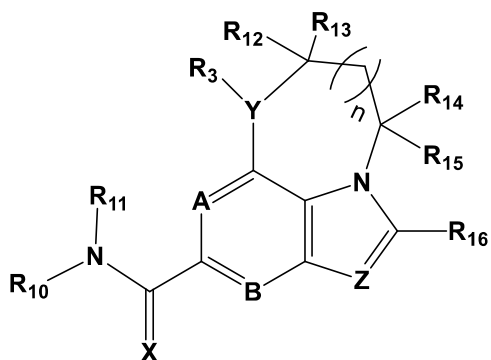


[00016a] In another aspect, there is provided a compound of Formula (I)



Formula (I)

their stereoisomers and pharmaceutically acceptable salts thereof, wherein

X is O or S;

Y is O or N;

Z is N;

A is CR₁;

B is CR₂;

n is 0-1;

R₁ and R₂ are independently selected from hydrogen;

R₃ is absent or is selected from hydrogen, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, C(O)C₁₋₆ alkyl, SO₂C₃₋₆ cycloalkyl, SO₂C₆ aryl, and SO₂C₁₋₆ alkyl, wherein SO₂C₁₋₆ alkyl, and SO₂C₆ aryl is optionally substituted with C₁₋₆ alkoxy, halogen, and C₆ aryl;

R₁₀ and R₁₁ are taken together to form a 5-6 membered monocyclic saturated heterocyclic ring, wherein,

the 5-6 membered monocyclic saturated heterocyclic ring is optionally substituted with the substituents selected from amino, -NHC(O)CH=CHCH₂N(CH₃)₂, or C₁₋₆ alkylamino;

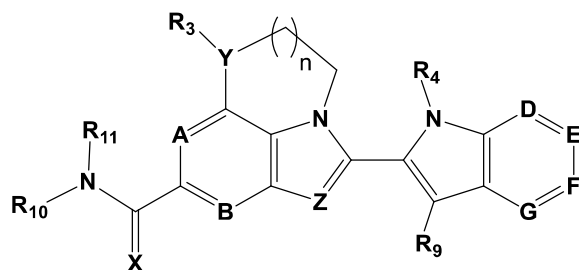
R₁₂, R₁₃, R₁₄ and R₁₅ are independently selected from hydrogen or C₁₋₆ alkyl; and

R₁₆ is 5-10 membered bicyclic heteroaryl with 1-2 heteroatoms selected from N or S, wherein,

5-10 membered bicyclic heteroaryl is optionally substituted with 1-3 substituents selected from the group consisting of halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₂₋₆ alkenyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, C₁₋₆ heteroaryl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ heteroaryl, C₁₋₆ alkyl-C₁₋₆ heteroaryl, and C₁₋₆ alkyl-C₁₋₆ heterocyclyl is optionally substituted with one

or more of the groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and -COOH.

[00016b] In another aspect, there is provided a compound of Formula (II)



Formula (II)

their stereoisomers and pharmaceutically acceptable salts thereof,

wherein,

X is O or S;

Y is O or N;

Z is N;

A is CR₁;

B is CR₂;

D is selected from N or CR₅;

E is CR₆;

F is CR₇;

G is CR₈;

n is 1-2;

R₁, R₂ and R₉ are independently selected from hydrogen;

R₅, R₆, R₇ and R₈ are independently selected from the group consisting of hydrogen, halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₂₋₆ alkenyl- C₆ aryl, and C₁₋₆ heteroaryl;

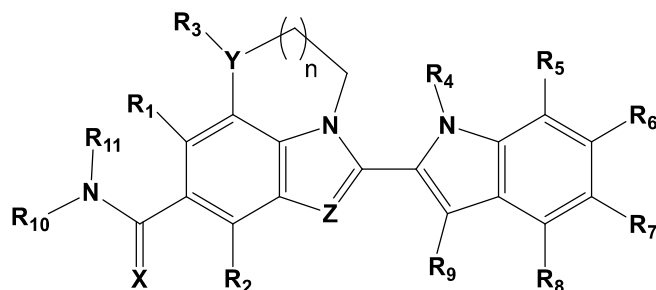
R₃ is absent or is selected from the group consisting of hydrogen, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, C(O)C₁₋₆ alkyl, SO₂C₁₋₆ alkyl, SO₂C₃₋₆ cycloalkyl, and SO₂C₆ aryl, wherein, SO₂C₆ aryl, and SO₂C₁₋₆ alkyl, is optionally substituted with C₁₋₆ alkoxy, halogen, and C₆ aryl;

R₄ is selected from the group consisting of C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, is optionally substituted with one or more groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and -COOH; and

R₁₀ and R₁₁ are taken together to form a 5-6 membered monocyclic saturated heterocyclic ring, wherein,

the 5-6 membered monocyclic saturated heterocyclic ring is optionally substituted with the substituents selected from the group consisting of amino, C₁₋₆ alkylamino, and -NHC(O)CH=CHCH₂N(CH₃)₂.

