increased in patients with auto-immune diseases (O'Shea and Plenge, 2012) such as psoriasis and/or inflammatory bowel disorders, selective TYK2 inhibition may be particularly advantageous in the treatment of these diseases while avoiding JAK2 dependent erythropoietin (EPO) and thrombopoietin (TPO) signaling (Neubauer et al., 1998; Parganas et al., 1998).

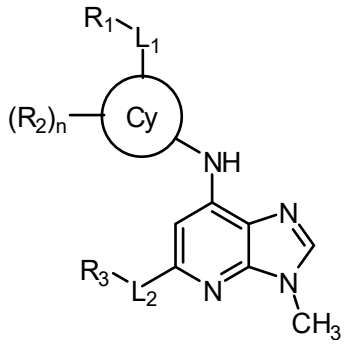
[0005] Furthermore, TYK2 has been reported as a target for multiple autoimmune disorders, providing protection against inflammatory diseases as well as type 2 diabetes with a limited impact on the immune system. (Dendrou et al., 2016)

[0006] Accordingly, there remains a need for new compounds which would effectively and selectively inhibit JAK enzymes, in particular TYK2, thus allowing the design of specific treatments and dosages tailored to the pathology.

SUMMARY

[0007] The present disclosure relates to compounds useful in the prophylaxis and/or treatment of allergic diseases, inflammatory diseases, metabolic diseases, autoinflammatory diseases, autoimmune diseases, proliferative diseases, transplantation rejection, diseases involving impairment of cartilage turnover, congenital cartilage malformations, and/or diseases associated with hypersecretion of IFNα, IL12 and/or IL23. In particular, the compound of the disclosure inhibits JAK, a family of tyrosine kinases, and more particularly TYK2. The present disclosure also provides methods for the production of the compound of the disclosure, pharmaceutical compositions comprising the compound of the disclosure, methods for the prophylaxis and/or treatment of allergic diseases, inflammatory diseases, metabolic diseases, autoinflammatory diseases, autoimmune diseases, proliferative diseases, transplantation rejection, diseases involving impairment of cartilage turnover, congenital cartilage malformations, and/or diseases associated with hypersecretion of IFNα, IL12 and/or IL23 by administering the compound of the disclosure.

[0007a] In an aspect, there is provided a compound according to Formula I:



I

wherein

Cy is phenyl, or 5-6 membered heteroaryl comprising one, two or three N atoms;

L_1 is a single bond, -O-, -C(=O)-, -C(=O)O-, -$S(O)_2$-, -NR^{6a}-, -C(=O)NR^{6b}-, -$S(O)_2NR^{6c}$-, or -C(=O)$NR^{6d}S(O)_2$-;

- C_{1-6} alkyl optionally substituted with one or more groups independently selected from
  - halo, or
  - C_{3-7} cycloalkyl,
- phenyl substituted with one R^{5a} group and one or two independently selected R^{5b} groups,
- 6-membered heteroaryl comprising one or two N atoms, substituted with one R^{5a} group and one or two independently selected R^{5b} groups,
- 4-10 membered monocyclic heterocycloalkyl, spiro bicyclic heterocycloalkyl, bridged bicyclic heterocycloalkyl, or fused bicyclic heterocycloalkyl, wherein the heterocycloalkyl, comprises one or two heteroatoms independently selected from N, S, and O, and wherein the heterocycloalkyl is optionally substituted with one, two or three groups independently selected from R^{5a} and R^{5b}, or
- 4-10 membered monocyclic or fused, bridged or spiro bicyclic cycloalkyl, optionally substituted with one, two or three groups independently selected from R^{5a} and R^{5b};

R^4 is

- H,
- C_{1-4} alkyl optionally substituted with one or more groups selected from OH or C_{1-4} alkoxy, or
- C_{3-7} cycloalkyl;

R^{5a} is -CN, $-SO_2-C_{1-4}$ alkyl, or $–CF_3$;

R^{5b} is halo, C_{1-4} alkyl, and C_{3-7} cycloalkyl;

R^{7a}, or R^{7b} are independently selected from

- H, and
- C_{1-4} alkyl optionally substituted with one $–NR^{10a}R^{10b}$; and

R^{6a}, R^{6b}, R^{6c}, R^{6d}, R^{7c}, R^{7d}, R^{8a}, R^{8b}, R^{8c}, R^{9a}, R^{9b}, R^{10a}, and R^{10b} are independently selected from

H, and C_{1-4} alkyl;

or a pharmaceutically acceptable salt thereof, solvate thereof or a solvate of a pharmaceutically acceptable salt thereof.

[0007b] In another aspect, there is provided a pharmaceutical composition comprising a pharmaceutically acceptable carrier and a pharmaceutically effective amount of a compound as defined above.

[0007c] In another aspect, there is provided the compound or pharmaceutically acceptable salt thereof, as defined above, or the pharmaceutical composition as defined above, for use in medicine.

[0007d] In another aspect, there is provided the use of a compound as defined above, in the manufacture of a medicament for the treatment of systemic and cutaneous lupus erythematosis, lupus nephritis, dermatomyositis, Sjogren's syndrome, psoriasis, rheumatoid arthritis, psoriatic arthritis, trisomy 21 and/or Crohn's disease.

[0007e] In another aspect, there is provide the use of a pharmaceutical composition as defined above, in the manufacture of a medicament for the treatment of systemic and cutaneous lupus erythematosis, lupus nephritis, dermatomyositis, Sjogren's syndrome, psoriasis, rheumatoid arthritis, psoriatic arthritis, trisomy 21 and/or Crohn's disease.

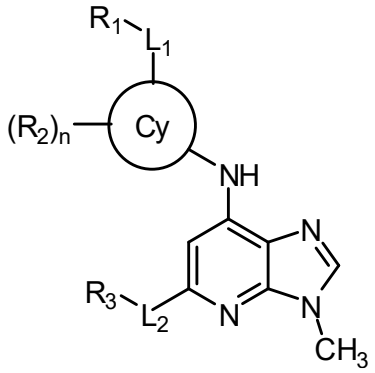
[0007f] In another aspect, there is provided a pharmaceutical composition comprising a pharmaceutically acceptable carrier and a pharmaceutically effective amount of a compound as defined above.

[0007g] In another aspect, there is provide a pharmaceutical composition comprising a pharmaceutically acceptable carrier and a pharmaceutically effective amount of a compound as defined above for use in medicine.

