

Claims

1. A compound selected from the group consisting of
2-(1-((1r,4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(2-hydroxy-2-methylpropyl)acetamide;
2-((1r,4r)-4-(2(1H-Imidazol-4-yl)imidazo[4,5-d]pyrrolo[2,3-b]pyridin-1(6H)-yl)cyclohexyl)acetonitrile;
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(cyclopropylmethyl)acetamide;
N-(2-Cyanoethyl)-2-(1-((1r,4r)-4-(cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)acetamide;
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(tetrahydro-2H-pyran-4-yl)acetamide;
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((tetrahydro-2H-pyran-4-yl)methyl)acetamide;
N-(2-Cyano-2-methylpropyl)-2-(1-((1r,4r)-4-(cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)acetamide;
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((1-hydroxycyclobutyl)methyl)acetamide;
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(1-methyl-1H-pyrazol-4-yl)acetamide;
N-(4-(Cyanomethyl)bicyclo[2.2.1]heptan-1-yl)-2-(1-((1r, 4r)-4-(cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)acetamide;
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(1H-pyrazol-3-yl)acetamide;
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((1-hydroxycyclopropyl)methyl)acetamide; and
pharmaceutically acceptable salts, and combinations thereof.

2. A compound as claimed in claim 1, wherein said compound is selected from the group consisting of

2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(2-hydroxy-2-methylpropyl)acetamide;
2-((1r, 4r)-4-(1H-Imidazol-4-yl)imidazo[4,5-d]pyrrolo[2,3-b]pyridin-1(6H)-yl)cyclohexyl)acetonitrile;
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(cyclopropylmethyl)acetamide;
N-(2-Cyanoethyl)-2-(1-((1r, 4r)-4-(cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)acetamide;
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(tetrahydro-2H-pyran-4-yl)acetamide;
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((-hydroxycyclobutyl)methyl)acetamide;
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((1-hydroxycyclopropyl)methyl)acetamide; and
pharmaceutically acceptable salts, and combinations thereof.

3. A compound as claimed in claim 1, wherein said compound is selected from the group consisting of

2-(1-((1r,4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(2-hydroxy-2-methylpropyl)acetamide;
2-((1r,4r)-4-(2-(1H-Imidazol-4-yl)imidazo[4,5-d]pyrrolo[2,3-b]pyridin-1(6H)-yl)cyclohexyl)acetonitrile;
2-(1-((1r,4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(cyclopropylmethyl)acetamide;
N-(2-Cyanoethyl)-2-(1-((1r,4r)-4-(cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)acetamide;
2-(1-((1r,4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(tetrahydro-2H-pyran-4-yl)acetamide; and
pharmaceutically acceptable salts, and combinations thereof.

4. A compound as claimed in claim 1, wherein said compound is

2-(1-((1r,4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(2-hydroxy-2-methylpropyl)acetamide and pharmaceutically acceptable salts thereof.

5. A compound as claimed in claim 1, wherein said compound is

2-((1r,4r)-4-(2-(1H-Imidazol-4-yl)imidazo[4,5-d]pyrrolo[2,3-b]pyridin-1(6H)-yl)cyclohexyl)acetonitrile; and pharmaceutically acceptable salts thereof.

6. A compound as claimed in claim 1, wherein said compound is

2-(1-((1r,4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((1-hydroxycyclobutyl)methyl)acetamide; and pharmaceutically acceptable salts thereof.

7. A compound as claimed in claim 1, wherein said compound is selected from the group consisting of

2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)- 1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(2-hydroxy-2-methylpropyl)acetamide;

2-((1r, 4r)-4-(2-(1H-Imidazol-4-yl)imidazo[4,5-d]pyrrolo[2,3-b]pyridin- (6H)-yl)cyclohexyl)acetonitrile;

2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)- 1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((1-hydroxycyclobutyl)methyl)acetamide and pharmaceutically acceptable salts, and combinations thereof.

