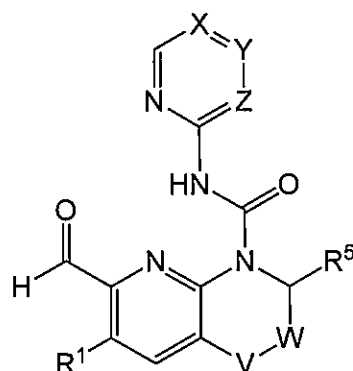


Claims

1. A compound of formula (I), or a pharmaceutically acceptable salt thereof,



(I)

wherein

V is selected from CH₂, O, CH(OH);

W is selected from CH₂, CH₂CH₂, bond;

X is C(R^X) or N;

Y is C(R^Y) or N;

Z is CH or N;

wherein when X is N, Y and Z are not N;

wherein when Y is N, X and Z are not N;

wherein when Z is N, X and Y are not N;

R^X is selected from hydrogen, halogen, haloC₁-C₃alkyl, cyano, C₁-C₆alkyl, hydroxyC₁-C₆alkyl;

R^Y is selected from hydrogen, halogen, C₁-C₃alkyl, C₁-C₆alkoxy, hydroxyC₁-C₃alkoxy,

NR^{Y1}R^{Y2}, cyano, C₁-C₃alkoxyC₁-C₃alkoxy, C₁-C₃alkoxy-haloC₁-C₃alkoxy, di(C₁-

C₃alkyl)aminoC₁-C₆alkoxy, O-(CH₂)₀₋₁-R^{Y3}, CR^{Y6}R^{Y7}, S-C₁-C₃alkyl, haloC₁-C₆alkoxy optionally substituted with hydroxy;

or

R^X and R^Y together with the ring to which they are attached form a bicyclic aromatic ring system optionally further comprising one or two heteroatoms selected from N, O, or S, which ring system is optionally substituted with C₁-C₃alkyl;

R^{Y1} is hydrogen and

R^{Y2} is selected from C₁-C₆alkyl; hydroxyC₁-C₆alkyl; haloC₁-C₆alkyl optionally substituted with hydroxy; C₁-C₄alkoxyC₁-C₆alkyl; haloC₁-C₃alkoxyC₁-C₆alkyl; (CH₂)₀₋₁-R^{Y4}; di(C₁-C₃alkyl)aminoC₁-C₆alkyl substituted with hydroxy; bicycloC₅-C₈alkyl optionally substituted with hydroxyC₁-C₃alkyl; phenyl substituted with S(O)₂-CH(CH₃)₂; C₂-C₃alkylsulfonic acid; or

R^{Y1} and R^{Y2} together with the N atom to which they are attached form a saturated or unsaturated non-aromatic 6-membered heterocyclic ring which may contain an O atom, which ring may be substituted once or twice by R^{Y5};

R^{Y3} is selected from quinuclidinyl, a 4-, 5- or 6-membered saturated heterocyclic ring comprising at least one heteroatom selected from N, O or S, or a 5- or 6-membered aromatic heterocyclic ring, which saturated or aromatic heterocyclic ring is optionally substituted with C₁-C₃alkyl and/or oxo;

R^{Y4} is a 4-, 5- or 6-membered saturated heterocyclic ring comprising at least one heteroatom selected from N, O, or S, which ring is optionally substituted with C₁-C₃alkyl;

R^{Y5} is independently selected from C₁-C₃alkyl, hydroxy, di(C₁-C₃alkyl)aminoC₁-C₃alkyl, or

two R^{Y5} attached at the same carbon atom form together with the carbon atom to which they are attached a 5-membered saturated heterocyclic ring comprising at least one heteroatom selected from N, O or S, which ring is substituted once or more than once with C₁-C₃alkyl; R^{Y6} and R^{Y7} together with the carbon atom to which they are attached form a 6-membered saturated or unsaturated non-aromatic heterocyclic ring comprising one heteroatom selected from N, O or S;