[0007h] In another aspect, there is provide a use of an effective amount of the compound, or pharmaceutically acceptable salt thereof, as defined above, in the manufacture of a medicament for the treatment of systemic and cutaneous lupus erythematosis, lupus nephritis, dermatomyositis, Sjogren's syndrome, psoriasis, rheumatoid arthritis, psoriatic arthritis, trisomy 21 and/or Crohn's disease.

[0007i] In another aspect, there is provide the use of an effective amount of the pharmaceutical composition as defined above in the manufacture of a medicament for the treatment of systemic and cutaneous lupus erythematosis, lupus nephritis, dermatomyositis, Sjogren's syndrome, psoriasis, rheumatoid arthritis, psoriatic arthritis, trisomy 21 and/or Crohn's disease.

[0008] Accordingly, in an example of the disclosure, the compounds of the disclosure are provided having a Formula (I):



I

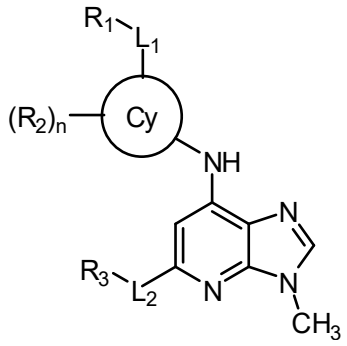
wherein

Cy is phenyl, or 5-6 membered heteroaryl comprising one, two or three N atoms;

L_1 is a single bond, -O-, -C(=O)-, -C(=O)O-, -$S(O)_2$-, -NR^{6a}-, -C(=O)NR^{6b}-, -$S(O)_2NR^{6c}$-, or -C(=O)$NR^{6d}S(O)_2$-;

CLAIMS

1. A compound according to Formula I:



I

wherein

Cy is phenyl, or 5-6 membered heteroaryl comprising one, two or three N atoms;

L_1 is a single bond, -O-, -C(=O)-, -C(=O)O-, -$S(O)_2$-, -NR^{6a}-, -C(=O)NR^{6b}-, -$S(O)_2NR^{6c}$-, or -C(=O)$NR^{6d}S(O)_2$-;

R^1 is :

- H,
- C_{1-6} alkyl optionally substituted with one or more independently selected
  - OH,
  - halo,
  - C_{1-4} alkoxy,
  - -$NR^{7a}R^{7b}$,
  - -C(=O)OH-,
  - -C(=O)$NR^{7c}R^{7d}$,
  - -C(=O)OC_{1-4} alkyl, or
  - 4-8 membered monocyclic heterocycloalkyl comprising one, two, or three heteroatoms independently selected from N, S, and O;
- C_{3-7} cycloalkyl optionally substituted with one or more OH, C_{1-4} alkoxy, or
- 4-9 membered monocyclic heterocycloalkyl, spiro bicyclic heterocycloalkyl, bridged bicyclic heterocycloalkyl, or fused bicyclic heterocycloalkyl, wherein the heterocycloalkyl comprises one, two, or three heteroatoms independently selected from N, S, and O, and wherein the heterocycloalkyl is optionally substituted with one or more independently selected R^{11} groups;

$R^{11}$is :

- OH,
- CN,
- halo,
- oxo,

- $-NR^{8a}R^{8b}$,
- C_{3-7} cycloalkyl,
- C_{1-4} alkyl optionally substituted with one or more independently selected halo, OH, C_{1-4} alkoxy, $-NR^{9a}R^{9b}$,
- C_{1-4} alkoxy optionally substituted with one C_{1-4} alkoxy,
- 4-7 membered monocyclic heterocycloalkyl comprising one, two, or three heteroatoms independently selected from N, S, and O,
- $-C(=O)OC_{1-4}$alkyl, or
- $-NR^{8c}C(=O)OC_{1-4}$alkyl;

R^2 is

- halo,
- CN, or
- C_{1-4} alkyl;

the subscript n is 0, or 1;

L_2 is O, or $-NR^4$-,

R^3 is

- C_{1-6} alkyl optionally substituted with one or more groups independently selected from
  - halo, or
  - C_{3-7} cycloalkyl,
- phenyl substituted with one R^{5a} group and one or two independently selected R^{5b} groups,
- 6-membered heteroaryl comprising one or two N atoms, substituted with one R^{5a} group and one or two independently selected R^{5b} groups,
- 4-10 membered monocyclic heterocycloalkyl, spiro bicyclic heterocycloalkyl, bridged bicyclic heterocycloalkyl, or fused bicyclic heterocycloalkyl, wherein the heterocycloalkyl, comprises one or two heteroatoms independently selected from N, S, and O, and wherein the heterocycloalkyl is optionally substituted with one, two or three groups independently selected from R^{5a} and R^{5b}, or
- 4-10 membered monocyclic or fused, bridged or spiro bicyclic cycloalkyl, optionally substituted with one, two or three groups independently selected from R^{5a} and R^{5b};

R^4 is

- H,
- C_{1-4} alkyl optionally substituted with one or more groups selected from OH or C_{1-4} alkoxy, or
- C_{3-7} cycloalkyl;

R^{5a} is -CN, $-SO_2$-C_{1-4} alkyl, or $-CF_3$;

R^{5b} is halo, C_{1-4} alkyl, and C_{3-7} cycloalkyl;

R^{7a}, or R^{7b} are independently selected from

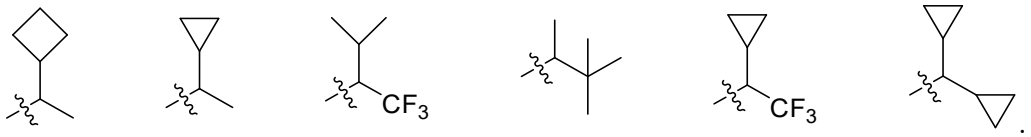
- H, and
- C_{1-4} alkyl optionally substituted with one $-NR^{10a}R^{10b}$; and

R^{6a}, R^{6b}, R^{6c}, R^{6d}, R^{7c}, R^{7d}, R^{8a}, R^{8b}, R^{8c}, R^{9a}, R^{9b}, R^{10a}, and R^{10b} are independently selected from

H, and C_{1-4} alkyl;

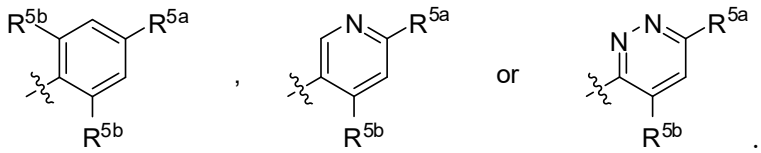
or a pharmaceutically acceptable salt thereof, solvate thereof or a solvate of a pharmaceutically acceptable salt thereof.

2. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein L_2 is O.
3. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein R^3 is:



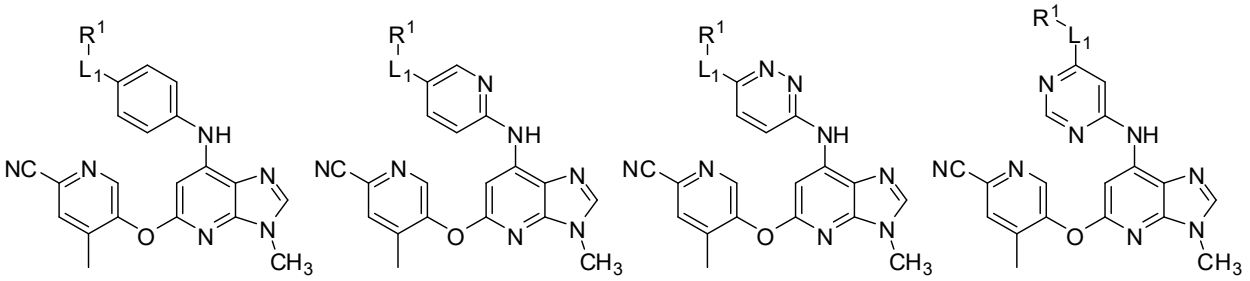
, , , , ,and

4. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein R^3 is



or .

5. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein R^{5a} is -CN, -SO_2-C_{1-4} alkyl, or –CF_3.
6. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein R^{5b} is independently selected from halo, C_{1-4} alkyl, and C_{3-7} cycloalkyl.
7. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein the compound is:



IIIa IIIb IIIc or IIId.

8. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein L_1 is a single bond or –C(=O)-.
9. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein R^1 is 4-9 membered monocyclic heterocycloalkyl, spiro bicyclic heterocycloalkyl, bridged bicyclic heterocycloalkyl, or fused bicyclic heterocycloalkyl, wherein the heterocycloalkyl comprises one, two, or three heteroatoms independently selected from N, S, and O, and wherein the heterocycloalkyl is optionally substituted with one, two or three independently selected R^{11} groups.
10. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein R^1 is azetidinyl, oxetanyl, pyrrolidinyl, morpholinyl, octadeuteriomorpholin-4-yl, tetrahydropyranyl, piperazinyl, or dioxanyl, each of which is substituted with one, two or three independently selected R^{11} groups.

11. The compound or pharmaceutically acceptable salt thereof according to claim 9, wherein R^{11} is C_{1-4} alkyl optionally substituted with one or more groups independently selected from halo, OH, C_{1-4} alkoxy, and $-NR^{9a}R^{9b}$, wherein each R^{9a} and R^{9b} is independently H, or C_{1-4} alkyl.
12. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a pharmaceutically effective amount of a compound according to claim 1.
13. The pharmaceutical composition according to claim 12 comprising a further therapeutic agent.
14. The compound or pharmaceutically acceptable salt thereof, according to claim 1, or the pharmaceutical composition according to claim 12, for use in medicine.
15. Use of a compound according to claim 1, in the manufacture of a medicament for the treatment of systemic and cutaneous lupus erythematosis, lupus nephritis, dermatomyositis, Sjogren's syndrome, psoriasis, rheumatoid arthritis, psoriatic arthritis, trisomy 21 and/or Crohn's disease.
16. Use of a pharmaceutical composition according to claim 12, in the manufacture of a medicament for the treatment of systemic and cutaneous lupus erythematosis, lupus nephritis, dermatomyositis, Sjogren's syndrome, psoriasis, rheumatoid arthritis, psoriatic arthritis, trisomy 21 and/or Crohn's disease.
17. The compound of claim 1, wherein the compound is

4- {[7-(6-Amino-pyrimidin-4-ylamino)-3-methyl-3H-imidazo[4,5-b]pyridin-5-yl]-methyl-amino}-3-ethyl-5-fluoro-benzonitrile,

5- {[7-(6-Amino-pyrimidin-4-ylamino)-3-methyl-3H-imidazo[4,5-b]pyridin-5-yl]-methyl-amino}-4-methyl-pyridine-2-carbonitrile,

4- {[7-(6-Amino-pyrimidin-4-ylamino)-3-methyl-3H-imidazo[4,5-b]pyridin-5-yl]-methyl-amino}-cyclohexanecarbonitrile,

N7-(6-Amino-pyrimidin-4-yl)-N5-(3,3-dimethyl-tetrahydro-pyran-4-yl)-3,N5-dimethyl-3H-imidazo [4,5-b]pyridine-5,7-diamine,

N7-(6-aminopyrimidin-4-yl)-N5,3-dimethyl-N5- [(1S)-1,2,2-trimethylpropyl]imidazo [4,5-b] pyridine-5,7-diamine,

(±)-(1R,3R)-3- {[7-(6-Amino-pyrimidin-4-ylamino)-3-methyl-3H-imidazo [4,5-b]pyridin-5-yl]-methyl-amino}-cyclohexanecarbonitrile,

4- {[7-(6-Amino-pyrimidin-4-ylamino)-3-methyl-3H-imidazo[4,5-b]pyridin-5-yl]-methyl-amino}-3-cyclopropyl-5-fluoro-benzonitrile,

5- {[7-(6-Amino-pyrimidin-4-ylamino)-3-methyl-3H-imidazo[4,5-b]pyridin-5-yl]-methyl-amino}-4-ethyl-pyridine-2-carbonitrile,

N7-(6-aminopyrimidin-4-yl)-N5- [(1R)-1-cyclopropylethyl]-N5,3-dimethyl-imidazo [4,5-b] pyridine-5,7-diamine,

N7-(6-Amino-pyrimidin-4-yl)-3,N5-dimethyl-N5-((3R,4S)-3-methyl-tetrahydro-pyran-4-yl)-3H-imidazo [4,5-b]pyridine-5,7-diamine,

