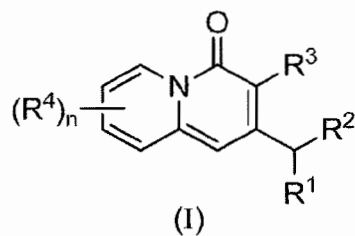


CLAIMS

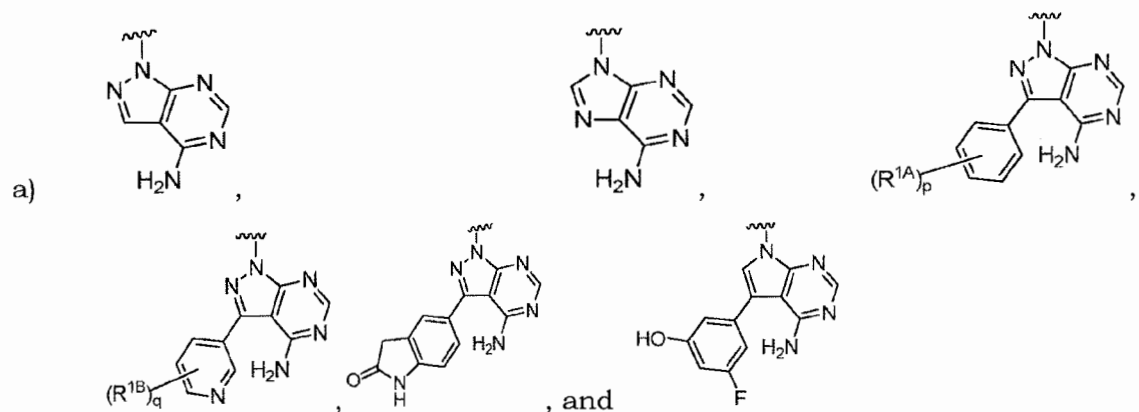
1. A compound of the general formula (I), its tautomeric form, its stereoisomer, or its pharmaceutically acceptable salt,



5

wherein,

R¹ is selected from

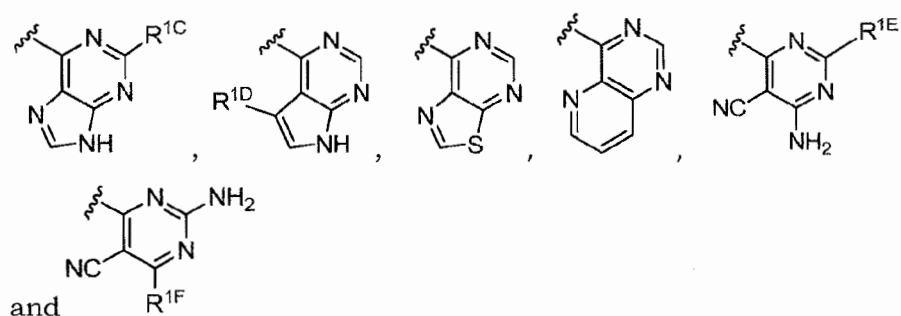


10 wherein,

R^{1A} is independently selected at each occurrence from halogen, hydroxy, hydroxyalkyl, and -NHSO₂CH₃;

R^{1B} is independently selected at each occurrence from hydroxy, alkoxy and -NHSO₂CH₃; or

15 b) -NH-R^{1a} ; wherein R^{1a} is selected from



wherein,

- 5 R^{1C} is selected from hydrogen, halogen, and amino; R^{1D} is selected from halogen and cyano; R^{1E} is selected from hydrogen and amino; R^{1F} is selected from hydrogen, halogen, and alkyl;

R^2 is selected from hydrogen, substituted- or unsubstituted- alkyl, hydroxyalkyl, $-OR^5$, $-(CH_2)_mNR^6R^7$, and $-C(=O)-NR^6R^7$;

- 10 R^3 is selected from substituted- or unsubstituted aryl, substituted- or unsubstituted cycloalkyl, and substituted- or unsubstituted cycloalkenyl;