R¹ is selected from hydrogen; halogen; C₁-C₃alkyl; haloC₁-C₃alkyl; hydroxyC₁-C₃alkyl; C₃-C₆cycloalkyl; CH₂NR²R³; CH(CH₃)NR²R³; C₁-C₃alkoxyC₁-C₃alkyl; CH₂CO₂H; C(O)H; C₁-C₃alkoxy; a 5- or 6-membered saturated heterocyclic or aromatic heterocyclic ring comprising at least one heteroatom selected from N, O or S, which ring is optionally substituted once or more than once with a group independently selected from C₁-C₃alkyl, haloC₁-C₃alkyl, oxetanyl or oxo;

R² is selected from C₁-C₃alkyl, di(C₁-C₃alkyl)aminoC₁-C₃alkyl;

R³ is selected from C₁-C₃alkyl, C(O)C₁-C₃alkyl, C(O)-CH₂-OH, C(O)-CH₂-O-CH₃, C(O)-CH₂-N(CH₃)₂, S(O)₂CH₃;

or

R² and R³ together with the N atom to which they are attached form a saturated 5- or 6-membered ring optionally comprising one additional heteroatom selected from N, N-oxide, O or S, which ring may be substituted once or more than once with R⁴;

R⁴ is independently selected from C₁-C₃alkyl, di(C₁-C₃alkyl)amino, C(O)CH₃, hydroxy;

or

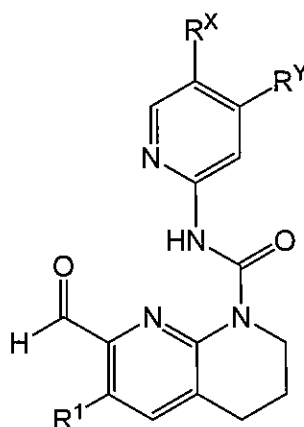
two R⁴ attached at the same carbon atom form together with the carbon atom to which they are attached a 4-, 5- or 6-membered non-aromatic heterocyclic ring comprising at least one heteroatom selected from N, O or S;

or

two R⁴ attached at the same ring atom form an oxo group;

R⁵ is selected from hydrogen or C₁-C₃alkyl.

2. A compound according to claim 1 of formula (Ia), or a pharmaceutically acceptable salt thereof,



(Ia).

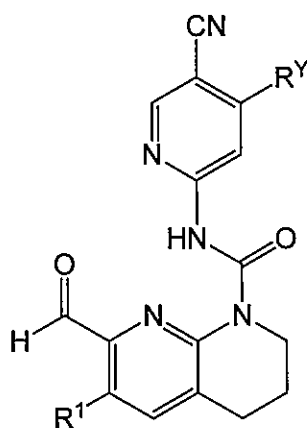
3. A compound according to any of claims 1 or 2, or a pharmaceutically acceptable salt thereof, wherein

R^X is selected from halogen, haloC₁-C₃alkyl, cyano;

R^Y is selected from hydrogen, halogen, C₁-C₃alkyl, C₁-C₆alkoxy, haloC₁-C₃alkoxy, hydroxyC₁-C₃alkoxy, NR^{Y1}R^{Y2}, C₁-C₃alkoxyC₁-C₃alkoxy, C₁-C₃alkoxy-haloC₁-C₃alkoxy, di(C₁-C₃alkyl)aminoC₁-C₆alkoxy, O-(CH₂)₀₋₁-R^{Y3};

R¹ is selected from hydrogen, halogen, C₁-C₃alkyl, haloC₁-C₃alkyl, hydroxyC₁-C₃alkyl, C₃-C₆cycloalkyl, CH₂NR²R³, CH(CH₃)NR²R³.

4. A compound according to any of claims 1 to 3 of formula (Ia-1), or a pharmaceutically acceptable salt thereof,



(Ia-1).

