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).

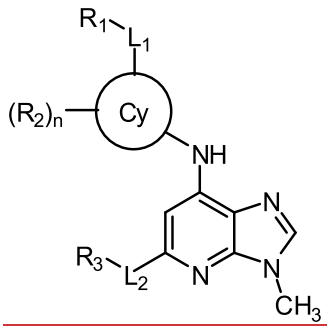
[0005] Furthermore, TYK2 has been reported as a target for multiple autoimmune disorders, providing protection against inflammatory diseases as well as type 2 diabetes with a limited impact on the immune system. (Dendrou et al., 2016)

[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 ~~OF THE INVENTION~~

[0007] The present ~~invention~~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 ~~invention~~disclosure inhibits JAK, a family of tyrosine kinases, and more particularly TYK2. The present ~~invention~~disclosure also provides methods for the production of the compound of the ~~invention~~disclosure, pharmaceutical compositions comprising the compound of the ~~invention~~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 ~~invention~~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)$NR^{6d}S(O)_2$-;

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.

[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 inflammatory diseases, autoinflammatory diseases, autoimmune diseases, and/or diseases associated with hypersecretion of IFNα, IL12 and/or IL23.

[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 inflammatory diseases, autoinflammatory diseases, autoimmune diseases, and/or diseases associated with hypersecretion of IFNα, IL12 and/or IL23.

[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 manfucature of a medicament for the treatment of inflammatory diseases, autoinflammatory diseases, autoimmune diseases, and/or diseases associated with hypersecretion of IFNα, IL12 and/or IL23.

[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 inflammatory diseases, autoinflammatory diseases, autoimmune diseases, and/or diseases associated with hypersecretion of IFNα, IL12 and/or IL23.

[0008] Accordingly, in an example ~~first aspect~~ of the ~~invention~~disclosure, the compounds of the ~~invention~~ disclosure are provided having a Formula (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)$NR^{6d}S(O)_2$-;

- 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 or fused, bridged or spiro bicyclic heterocycloalkyl comprising one or two heteroatoms independently selected from N, S, and O, 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 independently selected OH or C_{1-4} alkoxy, or
- C_{3-7} cycloalkyl;

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

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

each R^{7a}, and R^{7b} is independently selected from

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

each 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} is independently selected from H, and C_{1-4} alkyl.

[0009] In a particular ~~aspect~~example, the compounds of the disclosure~~invention~~ are provided for use 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.

[0010] Furthermore, it has also been unexpectedly demonstrated that the compounds of the ~~invention~~disclosure exhibit improved selectivity towards TYK2 versus other JAK family members, which may be advantageous in the treatment of IFNα, IL12 and/or IL23 associated diseases, particularly auto-immune diseases such as psoriasis and/or inflammatory bowel disorders.

[0011] Moreover, the compounds of the ~~invention~~ disclosure and their TYK2 selectivity may be advantageous for the design of patient specific treatments and patient tailored dosages.

[0012] In a further ~~aspect~~example, the present ~~invention~~ disclosure provides pharmaceutical compositions comprising a compound of the ~~invention~~disclosure, and a pharmaceutical carrier, excipient or diluent. In a particular ~~aspect~~example, the pharmaceutical composition may additionally comprise further therapeutically active ingredients suitable for use in combination with the compounds of the ~~invention~~disclosure. In a more particular ~~aspect~~example, the further therapeutically active ingredient is an

agent 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.

[0013] Moreover, the compounds of the ~~invention~~disclosure, useful in the pharmaceutical compositions and treatment methods disclosed herein, are pharmaceutically acceptable as prepared and used.

[0014] In a further ~~aspect~~example of the ~~invention~~disclosure, this ~~invention~~ disclosure provides a method of treating a mammal, in particular humans, afflicted with a condition selected from among those listed herein, and particularly 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, which method comprises administering an effective amount of the pharmaceutical composition or compounds of the disclosure~~invention~~ as described herein.