- R^4 is independently selected at each occurrence from halogen, substituted- or unsubstituted-alkyl, substituted- or unsubstituted-aryl, substituted- or unsubstituted-heteroaryl, substituted- or unsubstituted-heterocycle, substituted- or unsubstituted-carbocycle, and $-OR^5$;
- 15

R^5 is substituted- or unsubstituted- alkyl;

R^6 and R^7 are each independently selected from hydrogen and substituted- or unsubstituted- alkyl;

n is an integer selected from 0, 1, and 2;

- 20 m is an integer selected from 1, 2, 3, and 4;

p is an integer selected from 0, 1, and 2; and

q is an integer selected from 0, 1, and 2;

wherein:

when an 'alkyl' group is substituted, it is substituted with 1 to 3 substituents independently selected from oxo (=O), halogen, nitro, cyano, perhaloalkyl, cycloalkyl, cycloalkenyl, aryl, heteroaryl, heterocyclyl, -OR^{8b}, -SO₂R^{8a}, -C(=O)OR^{8a}, -OC(=O)R^{8a}, -C(=O)N(H)R⁸, -C(=O)N(alkyl)R⁸, -N(H)C(=O)R^{8a}, -N(H)R⁸, and -N(alkyl)R⁸;

when 'cycloalkyl', 'cycloalkenyl' and 'carbocycle' is substituted, each of them is substituted with 1 to 3 substituents independently selected from oxo (=O), halogen, nitro, cyano, alkyl, alkenyl, cycloalkyl, cycloalkenyl, perhaloalkyl, aryl, heteroaryl, heterocyclyl, -OR^{8b}, -SO₂R^{8a}, -C(=O)R^{8a}, -C(=O)OR^{8a}, -OC(=O)R^{8a}, -C(=O)N(H)R⁸, -C(=O)N(alkyl)R⁸, -N(H)C(=O)R^{8a}, -N(H)R⁸, and -N(alkyl)R⁸;

when the 'aryl' group is substituted, it is substituted with 1 to 3 substituents independently selected from halogen, nitro, cyano, hydroxy, alkyl, alkenyl, perhaloalkyl, cycloalkyl, cycloalkenyl, heterocyclyl, aryl, heteroaryl, -O-alkyl, -O-perhaloalkyl, -N(alkyl)alkyl, -N(H)alkyl, -NH₂, -SO₂-alkyl, -SO₂-perhaloalkyl, -N(alkyl)C(=O)alkyl, -N(H)C(=O)alkyl, -C(=O)N(alkyl)alkyl, -C(=O)N(H)alkyl, -C(=O)N(H)cycloalkyl, -C(=O)NH₂, -SO₂N(alkyl)alkyl, -SO₂N(H)alkyl, -SO₂NH₂, -C(=O)OH, and -C(=O)O-alkyl;

when the 'heteroaryl' group is substituted, it is substituted with 1 to 3 substituents independently selected from halogen, cyano, hydroxy, alkyl, alkenyl, perhaloalkyl, cycloalkyl, cycloalkenyl, heterocyclyl, -O-alkyl, O-perhaloalkyl, -N(alkyl)alkyl, -N(H)alkyl, -NH₂, -SO₂-alkyl, -SO₂-perhaloalkyl, -N(alkyl)C(=O)alkyl, -N(H)C(=O)alkyl, -C(=O)N(alkyl)alkyl, -C(=O)N(H)alkyl, -C(=O)NH₂, -SO₂N(alkyl)alkyl, -SO₂N(H)alkyl, -SO₂NH₂, -C(=O)OH, and -C(=O)O-alkyl;

when the 'heterocyclyl' and 'heterocycle' is substituted, each of them is substituted either on a ring carbon atom or on a ring hetero atom, and when it is substituted on a ring carbon atom, it is substituted with 1 to 3 substituents independently selected from halogen, nitro, cyano, oxo (=O), alkyl, alkenyl, perhaloalkyl, cycloalkyl, cycloalkenyl, aryl, heteroaryl, heterocyclyl, -SO₂R^{8a}, -OR^{8b}, -C(=O)OR^{8a}, -OC(=O)R^{8a}, -C(=O)N(H)R⁸, -C(=O)N(alkyl)R⁸, -N(H)C(=O)R^{8a}, -N(H)R⁸, and -N(alkyl)R⁸; and when the heterocyclic group is substituted on a ring nitrogen, it is substituted with substituents independently selected from alkyl, alkenyl, hydroxyalkyl, cycloalkyl, cycloalkenyl, aryl, heteroaryl, -SO₂R^{8a}, -C(=O)R^{8c}, C(=O)OR^{8a}, -C(=O)N(H)R⁸, and -C(=O)N(alkyl)R⁸;