5. A compound of formula (Ia-1) according to claim 4, or a pharmaceutically acceptable salt thereof, wherein

R^Y is selected from $NR^{Y1}R^{Y2}$, C_1 - C_3 alkoxy C_1 - C_3 alkoxy, $O-(CH_2)_{0-1}-R^{Y3}$.

6. A compound of formula (I) according to claim 1, or a pharmaceutically acceptable salt thereof, which is selected from the group consisting of

7-formyl-*N*-(5-(trifluoromethyl)pyridin-2-yl)-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;

N-(4,5-dichloropyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;

N-(5-cyanopyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;

N-(5-chloropyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;

7-formyl-*N*-(pyridin-2-yl)-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;

N-(4,5-dimethylpyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;

7-formyl-*N*-(5-methylpyridin-2-yl)-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;

N-(5-cyanopyrimidin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;

6-formyl-*N*-(5-methylpyridin-2-yl)-2*H*-pyrido[3,2-*b*][1,4]oxazine-4(3*H*)-carboxamide;

6-chloro-*N*-(5-cyanopyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;

7-formyl-*N*-(6-methoxypyrimidin-4-yl)-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;

N-(5-cyanopyrazin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;

N-(5-cyano-4-methoxypyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 6-formyl-*N*-(5-(trifluoromethyl)pyridin-2-yl)-2H-pyrido[3,2-*b*][1,4]oxazine-4(3H)-carboxamide;
 6-fluoro-7-formyl-*N*-(5-(trifluoromethyl)pyridin-2-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
N-(5-chloro-4-((2-(isopropylsulfonyl)phenyl)amino)pyrimidin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
N-(4,5-dicyanopyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 7-formyl-6-(hydroxymethyl)-*N*-(5-(trifluoromethyl)pyridin-2-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
N-(5-cyano-4-ethoxypyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 7-formyl-6-methyl-*N*-(5-(trifluoromethyl)pyridin-2-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
N-(5-cyanopyridin-2-yl)-7-formyl-6-methyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 7-formyl-*N*-(5-(1-hydroxypentyl)pyridin-2-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
N-(5-cyano-4-(2-methoxyethoxy)pyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
N-(4-chloro-5-cyanopyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
N-(5-cyano-4-morpholinopyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
N-(5-cyano-4-(4-hydroxy-4-methylpiperidin-1-yl)pyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
N-(5-cyanopyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
N-(5-cyano-4-(2-methyl-2,8-diazaspiro[4.5]decan-8-yl)pyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
N-(5-cyanopyridin-2-yl)-6-cyclopropyl-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
N-(5-cyano-4-(3,6-dihydro-2H-pyran-4-yl)pyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
N-(5-cyano-4-(tetrahydro-2H-pyran-4-yl)pyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-chloro-4-((tetrahydrofuran-3-yl)oxy)pyrimidin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-isopropoxy-pyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((tetrahydrofuran-2-yl)methoxy)pyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(oxetan-2-ylmethoxy)pyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((tetrahydro-2H-pyran-2-yl)methoxy)pyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyanopyridin-2-yl)-6-(difluoromethyl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(2-(dimethylamino)ethoxy)pyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(2-methoxyethoxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((tetrahydrofuran-3-yl)oxy)pyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(4-hydroxy-4-methylpiperidin-1-yl)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

7-acetyl-*N*-(5-cyanopyridin-2-yl)-6-((dimethylamino)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((tetrahydrofuran-2-yl)methoxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((tetrahydro-2H-pyran-2-yl)methoxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(2-methyl-2,8-diazaspiro[4.5]decan-8-yl)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((1-methylpyrrolidin-3-yl)oxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((1-methylpiperidin-4-yl)oxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((1-methoxypropan-2-yl)oxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((tetrahydrofuran-3-yl)oxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((tetrahydrofuran-3-yl)oxy)pyridin-2-yl)-6-((dimethylamino)methyl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

2-(8-((5-cyanopyridin-2-yl)carbamoyl)-2-formyl-5,6,7,8-tetrahydro-1,8-naphthyridin-3-yl)acetic acid;

