperidin-1-yl, homomorpholin-4-yl or homopiperazin-1-yl, any of which groups may be optionally substituted by one or more two substituents independently selected from C₁₋₆ alkyl, C₁₋₆ alkylsulphonyl, hydroxy, hydroxy(C₁₋₆)alkyl, amino(C₁₋₆)-alkyl, cyano, oxo, C₂₋₆ alkylcarbonyl, carboxy, C₂₋₆ alkoxycarbonyl, amino, C₂₋₆ alkyl-carbonylamino, C₂₋₆ alkylcarbonylamino(C₁₋₆)alkyl, C₂₋₆ alkoxycarbonylamino, C₁₋₆ alkyl-sulphonylamino and aminocarbonyl; and

25 R^d represents hydrogen; or C₁₋₆ alkyl, C₃₋₇ cycloalkyl, aryl, C₃₋₇ heterocycloalkyl or heteroaryl, any of which groups may be optionally substituted by one or more two substituents independently selected from halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, oxo, C₂₋₆ alkylcarbonyloxy and di(C₁₋₆)alkylamino;

the heterocycloalkyl groups referred to above are selected from ; and oxetanyl, azetidiny, tetrahydrofuranyl, dihydrobenzofuranyl, pyrrolidiny, indoliny, thiazolidiny, imidazolidiny, tetrahydropyranyl, chromanyl, piperidiny, 1,2,3,4-tetrahydroquinoliny, 1,2,3,4-tetrahydroisoquinoliny, piperaziny, 1,2,3,4-tetrahydroquinoxaliny, 30 homopiperaziny, morpholiny, benzoxaziny and thiomorpholiny; and

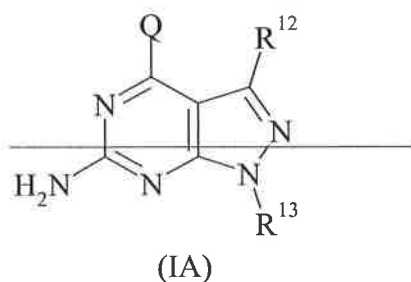
the heteroaryl groups referred to above are selected from furyl, benzofuryl, dibenzofuryl, thienyl, benzothienyl, dibenzothienyl, pyrrolyl, indolyl, pyrrolo[2,3-*b*]-

pyridinyl, pyrrolo[3,2-*c*]pyridinyl, pyrazolyl, pyrazolo[1,5-*a*]pyridinyl, pyrazolo[3,4-*d*]pyrimidinyl, indazolyl, oxazolyl, benzoxazolyl, isoxazolyl, thiazolyl, benzothiazolyl, isothiazolyl, imidazolyl, imidazo[2,1-*b*]thiazolyl, benzimidazolyl, imidazo[1,2-*a*]pyridinyl, imidazo[4,5-*b*]pyridinyl, purinyl, imidazo[1,2-*a*]pyrimidinyl, imidazo[1,2-*a*]pyrazinyl, oxadiazolyl, thiadiazolyl, benzothiadiazolyl, triazolyl, benzotriazolyl, tetrazolyl, pyridinyl, quinolinyl, isoquinolinyl, naphthyridinyl, pyridazinyl, cinnolinyl, phthalazinyl, pyrimidinyl, quinazolinyl, pyrazinyl, quinoxalinyl, pteridinyl, triazinyl, chromenyl, pyrazolo[4,3-*c*]pyridinyl and benzisoxazolyl.

R^e represents C_{1-6} alkyl, aryl or heteroaryl, any of which groups may be optionally substituted by one or more substituents.

2. A compound as claimed in claim 1 wherein R^1 represents NR^bR^e , in which R^b and R^e are as defined in claim 1.

3. A compound as claimed in claim 1 or claim 2 represented by formula (IA), or a pharmaceutically acceptable salt or solvate thereof:

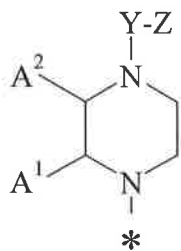


wherein Q is as defined in claim 1;

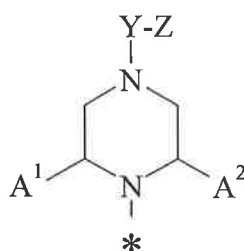
R^{12} represents hydrogen, trifluoromethyl or C_{1-6} alkyl; and

R^{13} represents hydrogen or C_{1-6} alkyl.