N7- (6-Amino-pyrimidin-4-yl)-N5-bicyclo [1.1.1] pent-1-yl-3,N5-dimethyl-3H-imidazo [4,5-b]pyridine-5,7-diamine,

N7-(6-Amino-pyrimidin-4-yl)-3,N5-dimethyl-N5-(3-methyl-tetrahydro-pyran-4-yl)-3H-imidazo [4,5-b]pyridine-5,7-diamine,

N7-(6-Amino-pyrimidin-4-yl)-N5-(1-cyclopropyl-2,2,2-trifluoro-ethyl)-3,N5-dimethyl-3H-imidazo [4,5-b]pyridine-5,7-diamine,

N7-(6-Amino-pyrimidin-4-yl)-3,N5-dimethyl-N5-(5-oxa-spiro [3.5]non-8-yl)-3H-imidazo [4,5-b]pyridine-5,7-diamine,

5- (1-cyclopropyl-2,2,2-trifluoro-ethoxy)-3-methyl-N-(5-methylsulfonyl-2-pyridyl)imidazo [4,S-b]pyridin-7-amine,

6-[5-(6-Cyano-4-methyl-pyridin-3-yloxy)-3-methyl-3H-imidazo [4,5-b]pyridin-7-ylamino]-pyridazine-3-carboxylic acid ethylamide,

6-[5-(6-Cyano-4-methyl-pyridin-3-yloxy)-3-methyl-3H-imidazo [4,5-b]pyridin-7-ylamino]-N-(2-hydroxy-propyl)-nicotinamide,

6-[5-(6-Cyano-4-methyl-pyridin-3-yloxy)-3-methyl-3H-imidazo [4,5-b]pyridin-7-ylamino]-pyridazine-3-carboxylic acid (2-hydroxy-propyl)-amide,

5-[5-(6-Cyano-4-methyl-pyridin-3-yloxy)-3-methyl-3H-imidazo [4,5-b]pyridin-7-ylamino]-pyridine-2-carboxylic acid ethylamide,

2-{4-[5-(6-Cyano-4-methyl-pyridin-3-yloxy)-3-methyl-3H-imidazo [4,5-b]pyridin-7-ylamino]-phenyl}-N-ethyl-acetamide,

4-Methyl-5- {3-methyl-7-[6-(morpholine-4-carbonyl)-pyridin-3-ylamino]-3H-imidazo [4,5-b]pyridin-5-yloxy}-pyridine-2-carbonitrile,

5-[5-(6-Cyano-4-methyl-pyridin-3-yloxy)-3-methyl-3H-imidazo [4,5-b]pyridin-7-ylamino]-pyridine-2-carboxylic acid methylamide,

5-[5-(6-Cyano-4-methyl-pyridin-3-yloxy)-3-methyl-3H-imidazo [4,5-b]pyridin-7-ylamino]-pyridine-2-carboxylic acid (2-hydroxy-propyl)-amide,

5- {7- [6- (2-Methoxy-ethylamino)-pyrimidin-4-ylamino]-3-methyl-3H-imidazo [4,5-b]pyridin-5-yloxy}-4-methyl-pyridine-2-carbonitrile,

5- {7- [6- (3-Methoxy-propylamino)-pyrimidin-4-ylamino]-3-methyl-3H-imidazo [4,5-b]pyridin-5-yloxy}-4-methyl-pyridine-2-carbonitrile,

5-{7-[6-(3-Hydroxy-3-methyl-butylamino)-pyrimidin-4-ylamino]-3-methyl-3H-imidazo [4,5-b]pyridin-5-yloxy}-4-methyl-pyridine-2-carbonitrile,

5-{7-[6-(3-Hydroxy-propylamino)-pyrimidin-4-ylamino]-3-methyl-3H-imidazo [4,5-b]pyridin-5-yloxy}-4-methyl-pyridine-2-carbonitrile,

5- (7- {6- [([1,4]Dioxan-2-ylmethyl)-amino]-pyrimidin-4-ylamino}-3-methyl-3H-imidazo [4,5-b]pyridin-5-yloxy)-4-methyl-pyridine-2-carbonitrile,

5-{7-[6-(3-Methoxy-cyclobutylamino)-pyrimidin-4-ylamino]-3-methyl-3H-imidazo [4,5-b]pyridin-5-yloxy}-4-methyl-pyridine-2-carbonitrile,

5-{7-[6-(3-Methoxy-butylamino)-pyrimidin-4-ylamino]-3-methyl-3H-imidazo [4,5-b]pyridin-5-yloxy}-4-methyl-pyridine-2-carbonitrile,

4-Methyl-5-[3-methyl-7-(6-morpholin-4-yl-pyridazin-3-ylamino)-3H-imidazo [4,5-b]pyridin-5-yloxy]-pyridine-2-carbonitrile,

4-Methyl-5- {3-methyl-7-[6-(4-methyl-piperazin-1-yl)-pyridazin-3-ylamino]-3H-imidazo [4,5-b]pyridin-5-yloxy}-pyridine-2-carbonitrile,

5-{7-[6-(3-Dimethylaminomethyl-azetidin-1-yl)-pyridazin-3-ylamino]-3-methyl-3H-imidazo [4,5-b]pyridin-5-yloxy}-4-methyl-pyridine-2-carbonitrile,

(±)-4-Methyl-5-{3-methyl-7- [6- ((3R,5S)-3,4,5-trimethyl-piperazin-1-yl)-pyridazin-3-ylamino]-3H-imidazo [4,5-b]pyridin-5-yloxy}-pyridine-2-carbonitrile,

4-Methyl-5-(3-methyl-7-{6-[4-(2,2,2-trifluoro-ethyl)-piperazin-1-yl]-pyridazin-3-ylamino}-3H-imidazo [4,5-b]pyridin-5-yloxy)-pyridine-2-carbonitrile,

(±)-5- {7- [6- ((2R,6S)-2,6-Dimethyl-morpholin-4-yl)-pyridazin-3-ylamino]-3-methyl-3H-imidazo [4,5-b]pyridin-5-yloxy}-4-methyl-pyridine-2-carbonitrile,

4-Methyl-5- {3-methyl-7- [6- ((S)-2-methyl-morpholin-4-yl)-pyridazin-3-ylamino]-3H-imidazo [4,5-b]pyridin-5-yloxy}-pyridine-2-carbonitrile,