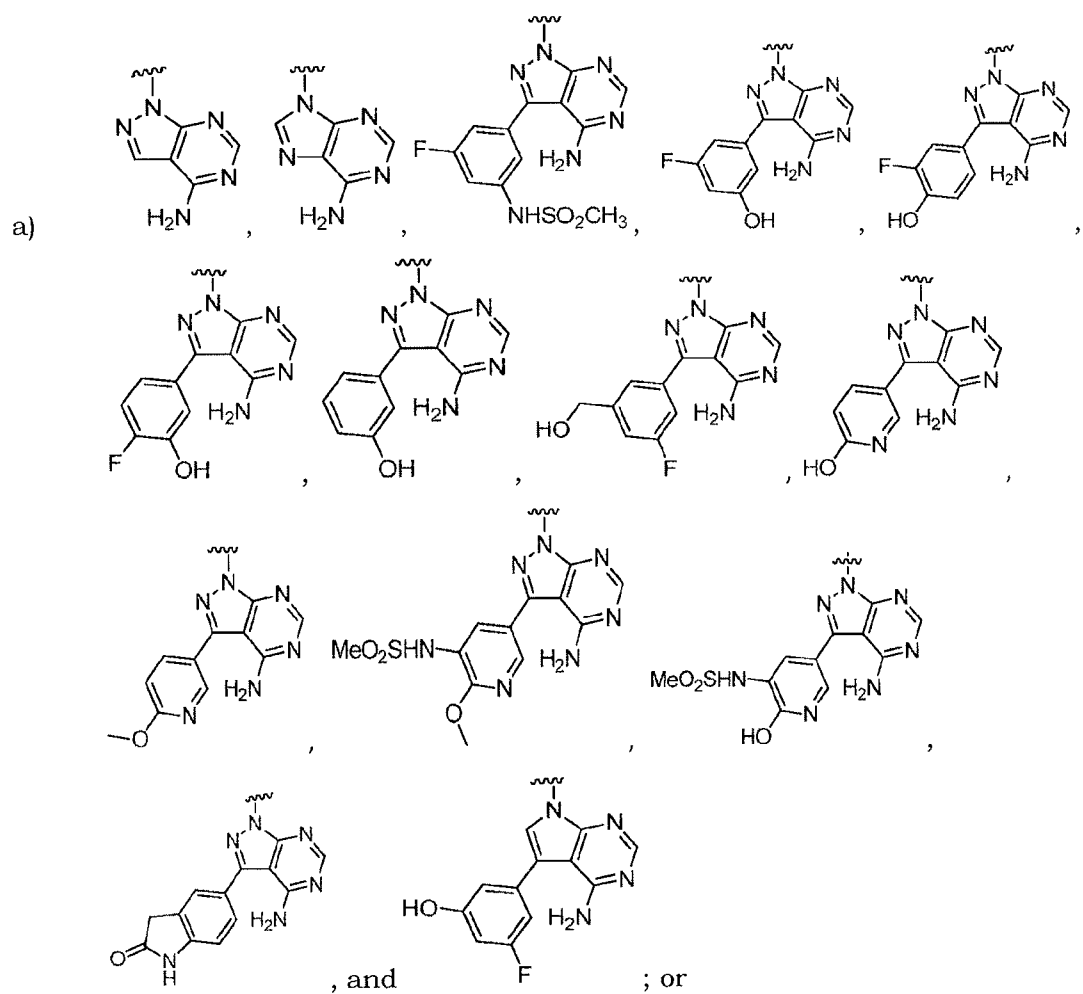
R⁸ is selected from the group consisting of hydrogen, alkyl, alkenyl, cycloalkyl, cycloalkenyl, aryl, heteroaryl, and heterocyclyl;

R^{8a} is selected from the group consisting of alkyl, alkenyl, perhaloalkyl, cycloalkyl, cycloalkenyl, aryl, heteroaryl, and heterocyclyl;

R^{8b} is selected from the group consisting of hydrogen, alkyl, alkenyl, perhaloalkyl, cycloalkyl, cycloalkenyl, aryl, heteroaryl, and heterocyclyl; and

R^{8c} is selected from the group consisting of alkyl, hydroxyalkyl, alkenyl, perhaloalkyl, cycloalkyl, cycloalkenyl, aryl, heteroaryl, and heterocyclyl.