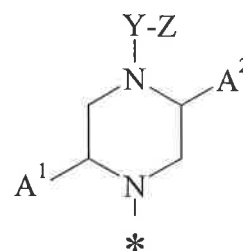
42. A compound as claimed in ~~any one of the preceding claims~~ claim 1 wherein Q represents a group of formula (Qa-1), (Qa-2) or (Qa-3):



(Qa-1)



(Qa-2)



(Qa-3)

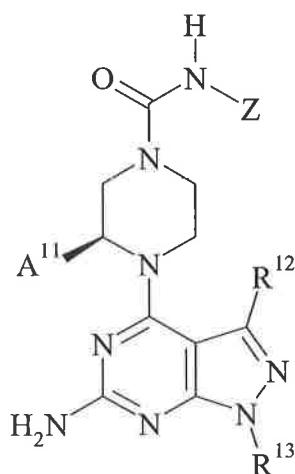
5

in which the asterisk (*) represents the point of attachment to the remainder of the molecule; and

Y, Z, A¹ and A² are as defined in claim 1.

10

53. A compound as claimed in ~~any one of the preceding claims~~ claim 1 or claim 2 represented by formula (IIA), or a pharmaceutically acceptable salt or solvate thereof:



(IIA)

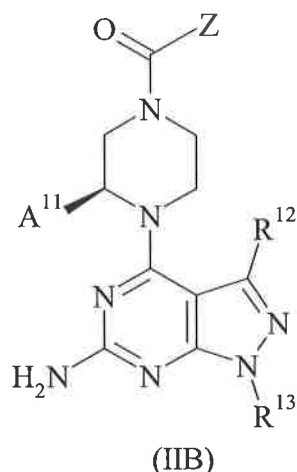
15 wherein

A¹¹ represents hydrogen, cyano, C₁-₆ alkyl, trifluoromethyl, -CH₂CF₃, -CH₂ORᵃ, -CH₂CH₂ORᵃ, -CH₂CO₂Rᵈ, -CH₂CONRᵇRᶜ or C₃-₇ cycloalkyl;

Z, R¹², R¹³, Rᵃ, Rᵇ, Rᶜ and Rᵈ are as defined in claim 1; and,

~~R¹² and R¹³ are as defined in claim 3.~~

64. A compound as claimed in claim 1 or claim 2 ~~any one of claims 1 to 4~~ represented by formula (IIB), or a pharmaceutically acceptable salt or solvate thereof:



5

wherein Z, R¹² and R¹³ ~~are~~ is as defined in claim 1; and
R¹² and R¹³ ~~are~~ as defined in claim 3; and
A¹¹ is as defined in claim 53.

10

75. A compound as claimed in claim 53 or claim 64 wherein A¹¹ represents methyl, ethyl, hydroxymethyl or hydroxyethyl.

15

86. A compound as claimed in any one of the preceding claims wherein Z represents C₃₋₇ cycloalkyl, C₃₋₇ heterocycloalkyl, aryl or heteroaryl, any of which groups may be optionally substituted by one, two or three substituents independently selected from halogen, cyano, C₁₋₆ alkyl, trifluoromethyl, (C₃₋₇)heterocycloalkyl, dihalo(C₃₋₇)heterocycloalkyl, hydroxy, oxo, C₁₋₆ alkoxy, difluoromethoxy, trifluoromethoxy, trifluoroethoxy, C₁₋₆ alkylsulfonyl, C₁₋₆ alkylamino and di(C₁₋₆)alkylamino.

20

97. A compound as claimed in claim 86 wherein Z represents (methoxy)(methyl)-phenyl, (methyl)(trifluoromethoxy)phenyl, (methoxy)(methyl)pyridinyl, (ethyl)-(methoxy)pyridinyl, (ethoxy)(methyl)pyridinyl or dimethoxypyridinyl.

108. A compound as claimed in any one of the preceding claims 3 to 9 wherein R¹² represents hydrogen or methyl.

119. A compound as claimed in any one of the preceding claims 3 to 10 wherein R¹³ represents hydrogen or methyl.

1210. A compound of formula (I) as defined claimed in claim 1 selected from the following: as herein specifically disclosed in any one of the Examples.