5-{7-[6-(4-Cyano-piperidin-1-yl)-pyridazin-3-ylamino]-3-methyl-3H-imidazo [4,5-b]pyridin-5-yloxy}-4-methyl-pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5-(4-propan-2-ylpiperazine-1-carbonyl)pyridin-2-yl]amino]imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

5- [7- [[5- (4-cyclobutylpiperazine-1-carbonyl)pyridin-2-yl] amino]-3-methylimidazo [4,5-b]pyridin-5-yl] oxy-4-methylpyridine-2-carbonitrile,

5- [7- [[5-(4-cyclopropylpiperazine-1-carbonyl)pyridin-2-yflamino]-3-methylimidazo [4,5-b]pyridin-5-yl]oxy-4-methylpyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7-[(5-morpholin-4-ylpyridin-2-yl)amino]imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5-(4-methylpiperazin-1-yl)pyridin-2-yl]amino]imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

4-methyl-5- [7- [[5- (4-methylpiperazine-1-carbonyl) pyridin-2-yl]amino]-3-(trideuteriomethyl)imidazo [4,5-b] pyridin-5-yl] oxypyridine-2-carbonitrile,

5- [7-[(6-aminopyrimidin-4-yl) amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl]oxy-4-methyl-pyridine-2-carbonitrile,

4- [[5-[(6-cyano-4-methyl-3-pyridyl)oxy]-3-methyl-imidazo [4,5-b]pyridin-7-yl] amino]-N-ethyl-benzenesulfonamide,

N4-[5-(1-cyclopropyl-2,2,2-trifluoro-ethoxy)-3-methyl-imidazo [4,5-b]pyridin-7-yl]pyrimidine-4,6-diamine,

5- [[7-[(6-aminopyrimidin-4-yl)amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl]amino]-4-methyl-pyridine-2-carbonitrile,

5- [7- [4- (aminomethyl)anilino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile formate salt,

4-methyl-5-[3-methyl-7-[(5-methylsulfonyl-2-pyridyl) amino] imidazo [4,5-b]pyridin-5-yl]oxy-pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5- (trifluoromethyl)-2-pyridyl] amino] imidazo [4,5-b] pyridin-5-yl] oxy-pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7-(4-methylsulfonylanilino)imidazo [4,5-b]pyridin-5-yl]oxy-pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7-[(1-methylpyrazol-4-yl)amino]imidazo [4,5-b]pyridin-5-yl]oxy-pyridine-2-carbonitrile,

4- [[5-[(6-cyano-4-methyl-3-pyridyl)oxy]-3-methyl-imidazo [4,5-b]pyridin-7-yl] amino]-N,N-dimethyl-benzamide,

4-methyl-5-[3-methyl-7-(4-morpholinosulfonylanilino)imidazo [4,5-b]pyridin-5-yl]oxy-pyridine-2-carbonitrile,

6- [[5-[(6-cyano-4-methyl-3-pyridyl)oxy]-3-methyl-imidazo [4,5-b]pyridin-7-yl] amino]-N-ethyl-4-methyl-pyridine-3-carboxamide,

3-methyl-N7-(5-methylsulfonyl-2-pyridyl)-N5-[2-methyl-1-(trifluoromethyl)propyl]imidazo [4,5-b]pyridine-5,7-diamine,

4- [[5-[(6-cyano-4-methyl-3-pyridyl)amino]-3-methyl-imidazo [4,5-1)] pyridin-7-yl]amino]-N,N-dimethyl-benzamide,

6- [[5-[(6-cyano-4-methyl-3-pyridyl)amino]-3-methyl-imidazo [4,5-1)] pyridin-7-yl]amino]-N,N-dimethyl-pyridine-3-carboxamide,

5- [7- [4- (difluoromethylsulfonyl)anilino]-3-methyl-imidazo [4,5-b]pyridin-5-yl]oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- (4-cyclopropylsulfonylanilino)-3-methyl-imidazo [4,5-b] pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

5- [7-[(1,1-dimethyl-3-oxo-isoindolin-5-yl) amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [4- (3-methoxypropylsulfonyl)anilino]-3-methyl-imidazo [4,5-b] pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

N4- [5-(1-cyclopropylethoxy)-3-methyl-imidazo [4,5-b] pyridin-7-yl] pyrimidine-4,6-diamine,

6- [[5-[(6-cyano-4-methyl-3-pyridyl)oxy]-3-methyl-imidazo [4,5-b]pyridin-7-yl] amino]-N,N-dimethyl-pyridazine-3-carboxamide,

6- [[5-[(6-cyano-4-methyl-3-pyridyl)oxy]-3-methyl-imidazo [4,5-b]pyridin-7-yl] amino]-N,N-dimethyl-pyridine-3-carboxamide,

4-methyl-5-[3-methyl-7- [[5- (morpholine-4-carbonyl)-2-pyridyl] amino] imidazo [4,5-b]pyridin-5-yl]oxy-pyridine-2-carbonitrile,

6- [[5-[(6-cyano-4-methyl-3-pyridyl)amino]-3-methyl-imidazo [4,5-b] pyridin-7-yl]amino]-N,N-dimethyl-pyridazine-3-carboxamide,

6- [[5-[(6-cyano-4-methyl-3-pyridyl)oxy]-3-methyl-imidazo [4,5-b]pyridin-7-yl] amino]-N,N,2-trimethyl-pyridine-3-carboxamide,

6- [[5-[(6-cyano-4-methyl-3-pyridyl)oxy]-3-methyl-imidazo [4,5-b]pyridin-7-yl] amino]-N-ethyl-2-methyl-pyridine-3-carb oxamide,

5- [7- [[5- [(dimethylamino)methyl] pyridin-2-yl] amino]-3-methylimidazo [4,5-b] pyridin-5-yl] oxy-4-methylpyridine-2-carbonitrile formate salt,

4-methyl-5-[3-methyl-7- [[5- (morpholin-4-ylmethyl) pyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile formate salt,

5- [7- [[5- [[2-(dimethylamino)ethyl-methylamino]methyl]pyridin-2-yl]amino]-3-methylimidazo [4,5-b]pyridin-5-yl] oxy-4-methylpyridine-2-carbonitrile formate salt,

5- [7-[(5-methoxypyridin-2-yl) amino]-3-methylimidazo [4,5-b]pyridin-5-yl]oxy-4-methylpyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5- [(3S)-3-methylmorpholin-4-yl]pyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5-(1-methylpiperidin-4-yl) oxypyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5-(oxan-4-yl)pyridin-2-yl]amino]imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