2. The compound of formula (I), its tautomeric form, its stereoisomer, or its pharmaceutically acceptable salt, as claimed in claim 1, R¹ is selected from



5

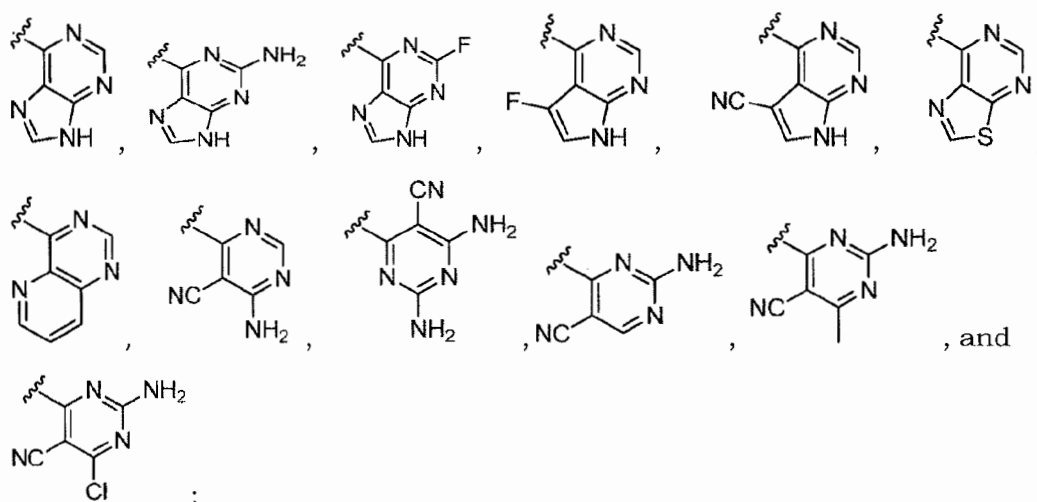
b) $-\text{NH}-\text{R}^{1a}$; wherein R^{1a} is selected from

- 10319833 1 (GHMatters) P104952 AU

c)



10319833_1 (GHMatters) P104952 AU



R² is selected from hydrogen and alkyl;

5 R³ is substituted- or unsubstituted aryl; and

R⁴ is independently selected at each occurrence from halogen and alkyl.

8. The compound of formula (I), its tautomeric form, its stereoisomer, or its pharmaceutically acceptable salt, as claimed in any one of claims 1 to 7, wherein the compound is selected from:

10 2-(1-((9*H*-purin-6-yl)amino)ethyl)-3-phenyl-4*H*-quinolizin-4-one;

2-(1-((9*H*-purin-6-yl)amino)ethyl)-6-methyl-3-phenyl-4*H*-quinolizin-4-one;

2-(1-((9*H*-purin-6-yl)amino)ethyl)-7-methyl-3-phenyl-4*H*-quinolizin-4-one;

4-Amino-6-((1-(4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

15 2-(1-((9*H*-purin-6-yl)amino)ethyl)-3-(3-fluorophenyl)-4*H*-quinolizin-4-one;

4-Amino-6-((1-(3-(3-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)-pyrimidine-5-carbonitrile;