- 10 6-amino-4-{4-[(4-methoxy-2-methylphenyl)carbamyl]piperazin-1-yl}-1H-pyrazolo[3,4-*d*]pyrimidine;
- 6-amino-4-{4-[(4-methoxyphenyl)carbamyl]piperazin-1-yl}-1H-pyrazolo[3,4-*d*]pyrimidine;
- 6-amino-4-{4-[(4-methoxy-2-methylphenyl)carbamyl]-2-(*S*)-methylpiperazin-1-yl}-1H-pyrazolo[3,4-*d*]pyrimidine;
- 15 6-amino-4-{4-[(4-methoxyphenyl)carbamyl]-2-(*S*)-methylpiperazin-1-yl}-1H-pyrazolo[3,4-*d*]pyrimidine;
- 6-amino-4-{4-[(4-methoxy-2-methylphenyl)carbamyl]-2-(*S*)-methylpiperazin-1-yl}-1-methylpyrazolo[3,4-*d*]pyrimidine;
- 6-amino-4-{4-[(4-methoxyphenyl)carbamyl]-2-(*S*)-methylpiperazin-1-yl}-1-methylpyrazolo[3,4-*d*]pyrimidine;
- 20 6-amino-4-[4-(indan-5-ylcarbamyl)-2-(*S*)-methylpiperazin-1-yl]-1-methylpyrazolo[3,4-*d*]pyrimidine;
- 6-amino-4-{4-[(4-(dimethylamino)phenyl)carbamyl]-2-(*S*)-methylpiperazin-1-yl}-1-methylpyrazolo[3,4-*d*]pyrimidine;
- 25 (3*S*)-4-(6-amino-1,3-dimethylpyrazolo[3,4-*d*]pyrimidin-4-yl)-N-[6-(3,3-difluoroazetidin-1-yl)-2-methylpyridin-3-yl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1,3-dimethylpyrazolo[3,4-*d*]pyrimidin-4-yl)-N-(4-methoxy-2-methylphenyl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1,3-dimethylpyrazolo[3,4-*d*]pyrimidin-4-yl)-N-(6-methoxy-2-methylpyridin-3-yl)-3-methylpiperazine-1-carboxamide;
- 30 (3*R*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-N-[6-(3,3-difluoroazetidin-1-yl)-2-methylpyridin-3-yl]-3-(hydroxymethyl)piperazine-1-carboxamide;

- (3S)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(3,3-difluoroazetidin-1-yl)-2-methylpyridin-3-yl]-3-methylpiperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-methoxy-2-methylpyridin-3-yl)-3-methylpiperazine-1-carboxamide;
- 5 (3*R*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(4-methoxy-2-methylphenyl)-3-methylpiperazine-1-carboxamide;
- (3S)-4-[6-amino-1-methyl-3-(trifluoromethyl)pyrazolo[3,4-*d*]pyrimidin-4-yl]-*N*-[6-(3,3-difluoroazetidin-1-yl)-2-methylpyridin-3-yl]-3-methylpiperazine-1-carboxamide;
- (3S)-4-[6-amino-1-methyl-3-(trifluoromethyl)pyrazolo[3,4-*d*]pyrimidin-4-yl]-*N*-(6-
- 10 methoxy-2-methylpyridin-3-yl)-3-methylpiperazine-1-carboxamide;
- (3S)-4-[6-amino-1-methyl-3-(trifluoromethyl)pyrazolo[3,4-*d*]pyrimidin-4-yl]-*N*-(4-methoxy-2-methylphenyl)-3-methylpiperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(2,1,3-benzothiadiazol-4-yl)-3-methylpiperazine-1-carboxamide;
- 15 (3S)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(1*H*-indazol-7-yl)-3-methylpiperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(2,1,3-benzothiadiazol-5-yl)-3-methylpiperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(1*H*-indol-7-yl)-3-methyl-
- 20 piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(1*H*-indol-4-yl)-3-methylpiperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-(2-methyl-1*H*-benzimidazol-4-yl)piperazine-1-carboxamide;
- 25 (3S)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-(1-methylindazol-7-yl)piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-(4-methyl-1*H*-indazol-7-yl)piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-hydroxy-2-methylpyridin-
- 30 3-yl)-3-methylpiperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-[2-methyl-6-(2,2,2-trifluoroethoxy)pyridin-3-yl]piperazine-1-carboxamide;