[0015] The present ~~invention~~ disclosure also provides pharmaceutical compositions comprising a compound of the ~~invention~~disclosure, and a suitable pharmaceutical carrier, excipient or diluent for use in medicine. In a particular ~~aspect~~example, the pharmaceutical composition is for use 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.

[0016] In additional ~~aspect~~examples, this ~~invention~~ dislcosure provides methods for synthesizing the compounds of the ~~invention~~disclosure, with representative synthetic protocols and pathways disclosed later on herein.

[0017] Other objects and advantages will become apparent to those skilled in the art from a consideration of the ensuing detailed description.

[0018] It will be appreciated that compounds of the ~~invention~~disclosure may be metabolized to yield biologically active metabolites.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE1 shows the effect of a test compound of the invention on Day 1-5 in the murine psoriatic-like epidermal hyperplasia model, vs the vehicle (filled diamonds) and the control group (filled squares), when dosed q.d. at 3 mg/kg (crosses), 10 mg/kg (asterisks), and 30 mg/kg (filled circles).

DETAILED DESCRIPTION OF THE INVENTION

Definitions

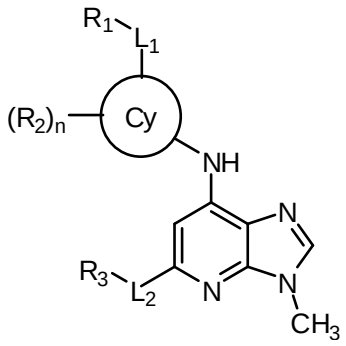
[0019] The following terms are intended to have the meanings presented therewith below and are useful in understanding the description and intended scope of the present invention.

[0020] When describing the invention, which may include compounds, pharmaceutical compositions containing such compounds and methods of using such compounds and compositions, the following terms, if present, have the following meanings unless otherwise indicated. It should also be understood

that when described herein any of the moieties defined forth below may be substituted with a variety of substituents, and that the respective definitions are intended to include such substituted moieties within their scope as

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, ~~or~~ spiro bicyclic heterocycloalkyl, ~~or~~ bridged bicyclic heterocycloalkyl, or fused bicyclic heterocycloalkyl, wherein the heterocycloalkyl comprising~~es~~ one, two, or three heteroatoms independently selected from N, S, and O~~;~~, and ~~which~~wherein the heterocycloalkyl is optionally substituted with one or more independently selected R^{11} groups;

~~each~~ R^{11} ~~is independently~~:

- 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,
- ~~P~~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~~or fused~~, ~~bridged or~~ spiro bicyclic heterocycloalkyl, bridged bicyclic heterocycloalkyl, or fused bicyclic heterocycloalkyl, wherein the heterocycloalkyl, compris~~inges~~ 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~~independently~~ 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;

~~each~~ R^{5b} is ~~independently selected from~~ halo, C_{1-4} alkyl, and C_{3-7} cycloalkyl;

~~each~~ R^{7a}, ~~and~~or R^{7b} ~~is~~are independently selected from

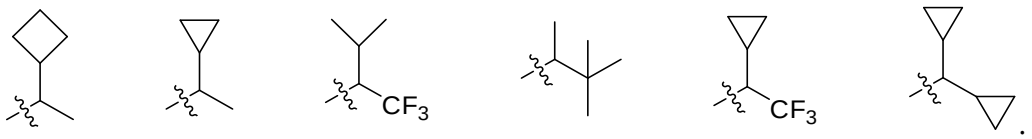
- H, and

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

~~each~~ 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} ~~is~~are independently selected from H, and C_{1-4} alkyl;

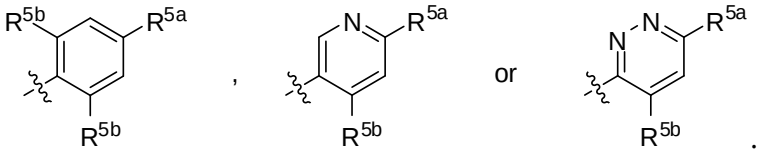
or a pharmaceutically acceptable salt thereof, ~~or a~~ solvate thereof or ~~the~~a solvate of a pharmaceutically acceptable salt thereof.