5- [[7-[(6-aminopyrimidin-4-yl)amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl]-cyclopropyl-amino]-4-methyl-pyridine-2-carbonitrile,

5-[7-[4-(3-hydroxyoxetan-3-yl)anilino]-3-methylimidazo [4,5-b]pyridin-5-yl] oxy-4-methylpyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[6- (1-methylazetidin-3-yl) oxypyridazin-3-yl]amino]imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

5- [[5-[(1-cyclopropyl-2,2,2-trifluoro-ethyl)amino]-3-methyl-imidazo [4,5-b]pyridin-7-yl]amino]-N-ethyl-pyridine-2-carboxamide,

N5- (1-cyclopropyl-2,2,2-trifluoro-ethyl)-3-methyl-N7-(5-methylsulfonyl-2-pyridyl) imidazo [4,5-b]pyridine-5,7-diamine,

N7-(6-aminopyrimidin-4-yl)-3-methyl-N5-[2-methyl-1-(trifluoromethyl)propyl]imidazo [4,5-b]pyridine-5,7-diamine,

N7-(6-aminopyrimidin-4-yl)-N 5- (1-cyclobutylethyl)-3-methyl-imidazo [4,5-b]pyridine-5,7-diamine,

N7-(6-aminopyrimidin-4-yl)-N 5- (dicyclopropylmethyl)-3-methyl-imidazo [4,5-b]pyridine-5,7-diamine,

5- [7- [[5- (3-hydroxyazetidine-1-carbonyl)-2-pyridyl]amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

N,N-dimethyl-6- [[3-methyl-5-[[(1R)-2-methyl-1- (trifluoromethyl) propyl] amino] imidazo [4,5-b]pyridin-7-yl]amino]pyridine-3-carboxamide,

N7-(6-aminopyrimidin-4-yl)-3-methyl-N5- [(1R)-2-methyl-1-(trifluoromethyl)propyl]imidazo [4,5-b]pyridine-5,7-diamine,

6- [[5-[(6-cyano-4-methyl-3-pyridyl)oxy]-3-methyl-imidazo [4,5-b]pyridin-7-yl] amino]-N-(2-dimethylaminoethyl) pyridine-3-carb oxamide,

6- [[5-[(6-cyano-4-methyl-3-pyridyl)oxy]-3-methyl-imidazo [4,5-b]pyridin-7-yl] amino]-N-(3-methoxypropyl) pyridine-3-carboxamide,

6- [[5-[(6-cyano-4-methyl-3-pyridyl)oxy]-3-methyl-imidazo [4,5-b]pyridin-7-yl] amino]-N-(3-hydroxypropyl) pyridine-3-carboxamide,

5- [7- [[5-[3-(1-hydroxy-1-methyl-ethyl) azetidine-1-carbonyl]-2-pyridyl] amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [[5-(3-methoxyazetidine-1-carbonyl)-2-pyridyl] amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [[5- [3- (methoxymethyl)azetidine-1-carbonyl]-2-pyridyl]amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl]oxy-4-methyl-pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5-(4-methylpiperazine-1-carbonyl)-2-pyridyl] amino] imidazo [4,5-b]pyridin-5-yl]oxy-pyridine-2-carbonitrile,

5- [7- [[5- [3- (dimethylamino) azetidine-1-carbonyl]-2-pyridyl] amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [[5- [(3R)-3-(dimethylamino)pyrrolidine-1-carbonyl]pyridin-2-yl] amino]-3-methylimidazo [4,5-b]pyridin-5-yl] oxy-4-methyl pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[6-(morpholine-4-carbonyl)pyridazin-3-yl]amino]imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7-(4-morpholinoanilino)imidazo [4,5-b]pyridin-5-yl] oxy-pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7-[4-(4-methylpiperazin-1-yl)anilino]imidazo [4,5-b]pyridin-5-yl] oxy-pyridine-2-carbonitrile,

5- [7- [[6-[3-(1-hydroxy-1-methyl-ethyl) azetidine-1-carbonyl] pyridazin-3-yl] amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [[5- [(3S)-3-hydroxypyrrolidine-1-carbonyl]-2-pyridyl]amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [[5-(3-cyclopropyl-3-hydroxy-azetidine-1-carbonyl)-2-pyridyl] amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,4-methyl-5-[3-methyl-7- [[5-(8-oxa-3-azaspiro [4.4] nonane-3-carbonyl)-2-pyridyl] amino]imidazo [4,5-b]pyridin-5-yl] oxy-pyridine-2-carbonitrile,

5- [7- [[6-(3-hydroxyazetidine-1-carbonyl)pyridazin-3-yl]amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl]oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [[6-(3-methoxyazetidine-1-carbonyl)pyridazin-3-yl]amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [[6-[3-(methoxymethyl)azetidine-1-carbonyl] pyridazin-3-yl] amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [[5- [3- (hydroxymethyl)azetidine-1-carbonyl]-2-pyridyl] amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [[5-(3-hydroxy-3-methyl-azetidine-1-carbonyl)-2-pyridyl] amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl]oxy-4-methyl-pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5-(3-oxa-6-azaspiro [3.3] heptane-6-carbonyl)-2-pyridyl] amino] imidazo [4,5-b]pyridin-5-yl] oxy-pyridine-2-carbonitrile,

5- [7- [[5-(3-methoxy-3-methyl-azetidine-1-carbonyl)-2-pyridyl]amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

tert-butyl 1- [6- [[5-[(6-cyano-4-methyl-3-pyridyl) oxy]-3-methyl-imidazo [4,5-b] pyridin-7-yl] amino] pyridine-3-carbonyl]azetidine-3-carboxylate,

4-methyl-5-[3-methyl-7- [[5-(6-methyl-2,6-diazaspiro [3.3]heptane-2-carbonyl)-2-pyridyl]amino]imidazo [4,5-b]pyridin-5-yl]oxy-pyridine-2-carbonitrile,

5- [7- [[5-(4-hydroxypiperidine-1-carbonyl)pyridin-2-yl]amino]-3-methylimidazo [4,5-b]pyridin-5-yl] oxy-4-methylpyridine-2-carbonitrile,

5- [7- [[5-(4-methoxypiperidine-1-carbonyl) pyridin-2-yl] amino]-3-methylimidazo [4,5-b]pyridin-5-yl] oxy-4-methylpyridine-2-carbonitrile,