- 4-Amino-6-((1-(6-methyl-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)-pyrimidine-5-carbonitrile;
- 2-(1-((2-Amino-9*H*-purin-6-yl)amino)ethyl)-6-methyl-3-phenyl-4*H*-quinolizin-4-one;
- 5 2-(1-((2-Fluoro-9*H*-purin-6-yl)amino)ethyl)-6-methyl-3-phenyl-4*H*-quinolizin-4-one;
- 4-Amino-6-((1-(3-(3-fluorophenyl)-6-methyl-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- 10 2-(1-((9*H*-purin-6-yl)amino)ethyl)-3-(3-fluorophenyl)-6-methyl-4*H*-quinolizin-4-one;
- 2-(1-((2-Amino-9*H*-purin-6-yl)amino)ethyl)-3-(3-fluorophenyl)-6-methyl-4*H*-quinolizin-4-one;
- 2-(1-((9*H*-purin-6-yl)amino)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;
- 15 4-Amino-6-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)-pyrimidine-5-carbonitrile;
- 2-(1-((2-Amino-9*H*-purin-6-yl)amino)ethyl)-7-fluoro-3-(3-fluorophenyl)-4*H*-quinolizin-4-one;
- 4-Amino-6-((1-(7-fluoro-3-(3-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- 20 4-Amino-6-((1-(3-(3,5-difluorophenyl)-6-methyl-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- 2-(1-((2-amino-9*H*-purin-6-yl)amino)ethyl)-3-(3,5-difluorophenyl)-6-methyl-4*H*-quinolizin-4-one;

4-Amino-6-((1-(3-(3,4-difluorophenyl)-6-methyl-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

2-Amino-4-((1-(7-fluoro-3-(3-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

5 2-Amino-4-((1-(7-fluoro-3-(3-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)-6-methylpyrimidine-5-carbonitrile;

4-Amino-6-((1-(7-fluoro-6-methyl-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

10 4-Amino-6-((1-(7-fluoro-3-(3-fluorophenyl)-6-methyl-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

2-(1-((9*H*-purin-6-yl)amino)ethyl)-7-fluoro-6-methyl-3-phenyl-4*H*-quinolizin-4-one;

(*S*)-2,4-diamino-6-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)-pyrimidine-5-carbonitrile;

15 (*S*)-2-amino-4-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

(*S*)-2-amino-4-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)-6-methylpyrimidine-5-carbonitrile;

20 (*S*)-4-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carbonitrile;

(*S*)-4-amino-6-((1-(7-fluoro-3-(3-fluoro-5-methylphenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

(*S*)-2,4-diamino-6-((1-(7-fluoro-3-(3-fluoro-5-methylphenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

- (S)-4-amino-6-((1-(7-fluoro-4-oxo-3-(*m*-tolyl)-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- (S)-2,4-diamino-6-((1-(7-fluoro-4-oxo-3-(*m*-tolyl)-4*H*-quinolizin-2-yl)ethyl)-amino)pyrimidine-5-carbonitrile;
- 5 (S)-2-(1-((2-amino-9*H*-purin-6-yl)amino)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;
- (S)-4-amino-6-((1-(7-fluoro-4-oxo-3-(3-(trifluoromethoxy)phenyl)-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- 10 (S)-2-(1-((2-amino-9*H*-purin-6-yl)amino)ethyl)-7-fluoro-3-(3-(trifluoromethoxy)-phenyl)-4*II*-quinolizin-4-one;
- (S)-4-amino-6-((1-(7-fluoro-3-(4-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- (S)-2,4-diamino-6-((1-(7-fluoro-3-(4-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- 15 (S)-2-(1-((9*H*-purin-6-yl)amino)ethyl)-7-fluoro-3-(4-fluorophenyl)-4*H*-quinolizin-4-one;
- (S)-2-(1-((2-amino-9*H*-purin-6-yl)amino)ethyl)-7-fluoro-3-(4-fluorophenyl)-4*H*-quinolizin-4-one;
- (S)-7-fluoro-2-(1-((5-fluoro-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)ethyl)-3-phenyl-4*H*-quinolizin-4-one;
- 20 4-Amino-6-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)propyl)amino)pyrimidine-5-carbonitrile;
- 2,4-diamino-6-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)propyl)amino)pyrimidine-5-carbonitrile;