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 ~~selected from~~:



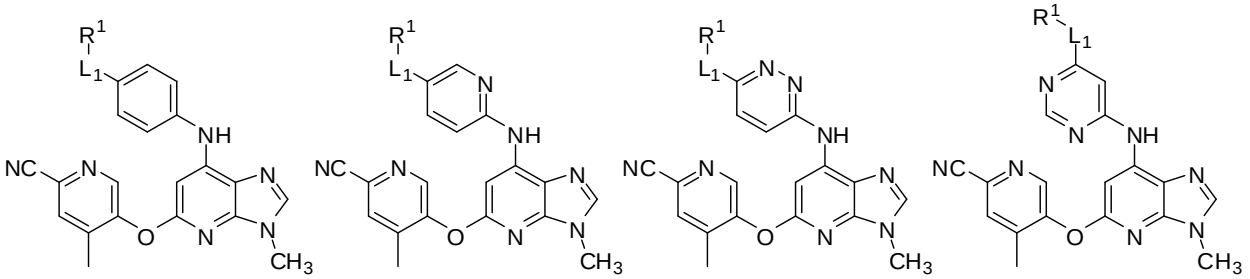
, , , , ,and

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



.

5. The compound or pharmaceutically acceptable salt thereof according to ~~any one of~~ claim~~s~~ 1~~-4~~, wherein R^{5a} is -CN, $-SO_2-C_{1-4}$ alkyl, or $–CF_3$.
6. The compound or pharmaceutically acceptable salt thereof according to ~~any one of~~ claim~~s~~ 1~~-4~~, 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 ~~according to formula IIIa, IIIb, IIIc, or IIId~~:



IIIa IIIb IIIc or IIId.

8. The compound or pharmaceutically acceptable salt thereof according to claim 1, ~~or 7,~~ wherein L_1 is a single bond or –C(=O)-.
9. The compound or pharmaceutically acceptable salt thereof according to ~~any one of~~ claim~~s~~ 1~~-8~~, wherein R^1 is 4-9 membered monocyclic heterocycloalkyl, ~~or~~ spiro bicyclic heterocycloalkyl, ~~or~~ bridged bicyclic heterocycloalkyl, or fused bicyclic heterocycloalkyl, wherein the heterocycloalkyl compris~~inges~~ one, two, or three heteroatoms independently selected from N, S, and O~~;~~, and ~~which~~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 ~~any one of~~ claim~~s~~ 1~~-8~~, 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~~ or 10~~, 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 ~~any one of~~ claim~~s~~ 1~~-11~~.
13. The pharmaceutical composition according to claim 12~~1~~ comprising a further therapeutic agent.
14. The compound or pharmaceutically acceptable salt thereof, according to ~~any one of~~ claim~~s~~ 1~~-11~~, or the pharmaceutical composition according ~~any one of~~to claim~~s~~ ~~11~~ 12, for use in medicine.
15. Use of ~~A~~a compound according to ~~any one of~~ claim~~s~~ 1~~-11, or the pharmaceutical composition according any one of claims 12-13~~, ~~for use in~~in the manufacture of a medicament for the treatment~~, or prophylaxis of allergic diseases,~~ of 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.
16. Use of a pharmaceutical composition according to claim 12, in the manufacture of a medicament for the treatment of inflammatory diseases, autoinflammatory diseases, autoimmune diseases, and/or diseases associated with hypersecretion of IFNα, IL12 and/or IL23.
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 manfucature of a medicament for the treatment of inflammatory diseases, autoinflammatory diseases, autoimmune diseases, and/or diseases associated with hypersecretion of IFNα, IL12 and/or IL23.

21. Use of an effective amount of the pharmaceutical composition according to claim 18 in the manufacture of a medicament for the treatment of inflammatory diseases, autoinflammatory diseases, autoimmune diseases, and/or diseases associated with hypersecretion of IFNα, IL12 and/or IL23.