- (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(1,2-dimethyl-6-oxopyridin-3-yl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-[2-methyl-6-(methylamino)pyridin-3-yl]piperazine-1-carboxamide;
- 5 (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[2-(3,3-difluoroazetidin-1-yl)-4-methylpyrimidin-5-yl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[4-(difluoromethoxy)-2-methylphenyl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[2-(dimethylamino)-4-
- 10 methylpyrimidin-5-yl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(azetidin-1-yl)-2-methylpyridin-3-yl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(3,3-difluoroazetidin-1-yl)-4-methylpyridin-3-yl]-3-methylpiperazine-1-carboxamide;
- 15 (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(dimethylamino)-2-methylpyridin-3-yl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(dimethylamino)-4-methylpyridin-3-yl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1,3-dimethylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(azetidin-1-yl)-2-
- 20 methylpyridin-3-yl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1,3-dimethylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(dimethylamino)-4-methylpyridin-3-yl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1,3-dimethylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(dimethylamino)-2-methylpyridin-3-yl]-3-methylpiperazine-1-carboxamide;
- 25 (3*S*)-4-(6-amino-1,3-dimethylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(4-methoxyphenyl)-3-methylpiperazine-1-carboxamide;
- [(3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methylpiperazin-1-yl](2,3-dihydrobenzofuran-2-yl)methanone;
- 1-[(3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methylpiperazin-1-yl]-2-
- 30 phenylethane-1,2-dione;
- [(3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methylpiperazin-1-yl](5-methoxybenzofuran-2-yl)methanone;

- (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-[2-methyl-4-(trifluoromethoxy)phenyl]piperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[2-fluoro-4-(trifluoromethoxy)phenyl]-3-methylpiperazine-1-carboxamide;
- 5 (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[2-chloro-4-(trifluoromethoxy)phenyl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[3-methoxy-5-(trifluoromethyl)phenyl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(1-ethyl-1*H*-indazol-3-
- 10 yl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(difluoromethoxy)-2-methylpyridin-3-yl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-ethoxy-5-fluoropyridin-3-yl)-3-methylpiperazine-1-carboxamide;
- 15 (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(2-chloro-4-fluoro-5-methylphenyl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(5-fluoro-6-methoxypyridin-3-yl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-ethoxy-2-methyl-
- 20 pyridin-3-yl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-[1-methyl-5-(trifluoromethyl)-1*H*-indazol-3-yl]piperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-fluoro-1-methyl-1*H*-indazol-3-yl)-3-methylpiperazine-1-carboxamide;
- 25 (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(5-fluoro-1-methyl-1*H*-indazol-3-yl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(imidazo[1,2-*a*]pyridin-8-yl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-(5-methyl-1,2-
- 30 oxazol-3-yl)piperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(1,2-benzoxazol-3-yl)-3-methylpiperazine-1-carboxamide;

- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-(1-methyl-1*H*-indazol-3-yl)piperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-cyano-2-methylpyridin-3-yl)-3-methylpiperazine-1-carboxamide;
- 5 (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-[2-methyl-4-(methylsulfonyl)phenyl]piperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(difluoromethoxy)-4-methylpyridin-3-yl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-methoxy-5-methylpyridin-3-yl)-3-methylpiperazine-1-carboxamide;
- 10 (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-methoxy-4-methylpyridin-3-yl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(5-methoxy-2-methylphenyl)-3-methylpiperazine-1-carboxamide;
- 15 (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(3-chloro-4-methylphenyl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(2,5-dichlorophenyl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(4-cyano-2-methylphenyl)-3-methylpiperazine-1-carboxamide;
- 20 (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-3-ethyl-*N*-(6-methoxy-2-methylpyridin-3-yl)piperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-ethoxy-2-methylpyridin-3-yl)-3-ethylpiperazine-1-carboxamide;
- 25 (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(2,6-dimethoxypyridin-3-yl)-3-ethylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-3-ethyl-*N*-(4-methoxy-2-methylphenyl)piperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(3,3-difluoroazetidin-1-yl)-2-methylpyridin-3-yl]-3-ethylpiperazine-1-carboxamide;
- 30 (3*S*)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-3-ethyl-*N*-[2-methyl-4-(trifluoromethoxy)phenyl]piperazine-1-carboxamide;