- 2-(1-((9*H*-purin-6-yl)amino)propyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;
- 4-Amino-6-((1-(7-fluoro-3-(3-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)propyl)amino)pyrimidine-5-carbonitrile;
- 2,4-diamino-6-((1-(7-fluoro-3-(3-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)propyl)amino)pyrimidine-5-carbonitrile;
- 2-(1-((9*H*-purin-6-yl)amino)propyl)-7-fluoro-3-(3-fluorophenyl)-4*H*-quinolizin-4-one;
- 2-(1-((2-amino-9*H*-purin-6-yl)amino)propyl)-7-fluoro-3-(3-fluorophenyl)-4*H*-quinolizin-4-one;
- (S)-4-amino-6-((1-(3-(3,5-difluorophenyl)-7-fluoro-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- (S)-2,4-diamino-6-((1-(3-(3,5-difluorophenyl)-7-fluoro-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- (S)-2-(1-((9*H*-purin-6-yl)amino)ethyl)-3-(3,5-difluorophenyl)-7-fluoro-4*H*-quinolizin-4-one;
- (S)-2-(1-((2-amino-9*H*-purin-6-yl)amino)ethyl)-3-(3,5-difluorophenyl)-7-fluoro-4*H*-quinolizin-4-one;
- (S)-7-fluoro-3-phenyl-2-(1-(thiazolo[5,4-*d*]pyrimidin-7-ylamino)ethyl)-4*H*-quinolizin-4-one;
- (S)-2-amino-4-chloro-6-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- (S)-7-fluoro-3-phenyl-2-(1-(pyrido[3,2-*d*]pyrimidin-4-ylamino)ethyl)-4*H*-quinolizin-4-one;

- 2-((4-Amino-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)methyl)-6-methyl-3-phenyl-4*H*-quinolizin-4-one;
- 2-((6-Amino-9*H*-purin-9-yl)methyl)-3-phenyl-4*H*-quinolizin-4-one;
- 5 2-(1-(4-Amino-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-3-(3-fluorophenyl)-6-methyl-4*H*-quinolizin-4-one;
- N-(3-(4-amino-1-(1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-3-yl)-5-fluorophenyl)methanesulfonamide;
- 2-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;
- 10 2-(1-(4-amino-3-(3-fluoro-4-hydroxyphenyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;
- 2-(1-(4-amino-3-(4-fluoro-3-hydroxyphenyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;
- 15 2-(1-(4-amino-3-(3-hydroxyphenyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;
- 2-(1-(4-amino-5-(3-fluoro-5-hydroxyphenyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-7-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;
- 2-(1-(4-amino-3-(6-methoxypyridin-3-yl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;
- 20 2-(1-(4-amino-3-(2-oxoindolin-5-yl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;
- (*S*)-2-(1-(4-amino-3-(6-hydroxypyridin-3-yl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;

N-(5-(4-amino-1-(1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-3-yl)-2-methoxypyridin-3-yl)methanesulfonamide;

(*S*)-N-(5-(4-amino-1-(1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-3-yl)-2-hydroxypyridin-3-yl)methanesulfonamide; and

2-(1-(4-amino-3-(3-fluoro-5-(hydroxymethyl)phenyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one.

- 9.** The compound of formula (I), its tautomeric form, its stereoisomer, or its pharmaceutically acceptable salt, as claimed in any one of claims 1 to 8, wherein the compound is selected from:

2-(1-((9*H*-purin-6-yl)amino)ethyl)-6-methyl-3-phenyl-4*H*-quinolizin-4-one;

4-Amino-6-((1-(4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

2-(1-((9*H*-purin-6-yl)amino)ethyl)-3-(3-fluorophenyl)-4*H*-quinolizin-4-one;

4-Amino-6-((1-(3-(3-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)-pyrimidine-5-carbonitrile;

4-Amino-6-((1-(6-methyl-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)-pyrimidine-5-carbonitrile;

2-(1-((2-Amino-9*H*-purin-6-yl)amino)ethyl)-6-methyl-3-phenyl-4*H*-quinolizin-4-one;

2-(1-((2-Fluoro-9*H*-purin-6-yl)amino)ethyl)-6-methyl-3-phenyl-4*H*-quinolizin-4-one;

4-Amino-6-((1-(3-(3-fluorophenyl)-6-methyl-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