N-(5-cyano-4-((tetrahydro-2H-pyran-4-yl)oxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((1-methylpyrrolidin-3-yl)oxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(((tetrahydro-2H-pyran-3-yl)methyl)amino)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((tetrahydrofuran-3-yl)amino)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((2-methoxypropyl)amino)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-chloro-4-((1-methoxypropan-2-yl)oxy)pyrimidin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(4-(4-chloro-2-hydroxybutoxy)-5-cyanopyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(2-methoxyethoxy)pyridin-2-yl)-7-formyl-6-(trifluoromethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(2-methoxyethoxy)pyridin-2-yl)-6-cyclopropyl-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(2-methoxyethoxy)pyridin-2-yl)-6-(difluoromethyl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(2-methoxyethoxy)pyridin-2-yl)-6-((dimethylamino)methyl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((3-(hydroxymethyl)bicyclo[2.2.1]heptan-2-yl)amino)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((tetrahydro-2H-pyran-4-yl)amino)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(2-methoxyethoxy)pyridin-2-yl)-7-formyl-6-(methoxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyanopyridin-2-yl)-7-formyl-6-((*N*-methylacetamido)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-chloro-4-((tetrahydrofuran-3-yl)oxy)pyrimidin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((tetrahydrofuran-3-yl)oxy)pyrimidin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

7-formyl-6-(hydroxymethyl)-*N*-(4-((tetrahydrofuran-3-yl)oxy)pyridin-2-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-chloro-4-((tetrahydrofuran-3-yl)oxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((1-methylpiperidin-3-yl)methoxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((1-methylpyrrolidin-2-yl)methoxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((1-methylpiperidin-2-yl)methoxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-fluoropyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(2-(dimethylamino)ethoxy)pyridin-2-yl)-6-form-¹³C-yl-2H-pyrido[3,2-b][1,4]oxazine-4(3H)-carboxamide;

N-(5-cyano-4-((1-methylpiperidin-4-yl)methoxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyanopyridin-2-yl)-7-formyl-4-hydroxy-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(2-((dimethylamino)methyl)morpholino)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(quinuclidin-3-yloxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

7-formyl-6-(hydroxymethyl)-*N*-(4-((2-methoxyethyl)amino)-5-(trifluoromethyl)pyridin-2-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-(4-((dimethylamino)methyl)-4-hydroxypiperidin-1-yl)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-hydroxy-2-methylpropyl)amino)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((3-(dimethylamino)-2-hydroxy-2-methylpropyl)amino)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-fluoroethyl)amino)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-(2,2,2-trifluoroethoxy)pyridin-2-yl)-7-formyl-6-(hydroxymethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-isopropoxy-pyridin-2-yl)-7-formyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-(isopropylamino)pyridin-2-yl)-7-formyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-((3-oxomorpholino)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-((3-hydroxy-2-oxopyrrolidin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-(2-methoxyethoxy)pyridin-2-yl)-7-formyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-ethylpyridin-2-yl)-6,7-diformyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-((2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide hydrochloride;
 N-(5-cyano-4-((1-methoxypropan-2-yl)oxy)pyridin-2-yl)-7-formyl-6-((4-methyl-2-oxooxazolidin-3-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-((3-methyl-5-oxomorpholino)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 6-((4-acetylpiperazin-1-yl)methyl)-N-(5-cyano-4-isopropoxy-pyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(1-(N-methylacetamido)ethyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-isopropoxy-pyridin-2-yl)-7-formyl-6-((2-hydroxy-*N*-methylacetamido)methyl)-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-6-((*N*-(2-(dimethylamino)ethyl)acetamido)methyl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-6-((*N*-(2-(dimethylamino)ethyl)methylsulfonamido)methyl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
N-(5-cyano-4-isopropoxy-pyridin-2-yl)-6-((2-(dimethylamino)-*N*-methylacetamido)methyl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-((2-methoxy-*N*-methylacetamido)methyl)-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-((3-oxothiomorpholino)methyl)-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-6-((1,1-dioxido-3-oxothiomorpholino)methyl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
N-(5-cyano-4-(((4-methylmorpholin-2-yl)methyl)amino)pyridin-2-yl)-6-(difluoromethyl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
N-(5-cyano-4-((1,1,1-trifluoro-3-methoxypropan-2-yl)oxy)pyridin-2-yl)-6-(difluoromethyl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
N-(5-cyano-4-((2-(trifluoromethoxy)ethyl)amino)pyridin-2-yl)-7-formyl-6-((*N*-methylacetamido)methyl)-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
6-(2-oxa-5-azaspiro[3.4]octan-5-ylmethyl)-*N*-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
N-(4-((2-(tert-butoxy)ethyl)amino)-5-cyanopyridin-2-yl)-7-formyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
N-(5-cyano-4-((2-hydroxyethyl)amino)pyridin-2-yl)-7-formyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
N-(5-cyano-4-(2-hydroxyethoxy)pyridin-2-yl)-7-formyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2*H*)-carboxamide;
N-(5-cyanopyridin-2-yl)-2-formyl-7,8-dihydro-5*H*-pyrido[2,3-*b*]azepine-9(6*H*)-carboxamide;
N-(5-cyano-4-(2-methoxyethoxy)pyridin-2-yl)-2-formyl-7,8-dihydro-5*H*-pyrido[2,3-*b*]azepine-9(6*H*)-carboxamid