- (3S)-4-(6-amino-1-methylpyrazolo[3,4-*d*]pyrimidin-4-yl)-3-ethyl-*N*-(4-methoxy-3-methylphenyl)piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(1,2-benzoxazol-3-yl)-3-ethylpiperazine-1-carboxamide;
- 5 (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-ethyl-*N*-(1-methyl-1*H*-indazol-3-yl)piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(difluoromethoxy)-4-methylpyridin-3-yl]-3-ethylpiperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-ethyl-*N*-(6-methoxy-5-
- 10 methylpyridin-3-yl)piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-ethyl-*N*-[2-methyl-4-(methylsulfonyl)phenyl]piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-ethyl-*N*-(6-methoxy-4-methylpyridin-3-yl)piperazine-1-carboxamide;
- 15 (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-ethyl-*N*-[1-methyl-5-(trifluoromethyl)-1*H*-indazol-3-yl]piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-ethyl-*N*-(6-fluoro-1-methyl-1*H*-indazol-3-yl)piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-ethyl-*N*-(5-fluoro-1-
- 20 methyl-1*H*-indazol-3-yl)piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(difluoromethoxy)-2-methylpyridin-3-yl]-3-ethylpiperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-ethyl-*N*-(imidazo[1,2-*a*]-pyridin-8-yl)piperazine-1-carboxamide;
- 25 (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-ethoxy-5-fluoro-pyridin-3-yl)-3-ethylpiperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(2-chloro-4-fluoro-5-methylphenyl)-3-ethylpiperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-ethyl-*N*-(5-fluoro-6-
- 30 methoxypyridin-3-yl)piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-cyano-2-methylpyridin-3-yl)-3-ethylpiperazine-1-carboxamide;

- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(4-cyano-2-methylphenyl)-3-ethylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[4-(difluoromethoxy)-2-methylphenyl]-3-ethylpiperazine-1-carboxamide;
- 5 (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[5-(dimethylamino)-3-methylpyrazin-2-yl]-3-ethylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-(1-methyl-1*H*-indazol-4-yl)piperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(2-methoxy-6-methylpyridin-3-yl)-3-methylpiperazine-1-carboxamide;
- 10 (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-(1-methyl-1*H*-indol-4-yl)piperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-(1-methyl-1*H*-benzotriazol-4-yl)piperazine-1-carboxamide;
- 15 (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(imidazo[1,2-*a*]pyridin-5-yl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(imidazo[1,2-*a*]pyridin-3-yl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-3-methyl-*N*-(1-methyl-1*H*-pyrazolo[4,3-*c*]pyridin-4-yl)piperazine-1-carboxamide;
- 20 (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(3-chloro-5-methoxypyridin-2-yl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(2-chloro-4-methoxyphenyl)-3-methylpiperazine-1-carboxamide;
- 25 (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-methoxy-2-(trifluoromethyl)pyridin-3-yl]-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-fluoro-1-methyl-1*H*-indazol-4-yl)-3-methylpiperazine-1-carboxamide;
- (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(2-ethyl-6-methoxypyridin-3-yl)-3-methylpiperazine-1-carboxamide;
- 30 (3*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[5-(dimethylamino)-3-methylpyrazin-2-yl]-3-methylpiperazine-1-carboxamide;