- 2-(1-((9*H*-purin-6-yl)amino)ethyl)-3-(3-fluorophenyl)-6-methyl-4*H*-quinolizin-4-one;
- 2-(1-((2-Amino-9*H*-purin-6-yl)amino)ethyl)-3-(3-fluorophenyl)-6-methyl-4*H*-quinolizin-4-one;
- 5 2-(1-((9*H*-purin-6-yl)amino)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;
- 4-Amino-6-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)-pyrimidine-5-carbonitrile;
- 2-(1-((2-Amino-9*H*-purin-6-yl)amino)ethyl)-7-fluoro-3-(3-fluorophenyl)-4*H*-quinolizin-4-one;
- 10 4-Amino-6-((1-(7-fluoro-3-(3-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- 4-Amino-6-((1-(3-(3,5-difluorophenyl)-6-methyl-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- 2-(1-((2-amino-9*H*-purin-6-yl)amino)ethyl)-3-(3,5-difluorophenyl)-6-methyl-4*H*-quinolizin-4-one;
- 15 4-Amino-6-((1-(3-(3,4-difluorophenyl)-6-methyl-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- 2-Amino-4-((1-(7-fluoro-3-(3-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;
- 20 2-Amino-4-((1-(7-fluoro-3-(3-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)-6-methylpyrimidine-5-carbonitrile;
- 4-Amino-6-((1-(7-fluoro-6-methyl-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

4-Amino-6-((1-(7-fluoro-3-(3-fluorophenyl)-6-methyl-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

2-(1-((9*H*-purin-6-yl)amino)ethyl)-7-fluoro-6-methyl-3-phenyl-4*H*-quinolizin-4-one;

5 (S)-2,4-diamino-6-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

(S)-2-amino-4-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

10 (S)-2-amino-4-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)-6-methylpyrimidine-5-carbonitrile;

(S)-4-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)-7*H*-pyrrolo[2,3-*d*]pyrimidine-5-carbonitrile;

(S)-4-amino-6-((1-(7-fluoro-3-(3-fluoro-5-methylphenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

15 (S)-2,4-diamino-6-((1-(7-fluoro-3-(3-fluoro-5-methylphenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

(S)-4-amino-6-((1-(7-fluoro-4-oxo-3-(*m*-tolyl)-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

20 (S)-2,4-diamino-6-((1-(7-fluoro-4-oxo-3-(*m*-tolyl)-4*H*-quinolizin-2-yl)ethyl)-amino)pyrimidine-5-carbonitrile;

(S)-2-(1-((2-amino-9*H*-purin-6-yl)amino)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;

(S)-4-amino-6-((1-(7-fluoro-4-oxo-3-(3-(trifluoromethoxy)phenyl)-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

(S)-4-amino-6-((1-(7-fluoro-3-(4-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

(S)-7-fluoro-2-(1-((5-fluoro-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amino)ethyl)-3-phenyl-4*H*-quinolizin-4-one;

5 4-Amino-6-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)propyl)amino)pyrimidine-5-carbonitrile;

2,4-diamino-6-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)propyl)amino)pyrimidine-5-carbonitrile;

10 4-Amino-6-((1-(7-fluoro-3-(3-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)propyl)amino)pyrimidine-5-carbonitrile;

2,4-diamino-6-((1-(7-fluoro-3-(3-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)propyl)amino)pyrimidine-5-carbonitrile;

2-(1-((2-amino-9*H*-purin-6-yl)amino)propyl)-7-fluoro-3-(3-fluorophenyl)-4*H*-quinolizin-4-one;

15 (S)-4-amino-6-((1-(3-(3,5-difluorophenyl)-7-fluoro-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

(S)-2,4-diamino-6-((1-(3-(3,5-difluorophenyl)-7-fluoro-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

20 (S)-2-(1-((9*H*-purin-6-yl)amino)ethyl)-3-(3,5-difluorophenyl)-7-fluoro-4*H*-quinolizin-4-one;

(S)-2-(1-((2-amino-9*H*-purin-6-yl)amino)ethyl)-3-(3,5-difluorophenyl)-7-fluoro-4*H*-quinolizin-4-one;

(S)-7-fluoro-3-phenyl-2-(1-(thiazolo[5,4-*d*]pyrimidin-7-ylamino)ethyl)-4*H*-quinolizin-4-one;