8. A compound as claimed in claim 1, wherein said compound is selected from the group consisting of

2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)- 1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((tetrahydro-2H-pyran-4-yl)methyl)acetamide;

N-(2-Cyano-2-methylpropyl)-2-(1-((1r,4r)-4-(cyanomethyl)cyclohexyl)- 1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)acetamide;

2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)- 1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((1-hydroxycyclobutyl)methyl)acetamide;

2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(1-methyl-1H-pyrazol-4-yl)acetamide;
 N-(4-(Cyanomethyl)bicyclo[2.2.1]heptan-1-yl)-2-(1-((1r, 4r)-4-(cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)acetamide;
 2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(1H-pyrazol-3-yl)acetamide;
 2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((1-hydroxycyclopropyl)methyl)acetamide; and
 pharmaceutically acceptable salts, and combinations thereof.

9. A compound as claimed in claim 1, wherein said compound is selected from the group consisting of

2-(1-((1r,4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(2-hydroxy-2-methylpropyl)acetamide;
 2-((1r,4r)-4-(2-(1H-imidazol-4-yl)imidazo[4,5-d]pyrrolo[2,3-b]pyridin-1(6H)-yl)cyclohexyl)acetonitrile;
 2-(1-((1r,4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(cyclopropylmethyl)acetamide;
 N-(2-Cyanoethyl)-2-(1-((1r,4r)-4-(cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)acetamide;
 2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(tetrahydro-2H-pyran-4-yl)acetamide;
 2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((1-hydroxycyclobutyl)methyl)acetamide; and
 pharmaceutically acceptable salts, and combinations thereof.

10. A compound as claimed in claim 1, wherein said compound is selected from the group consisting of

2-(1-((1r,4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((tetrahydro-2H-pyran-4-yl)methyl)acetamide;
N-(2-Cyano-2-methylpropyl)-2-(1-((1r,4r)-4-(cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)acetamide;
2-(1-((1r,4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((1-hydroxycyclobutyl)methyl)acetamide; and
pharmaceutically acceptable salts, and combinations thereof.

11. A compound as claimed in claim 1, wherein said compound is selected from the group consisting of

2-(1-((1r,4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(2-hydroxy-2-methylpropyl)acetamide;
N-(4-(Cyanomethyl)bicyclo[2.2.1]heptan-1-yl)-2-(1-((1r,4r)-4-(cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)acetamide;
2-(1-((1r,4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(1H-pyrazol-3-yl)acetamide; and
pharmaceutically acceptable salts, and combinations thereof.

12. A pharmaceutical composition comprising a therapeutically effective amount of at least one compound as claimed in claim 1.

13. A compound as claimed in claim 4, wherein said compound is in at least one of the forms 1s, 1a, 1b, 1c, 1d, 1e, 1f, 1g, 1h, 2, 3b, 3c, 3d, 3e, 5, 6, 7, 8, 9, and 10.

14. A compound selected from the group consisting of
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(2-hydroxy-2-methylpropyl)acetamide;
2-((1r, 4r)-4-(2-(1H-Imidazol-4-yl)imidazo[4,5-d]pyrrolo[2,3-b]pyridin-1(6H)-yl)cyclohexyl)acetonitrile;
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(cyclopropylmethyl)acetamide;
N-(2-Cyanoethyl)-2-(1-((1r, 4r)-4-(cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)acetamide;
2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(tetrahydro-2H-pyran-4-yl)acetamide;

2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((tetrahydro-2H-pyran-4-yl)methyl)acetamide;

N-(2-Cyano-2-methylpropyl)-2-(1-((1r, 4r)-4-(cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)acetamide;

2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((1-hydroxycyclobutyl)methyl)acetamide;

2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(1-methyl-1H-pyrazol-4-yl)acetamide;

N-(4-(Cyanomethyl)bicyclo[2.2.1]heptan-1-yl)-2-(1-((1r, 4r)-4-(cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)acetamide;

2-(1-((1r, 4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-(1H-pyrazol-3-yl)acetamide;

2-(1-((1r,4r)-4-(Cyanomethyl)cyclohexyl)-1,6-dihydroimidazo[4,5-d]pyrrolo[2,3-b]pyridin-2-yl)-N-((1-hydroxycyclopropyl)methyl)acetamide; and

pharmaceutically acceptable co-crystals thereof.