5- [7- [[5- [4- (dimethylamino) piperidine-1-carbonyl]pyridin-2-yl] amino]-3-methylimidazo [4,5-b]pyridin-5-yl]oxy-4-methyl pyridine-2-carbonitrile,

5- [7- [[5- [(3R)-3-hydroxypyrrolidine-1-carbonyl]pyridin-2-yl]amino]-3-methylimidazo [4,5-b]pyridin-5-yl] oxy-4-methylpyridine-2-carbonitrile,

4-{6-[5-(6-Cyano-4-methyl-pyridin-3-yloxy)-3-methyl-3H-imidazo [4,5-b]pyridin-7-ylamino]-pyridine-3-carbonyl}-piperazine-1-carboxylic acid tert-butyl ester,

5- [7- [[5- [(3R)-3- (2-methoxyethoxy) pyrrolidine-1-carbonyl]pyridin-2-yl]amino]-3-methylimidazo [4,5-b]pyridin-5-yl] oxy-4-methyl pyridine-2-carbonitrile,

(1- {6- [5- (6-Cyano-4-methyl-pyridin-3-yloxy)-3-methyl-3H-imidazo [4,5-b]pyridin-7-ylamino]-pyridine-3-carbonyl 1-pyrrolidin-3-yl)-methyl-carbamic acid tert-butyl ester,

4-methyl-5-[3-methyl-7- [[5-(2-oxa-7-azaspiro [3.4] octane-7-carbonyl) pyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

5- [7- [[5-[3-[(dimethylamino) methyl] azetidine-1-carbonyl] pyridin-2-yl] amino]-3-methylimidazo [4,5-b]pyridin-5-yl]oxy-4-methyl pyridine-2-carbonitrile,

5- [7- [[5- [(3S)-3- (dimethylamino) pyrrolidine-1-carbonyl] pyridin-2-yl] amino]-3-methylimidazo [4,5-b]pyridin-5-yl]oxy-4-methyl pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5-(2-oxa-6-azaspiro [3.3]heptane-6-carbonyl)pyridin-2-yl]amino]imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

5- [7- [[5-[3,3-bis (hydroxymethyl) azetidine-1- carbonyl] pyridin-2-yl] amino]-3-methylimidazo [4,5-b]pyridin-5-yl]oxy-4-methyl pyridine-2-carbonitrile,

6- [[5-(6-cyano-4-methylpyridin-3-yl)oxy-3-methylimidazo [4,5-b]pyridin-7-yl]amino]-N-(2-hydroxyethyl)-N-methyl pyridine-3-carboxamide,

4-methyl-5-[3-methyl-7- [[5- (3-propan-2-yloxyazetidine-1-carbonyl) pyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

5- [7- [[5-(4-hydroxy-4-methylpiperidine-1-carbonyl) pyridin-2-yl] amino]-3-methylimidazo [4,5-b]pyridin-5-yl]oxy-4-methyl pyridine-2-carbonitrile,

6- [[5-(6-cyano-4-methylpyridin-3-yl)oxy-3-methylimidazo [4,5-b]pyridin-7-yl]amino]-N-[rac-(1R,3R)-3-hydroxycyclopentyl]pyridine-3-carboxamide,

4-methyl-5-[3-methyl-7-[[5-[rac-(3R,4R)-3-fluoro-4-hydroxypyrrolidine-1-carbonyl]pyridin-2-yl]amino]imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7-[[5-[rac-(3R,4R)-3,4-dihydroxypiperidine-1-carbonyl]pyridin-2-yl]amino]imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7-[[5-[rac-(3R,4R)-3-fluoro-4-methoxypyrrolidine-1-carbonyl]pyridin-2-yl]amino]imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

5- [7- [[6-[3-(dimethylamino)azetidin-1-yl]pyridazin-3-yl]amino]-3-methylimidazo [4,5-b]pyridin-5-yl] oxy-4-methylpyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5- [(2S)-2-methylmorpholine-4-carbonyl] pyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5- [(2R)-2-methylmorpholine-4-carbonyl]pyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5- [(3R)-3-methylmorpholine-4-carbonyl]pyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5- [(3S)-3-methylmorpholine-4-carbonyl] pyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5- [rac-(2R,6S)-2,6-dimethylmorpholine-4-carbonyl]pyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5- [rac-(2R,6R)-2,6-dimethylmorpholine-4-carbonyl]pyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[6- (4-methylpiperazine-1-carbonyl) pyridazin-3-yl] amino]imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

3,5-difluoro-4-[3-methyl-7- [[5-(4-methylpiperazine-1-carbonyl)pyridin-2-yl]amino]imidazo [4,5-b]pyridin-5-yl] oxybenzonitrile,

4-methyl-5-[3-methyl-7- [[6- [(1R,4R)-5-methyl-2,5-diazabicyclo [2.2.1] heptan-2-yl]pyridazin-3-yl] amino] imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

5- {7- [5- ((3R,4R)-3-Dimethylamino-4-hydroxy-pyrrolidine-1-carbonyl)-pyridin-2-ylamino]-3-methyl-3H-imidazo [4,5-b]pyridin-5-yloxy}-4-methyl-pyridine-2-carbonitrile,

5- {7- [5- ((3S,4S)-3-Hydroxy-4-morpholin-4-yl-pyrrolidine-1-carbonyl)-pyridin-2-ylamino]-3-methyl-3H-imidazo [4,5-b]pyridin-5-yloxy}-4-methyl-pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5- [2- (trifluoromethyl)morpholine-4-carbonyl] pyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

5- [7- [[5-(2-cyclopropylmorpholine-4-carbonyl)pyridin-2-yl]amino]-3-methylimidazo [4,5-b]pyridin-5-yl]oxy-4-methyl pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5- [(3R)-3-propan-2-ylmorpholine-4-carbonyl] pyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5-(2-oxa-5-azabicyclo [2.2.1] heptane-5-carbonyl) pyridin-2-yl] amino] imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

5- [7- [[5-(3-cyclopropylmorpholine-4-carbonyl)pyridin-2-yl]amino]-3-methylimidazo [4,5-b]pyridin-5-yl]oxy-4-methyl pyridine-2-carbonitrile,

4- [6- [[5-(6-cyano-4-methylpyridin-3-yl)oxy-3-methylimidazo [4,5-b]pyridin-7-yl]amino] pyridine-3-carbonyl]morpholine-2-carbonitrile,