N-(5-cyano-4-((1-methoxypropan-2-yl)oxy)pyridin-2-yl)-7-formyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 7-formyl-N-(1-isopropyl-1H-imidazo[4,5-c]pyridin-6-yl)-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 7-formyl-N-(1-isopropyl-1H-imidazo[4,5-c]pyridin-6-yl)-6-((2-oxopyrrolidin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 4-((8-((5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)carbamoyl)-2-formyl-5,6,7,8-tetrahydro-1,8-naphthyridin-3-yl)methyl)-1-methyl-3-oxopiperazine 1-oxide;
 N-(5-cyano-4-((2-oxopiperidin-4-yl)methoxy)pyridin-2-yl)-7-formyl-6-((2-oxopyrrolidin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-(2-methoxyethoxy)pyridin-2-yl)-7-formyl-2-methyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-isopropoxy)pyridin-2-yl)-7-formyl-2-methyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-2-methyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-((3-hydroxy-4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-isopropoxy)pyridin-2-yl)-6-formyl-2,3-dihydro-1H-pyrrolo[2,3-b]pyridine-1-carboxamide;
 2-((5-cyano-2-(7-formyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-1,2,3,4-tetrahydro-1,8-naphthyridine-1-carboxamido)pyridin-4-yl)amino)ethyl hydrogen sulfate;
 N-(4-(bicyclo[1.1.1]pentan-1-ylamino)-5-cyanopyridin-2-yl)-7-formyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-(thiophen-2-ylmethoxy)pyridin-2-yl)-7-formyl-6-((N-methylacetamido)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-(isopropylthio)pyridin-2-yl)-7-formyl-6-((N-methylacetamido)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-6-((3,5-dimethylpiperazin-1-yl)methyl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-((3,3,4-trimethyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 6-amino-N-(5-cyanopyridin-2-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;

N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(tetrahydro-2H-pyran-4-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-6-(1,3-dimethyl-1H-pyrazol-4-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(1-methyl-1H-pyrazol-4-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(2-methylthiazol-5-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(thiophen-2-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(1H-imidazol-1-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(pyridin-3-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(1-methyl-1H-pyrazol-5-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(3-methyl-1H-1,2,4-triazol-1-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(3-methyl-2-oxopyrrolidin-1-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(3-oxomorpholino)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(2-oxooxazolidin-3-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-isopropoxy-pyridin-2-yl)-7-formyl-6-(tetrahydrofuran-3-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-isopropoxy-pyridin-2-yl)-7-formyl-6-(piperidin-4-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide;
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-(1-(oxetan-3-yl)piperidin-4-yl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide; and
 N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-6-(1-(2,2-difluoroethyl)piperidin-4-yl)-7-formyl-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide.