- (3S)-4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-3-ethyl-N-(1-methyl-1H-pyrazolo[4,3-c]pyridin-4-yl)piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-N-(2-chloro-4-methoxyphenyl)-3-ethylpiperazine-1-carboxamide;
- 5 (3S)-4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-3-ethyl-N-(6-fluoro-1-methyl-1H-indazol-4-yl)piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-3-ethyl-N-[6-methoxy-2-(trifluoromethyl)pyridin-3-yl]piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-3-ethyl-N-(2-ethyl-6-methoxypyridin-3-yl)piperazine-1-carboxamide;
- 10 (3S)-4-(6-amino-1,3-dimethyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-N-[2-(dimethylamino)-4-methylpyrimidin-5-yl]-3-methylpiperazine-1-carboxamide;
- 4-(6-amino-1-methylpyrazolo[3,4-d]pyrimidin-4-yl)-3-(2-hydroxyethyl)-N-[2-methyl-4-(trifluoromethoxy)phenyl]piperazine-1-carboxamide;
- 15 (3R)-4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-3-(hydroxymethyl)-N-[2-methyl-4-(trifluoromethoxy)phenyl]piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-N-(6-methoxy-2-methylpyridin-3-yl)-3-(propan-2-yl)piperazine-1-carboxamide;
- (3S)-4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-N-(6-methoxy-2-methylpyridin-3-yl)-3-(2-methylpropyl)piperazine-1-carboxamide;
- 20 4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-N-(6-methoxy-2-methylpyridin-3-yl)-3-(2,2,2-trifluoroethyl)piperazine-1-carboxamide;
- 4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-N-(imidazo[1,2-a]pyridin-8-yl)-3-(2,2,2-trifluoroethyl)piperazine-1-carboxamide;
- 25 (3S,5S)-4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-N-(1-ethyl-1H-indazol-3-yl)-3,5-dimethylpiperazine-1-carboxamide;
- (3S,5S)-4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-3,5-dimethyl-N-(1-methyl-1H-indazol-3-yl)piperazine-1-carboxamide;
- (3S,5S)-4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-N-[5-(dimethylamino)-3-methylpyrazin-2-yl]-3,5-dimethylpiperazine-1-carboxamide;
- 30 (3S,5S)-4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-N-(imidazo[1,2-a]pyridin-8-yl)-3,5-dimethylpiperazine-1-carboxamide;
- (3S,5S)-4-(6-amino-1-methyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-3,5-dimethyl-N-[2-methyl-4-(trifluoromethoxy)phenyl]piperazine-1-carboxamide;

(3*S*,5*S*)-4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-methoxy-2-methylpyridin-3-yl)-3,5-dimethylpiperazine-1-carboxamide;

4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-methoxy-2-methylpyridin-3-yl)-3-(trifluoromethyl)piperazine-1-carboxamide;

5 4-(6-amino-1-methyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(4-methoxy-2-methylphenyl)-3-(trifluoromethyl)piperazine-1-carboxamide;

(3*S*)-4-(6-amino-1,3-dimethyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(6-fluoro-1-methyl-1*H*-indazol-3-yl)-3-methylpiperazine-1-carboxamide;

10 (3*S*)-4-(6-amino-1,3-dimethyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-(5-fluoro-1-methyl-1*H*-indazol-3-yl)-3-methylpiperazine-1-carboxamide;

(3*S*)-4-(6-amino-1,3-dimethyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[6-(difluoromethoxy)-2-methylpyridin-3-yl]-3-methylpiperazine-1-carboxamide;

(3*S*)-4-(6-amino-1,3-dimethyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[5-(dimethylamino)-3-methylpyrazin-2-yl]-3-methylpiperazine-1-carboxamide; and

15 (3*S*)-4-(6-amino-1,3-dimethyl-1*H*-pyrazolo[3,4-*d*]pyrimidin-4-yl)-*N*-[4-(difluoromethoxy)-2-methylphenyl]-3-methylpiperazine-1-carboxamide.

1311. A compound of formula (IA) as defined in claim 1 or an *N*-oxide thereof, or a pharmaceutically acceptable salt ~~or solvate~~ thereof, for use in therapy.

20

1412. A compound of formula (IA) as defined in claim 1 or an *N*-oxide thereof, or a pharmaceutically acceptable salt ~~or solvate~~ thereof, for use in the treatment and/or prevention of an inflammatory, autoimmune or oncological disorder; a viral disease or malaria; or organ or cell transplant rejection.

25

1513. A pharmaceutical composition comprising a compound of formula (IA) as defined in claim 1 or an *N*-oxide thereof, or a pharmaceutically acceptable salt ~~or solvate~~ thereof, in association with a pharmaceutically acceptable carrier.

30

1614. The use of a compound of formula (IA) as defined in claim 1 or an *N*-oxide thereof, or a pharmaceutically acceptable salt ~~or solvate~~ thereof, for the manufacture of a medicament for the treatment and/or prevention of an inflammatory, autoimmune or oncological disorder; a viral disease or malaria; or organ or cell transplant rejection.