4-Methyl-5- {3-methyl-7- [5- ((3aS,6aS)-1-methyl-hexahydro-pyrrolo [3,4-b]pyrrole-5-carbonyl)-pyridin-2-ylamino]-3H-imidazo [4,5-b]pyridin-5-yloxy}-pyridine-2-carbonitrile,

4- [6- [[5-(6-cyano-4-methylpyridin-3-yl)oxy-3-methylimidazo [4,5-b]pyridin-7-yl]amino] pyridine-3-carbonyl]morpholine-3-carbonitrile,

5- [7- [[6- [(2R)-2-(hydroxymethyl)morpholin-4-yl]pyridazin-3-yl]amino]-3-methylimidazo [4,5-b]pyridin-5-yl] oxy-4-methyl pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[6- (2,2,3,3,5,5,6,6-octadeuteriomorpholin-4-yl) pyridazin-3-yl] amino] imidazo [4,5-b]pyridin-5-yl]oxy-pyridine-2-carbonitrile,

5- [7- [[6- [(2S)-2-(hydroxymethyl)morpholin-4-yl]pyridazin-3-yl]amino]-3-methylimidazo [4,5-b]pyridin-5-yl] oxy-4-methyl pyridine-2-carbonitrile,

5- [7- [[6- [(2S,6S)-2,6-dimethylmorpholin-4-yl]pyridazin-3-yl] amino]-3-methylimidazo [4,5-b]pyridin-5-yl] oxy-4-methylpyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[6- (1,4-oxazepan-4-yl) pyridazin-3-yl] amino] imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

5- [7- [[6- [(2R,6R)-2,6-dimethylmorpholin-4-yl] pyridazin-3-yl] amino]-3-methylimidazo [4,5-b]pyridin-5-yl]oxy-4-methyl pyridine-2-carbonitrile,

5- [7- [[6-[2-(hydroxymethyl)morpholin-4-yl]pyridazin-3-yl]amino]-3-methylimidazo [4,5-b]pyridin-5-yl]oxy-4-methylpyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[6-(8-oxa-3-azabicyclo [3.2.1] octan-3-yl)pyridazin-3-yl]amino]imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

4- [6- [[5-(6-cyano-4-methylpyridin-3-yl)oxy-3-methylimidazo [4,5-b]pyridin-7-yl]amino]pyridazin-3-yl]morpholine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[6- [(2R)-2-methylmorpholin-4-yl] pyridazin-3-yl] amino]imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[6- [(2R)-2-propan-2-ylmorpholin-4-yl]pyridazin-3-yl]amino]imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7-[[6-[(1S,4S)-2-oxa-5-azabicyclo [2.2.1]heptan-5-yl]pyridazin-3-yl] amino] imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

5- [7- [[6-(2,2-dimethylmorpholin-4-yl)pyridazin-3-yl]amino]-3-methylimidazo [4,5-b]pyridin-5-yl] oxy-4-methylpyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[6- [rac-(2R,6R)-2,6-dimethylmorpholin-4-yl]pyridazin-3-yl]amino]imidazo [4,5-b]pyridin-5-yl]oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[6- [(2S)-2-propan-2-ylmorpholin-4-yl]pyridazin-3-yl]amino]imidazo [4,S-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5-(piperazine-1-carbonyl)pyridin-2-yl]amino]imidazo [4,5-b]pyridin-5-yl] oxypyridine-2-carbonitrile,

N7-(6-aminopyrimidin-4-yl)-N5- (1-cyclopropyl-2,2,2-trifluoro-ethyl)-3-methyl-imidazo [4,5-b]pyridine-5,7-diamine,

4-methyl-5-[3-methyl-7-[(5-piperazin-1-yl-2-pyridyl)amino]imidazo [4,5-b] pyridin-5-yl] oxy-pyridine-2-carbonitrile,

5- [7- [[5- [4- (dimethylamino)-1-piperidyl]-2-pyridyl] amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [[5-[3-(dimethylamino)pyrrolidin-1-yl]-2-pyridy]amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [[5-[2-methoxyethyl(methyl)amino]-2-pyridyl]amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl]oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [[5- [4- (hydroxymethyl)-1-piperidyl]-2-pyridyl] amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

5- [7- [[5-(dimethylamino)-2-pyridyl]amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl] oxy-4-methyl-pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[1- (2-morpholinoethyl)pyrazol-4-yl] amino] imidazo [4,5-b]pyridin-5-yl] oxy-pyridine-2-carbonitrile,

5- [[7-[(6-aminopyrimidin-4-yl)amino]-3-methyl-imidazo [4,5-b]pyridin-5-yl]-(2-hydroxypropyl) amino]-4-methyl-pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5- (2,2,3,3,5,5,6,6-octadeuterio-4-methyl-piperazine-1-carbonyl)-2-pyridyl]amino]imidazo [4,5-b]pyridin-5-yl] oxy-pyridine-2-carbonitrile,

4-methyl-5-[3-methyl-7- [[5- (2,2,6,6-tetradeuterio-4-methyl-piperazine-1-carbonyl)-2-fpyridyl] amino] imidazo [4,5-b]pyridin-5-yl]oxy-pyridine-2-carbonitrile, or 4-methyl-5-[3-methyl-7-[[5-[2,2,3,3,5,5,6,6-octadeuterio-4-(trideuteriomethyl)piperazine-1-carbonyl]-2-pyridyl]amino]imidazo [4,5-b]pyridin-5-yl]oxy-pyridine-2-carbonitrile.

18. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a pharmaceutically effective amount of a compound according to claim 17.

19. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a pharmaceutically effective amount of a compound according to claim 17 for use in medicine.

20. Use of an effective amount of the compound, or pharmaceutically acceptable salt thereof, according to claim 17, in the manufacture of a medicament for the treatment of systemic and cutaneous lupus erythematosis, lupus nephritis, dermatomyositis, Sjogren's syndrome, psoriasis, rheumatoid arthritis, psoriatic arthritis, trisomy 21 and/or Crohn's disease.

21. Use of an effective amount of the pharmaceutical composition according to claim 18 in the manufacture of a medicament for the treatment of systemic and cutaneous lupus erythematosis, lupus nephritis, dermatomyositis, Sjogren's syndrome, psoriasis, rheumatoid arthritis, psoriatic arthritis, trisomy 21 and/or Crohn's disease.