7. A compound of formula (I) according to claim 1 which is N-(5-cyano-4-((2-methoxyethyl)amino)pyridin-2-yl)-7-formyl-6-((4-methyl-2-oxopiperazin-1-yl)methyl)-3,4-dihydro-1,8-naphthyridine-1(2H)-carboxamide or a pharmaceutically acceptable salt thereof.
8. The compound of claim 7 wherein the pharmaceutically acceptable salt is a malate, tartrate or citrate salt.
9. A pharmaceutical composition comprising a therapeutically effective amount of a compound according to any one of claims 1 to 8 or a pharmaceutically acceptable salt thereof and one or more pharmaceutically acceptable carriers.
10. A combination comprising a therapeutically effective amount of a compound according to any one of claims 1 to 8 or a pharmaceutically acceptable salt thereof and one or more therapeutically active agents.
11. A combination according to claim 10, wherein the one or more therapeutically active agents is an anti-cancer agent which is selected from:
 - Tyrosine kinase inhibitors;
 - Vascular Endothelial Growth Factor (VEGF) receptor inhibitors;
 - Platelet-derived Growth Factor (PDGF) receptor inhibitors;
 - Fibroblast Growth Factor Receptor (FGFR) Inhibitors;
 - Aurora kinase inhibitors;
 - Cyclin-Dependent Kinase (CDK) inhibitors;
 - Checkpoint Kinase (CHK) inhibitors;
 - 3-Phosphoinositide-dependent kinase-1 (PDK1 or PDK1) inhibitors;
 - Pyruvate Dehydrogenase Kinase (PDK) inhibitors;
 - Protein Kinase B (PKB) or AKT inhibitors;
 - Protein Kinase C (PKC) activators;
 - B-Raf inhibitors;
 - C-Raf Inhibitors;
 - Human Granulocyte colony-stimulating factor (G-CSF) modulators;
 - RET Inhibitors;
 - FMS-like Tyrosine kinase 3 (FLT3) Inhibitors or CD135;
 - c-KIT Inhibitors;
 - Bcr/Abl kinase inhibitors;
 - IGF-1R inhibitors;

- PIM Kinase inhibitors;
- MET inhibitors;
- Human Epidermal Growth Factor Receptor 2 (HER2 receptor) inhibitors;
- Epidermal growth factor receptor (EGFR) inhibitors;
- Hedgehog antagonists;
- mTOR inhibitors;
- Phosphoinositide 3-kinase (PI3K) inhibitors;
- Bcl-2 protein family inhibitors;
- Mitogen-activated protein kinase (MEK) inhibitors;
- P38 MAPK inhibitors;
- JAK inhibitors;
- Alkylating agents;
- Aromatase inhibitors;
- Topoisomerase I inhibitors;
- Topoisomerase II inhibitors;
- DNA Synthesis inhibitors;
- Folate Antagonists or Antifolates
- Immunomodulators;
- Proapoptotic receptor agonists (PARAs);
- Phospholipase A2 (PLA₂) inhibitors;
- SRC inhibitors;
- Osteoclastic bone resorption inhibitors;
- G-Protein-coupled Somatostatin receptors Inhibitors;
- Interleukin-11 and Synthetic Interleukin-11 (IL-11);
- Erythropoietin and Synthetic erythropoietin;
- Receptor Activator for Nuclear Factor κ B (RANK) inhibitors;
- Thrombopoietin mimetic peptibodies;
- Cell growth stimulators;
- Histone deacetylase (HDAC) inhibitors;
- Biologic response modifiers;
- Anti-tumor antibiotics;
- Anti-microtubule or Anti-mitotic agents;
- Plant Alkaloids;
- Taxane anti-neoplastic agents;