(S)-2-amino-4-chloro-6-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

(S)-7-fluoro-3-phenyl-2-(1-(pyrido[3,2-*d*]pyrimidin-4-ylamino)ethyl)-4*H*-quinolizin-4-one;

5 N-(3-(4-amino-1-(1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-3-yl)-5-fluorophenyl)methanesulfonamide;

2-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;

10 2-(1-(4-amino-3-(3-fluoro-4-hydroxyphenyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;

2-(1-(4-amino-3-(4-fluoro-3-hydroxyphenyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;

2-(1-(4-amino-3-(3-hydroxyphenyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;

15 2-(1-(4-amino-5-(3-fluoro-5-hydroxyphenyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-7-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;

2-(1-(4-amino-3-(6-methoxypyridin-3-yl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one;

20 2-(1-(4-amino-3-(2-oxoindolin-5-yl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one; and

N-(5-(4-amino-1-(1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-3-yl)-2-methoxypyridin-3-yl)methanesulfonamide.

10. The compound of formula (I), its tautomeric form, its stereoisomer, or its pharmaceutically acceptable salt, as claimed in any one of claims 1 to 9, wherein the compound is selected from:

5 4-amino-6-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)-pyrimidine-5-carbonitrile;

4-Amino-6-((1-(7-fluoro-3-(3-fluorophenyl)-4-oxo-4*H*-quinolizin-2-yl)ethyl)amino)pyrimidine-5-carbonitrile;

2-(1-((2-Amino-9*H*-purin-6-yl)amino)ethyl)-7-fluoro-3-(3-fluorophenyl)-4*H*-quinolizin-4-one;

10 (S)-2,4-diamino-6-((1-(7-fluoro-4-oxo-3-phenyl-4*H*-quinolizin-2-yl)ethyl)amino)-pyrimidine-5-carbonitrile; and

2-(1-(4-amino-3-(6-methoxypyridin-3-yl)-1*H*-pyrazolo[3,4-*d*]pyrimidin-1-yl)ethyl)-7-fluoro-3-phenyl-4*H*-quinolizin-4-one.

15 **11.** A pharmaceutical composition comprising the compound of any one of claims 1 to 10, its tautomeric form, its stereoisomer, or its pharmaceutically acceptable salt, and a pharmaceutically acceptable carrier.

20

14. The method of claim 12, or the use of claim 13, wherein the mammal in need thereof is suffering from transplant rejection, lymphocytic leukemia, or lymphoma.

15. The method or use of claim 14, wherein the lymphoma is non-Hodgkin
5 lymphoma.

16. The method of claim 12, or the use of claim 13, wherein the mammal in need thereof is suffering from a cancer selected from the group consisting of non-Hodgkin's lymphoma, follicular lymphoma, acute or chronic lymphocytic leukemia, Hodgkin's lymphoma, acute or chronic myeloid leukemia, myeloma, melanoma, B-
10 cell lymphoma, diffuse large B-cell lymphoma, small lymphocytic leukemia, T-cell lymphoma, natural killer cell lymphoma, myeloproliferative neoplasms, multiple myeloma, myelodysplastic syndrome, chronic myelogenous leukemia, mesothelioma, sarcoma, and pancreatic, oesophageal, liver, cervical, endometrial, biliary, breast, ovarian, prostate, gastrointestinal, stomach, skin, colon, colorectal,
15 non-small cell lung, bladder, gastrointestinal stromal, renal, central nervous system, brain, head or neck, thyroid, and testicular cancer.

17. The method of claim 12, or the use of claim 13, wherein the mammal in need thereof is suffering from an auto-immune disease selected from the group consisting of Sjogren's syndrome, rheumatoid arthritis, allergy, psoriasis, asthma,
20 chronic obstructive pulmonary disease, organ transplant rejection, glomerulonephritis, lupus, multiple sclerosis, Crohn's disease, activated PI3K delta syndrome, and inflammation.

18. The method of claim 12, or the use of claim 13, wherein the mammal in need thereof is suffering from an inflammatory disease selected from the group
25 consisting of chronic obstructive pulmonary disease, allergies, rheumatoid arthritis, asthma, and bronchitis.