- Cathepsin K inhibitors;
- Epothilone B analogs;
- Heat Shock Protein (HSP) inhibitors;
- Farnesyl Transferase Inhibitors (FTI);
- Thrombopoietin (TpoR) agonists such as Eltrombopag (SB497115, Promacta® and Revolade®); and Romiplostim (Nplate®);
- Proteosome inhibitors;
- Kinesis Spindle Protein (KSP) inhibitors;
- Polo-like kinase (Plk) inhibitors;
- Adrenal steroid inhibitors;
- Anti-androgens;
- Anabolic Steroids;
- Proteasome inhibitors;
- Gonadotropin-releasing hormone (GnRH) receptor agonists;
- HPV vaccines;
- Iron Chelating agents;
- Anti-metabolites;
- Bisphosphonates;
- Demethylating agents;
- Retinoids;
- Cytokines;
- Estrogen receptor downregulators;
- Anti-estrogens;
- Selective estrogen receptor modulators (SERMs);
- Leutinizing hormone releasing hormone (LHRH) agonists;
- Progesterones;
- 17 α -hydroxylase/C17,20 lyase (CYP17A1) inhibitors;
- Miscellaneous cytotoxic agents;
- C-C Chemokine receptor 4 (CCR4) Antibody;
- CD20 antibodies;
- CD20 Antibody Drug Conjugates;
- CD22 Antibody Drug Conjugates;
- CD33 Antibody Drug Conjugates;
- CD40 antibodies;

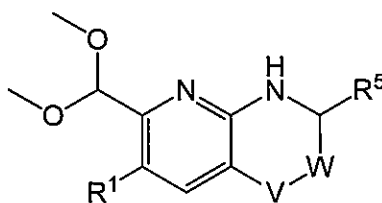
- CD52 antibodies;
- Anti-CS1 antibodies;
- CTLA-4 antibodies;
- p53-MDM2 inhibitors;
- p53 activators.

12. A compound according to any one of claims 1 to 8, or a pharmaceutically acceptable salt thereof, for use as a medicament.

13. A compound according to any one of claims 1 to 8, or a pharmaceutically acceptable salt thereof, for use in the treatment of cancer.

14. A compound for use according to claim 13, or a pharmaceutically acceptable salt thereof, wherein the cancer is selected from liver cancer, breast cancer, glioblastoma, prostate cancer, rhabdomyosarcoma, gastric cancer, ovarian cancer, lung cancer, colon cancer.

15. A compound of formula (IV) or a salt thereof



(IV)

wherein

V is selected from CH₂, O, CH(OH);

W is selected from CH₂, CH₂CH₂, bond;

R¹ is selected from halogen, C₁-C₃alkyl, haloC₁-C₃alkyl, hydroxyC₁-C₃alkyl, C₃-C₆cycloalkyl, CH₂NR²R³, CH(CH₃)NR²R³, C₁-C₃alkoxyC₁-C₃alkyl, CH₂CO₂H, C(O)H;

R² is selected from C₁-C₃alkyl, di(C₁-C₃alkyl)aminoC₁-C₃alkyl;

R³ is selected from C₁-C₃alkyl, C(O)C₁-C₃alkyl, C(O)-CH₂-OH, C(O)-CH₂-O-CH₃, C(O)-CH₂-N(CH₃)₂, S(O)₂CH₃;

or

R^2 and R^3 together with the N atom to which they are attached form a saturated 5- or 6-membered ring optionally comprising one additional heteroatom selected from N, N-oxide, O or S, which ring may be substituted once or more than once with R^4 ;

R^4 is independently selected from C_1 - C_3 alkyl, $di(C_1$ - C_3 alkyl)amino, $C(O)CH_3$, hydroxy;

or

two R^4 attached at the same carbon atom form together with the carbon atom to which they are attached a 4-, 5- or 6-membered non-aromatic heterocyclic ring comprising at least one heteroatom selected from N, O or S;

or

two R^4 attached at the same ring atom form an oxo group;

R^5 is selected from hydrogen or C_1 - C_3 alkyl.