[00016c] In another aspect, there is provided a compound of Formula (III)



Formula (III)

their stereoisomers and pharmaceutically acceptable salts thereof,
wherein,

X is O or S;

Y is O or N;

Z is N;

n is 1-2;

R₁, R₂ and R₉ are independently selected from hydrogen;

R₅, R₆, R₇ and R₈ are independently selected from the group consisting of hydrogen, halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₂₋₆ alkenyl-, C₆ aryl, and C₁₋₆ heteroaryl;

R₃ is absent or is selected from the group consisting of hydrogen, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, C(O)C₁₋₆ alkyl, SO₂C₁₋₆ alkyl, SO₂C₃₋₆ cycloalkyl, and SO₂C₆ aryl, wherein, SO₂C₆ aryl, and SO₂C₁₋₆ alkyl, is optionally substituted with C₁₋₆ alkoxy, halogen, and C₆ aryl;

R₄ is selected from the group consisting of C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, is optionally substituted with one or more groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and -COOH; and

R₁₀ and R₁₁ are taken together to form a 5-6 membered monocyclic saturated heterocyclic ring, wherein,

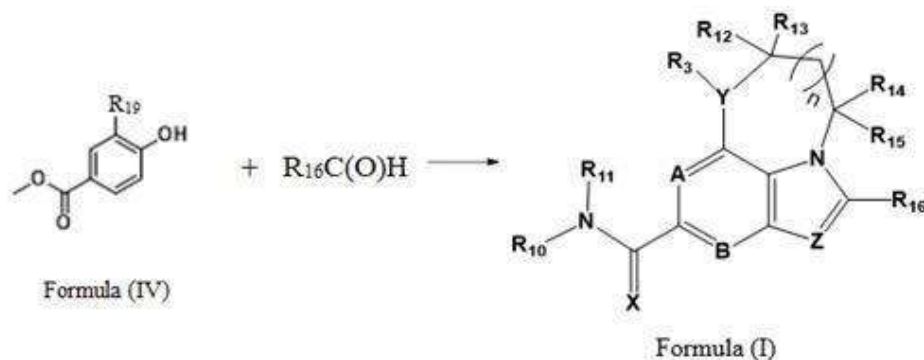
the 5-6 membered monocyclic saturated heterocyclic ring is optionally substituted with the substituents selected from the group consisting of amino, C₁₋₆ alkylamino, and -NHC(O)CH=CHCH₂N(CH₃)₂.

alkylamino, C₁₋₆ haloalkyl, C(O)C₁₋₆ alkyl, C(O)C₁₋₆ haloalkyl, C(O)NR₁₈, C(O)C₁₋₆ alkylamino, SO₂C₁₋₆ alkyl, SO₂C₁₋₆ haloalkyl, SO₂C₃₋₆ cycloalkyl, SO₂NR₁₈, SO₂NC₁₋₆ alkylamino, C₅₋₆ aryl, C₁₋₆ heteroaryl, C(O)C₅₋₆ aryl, C(O)C₁₋₆ heteroaryl, SO₂C₅₋₆ aryl, and SO₂C₁₋₆ heteroaryl, wherein C₁₋₆ alkyl, (CO)C₁₋₆ alkyl, C(O)C₁₋₆ haloalkyl, SO₂C₅₋₆ aryl, and SO₂C₁₋₆ alkyl, is optionally substituted with C₁₋₆ alkoxy, halogen, C₅₋₆ aryl, and C₁₋₆ heteroaryl; and 5-10 membered monocyclic or bicyclic saturated heterocyclic ring with 1-3 heteroatoms selected from N, S or O, or R₁₀ and R₁₁ can be taken together to form a 5-10 membered monocyclic or bicyclic saturated or unsaturated heterocyclic ring, wherein the 5-10 membered monocyclic or bicyclic saturated or unsaturated heterocyclic ring is optionally substituted with the substituents selected from the group consisting of amino, C₁₋₆ alkylamino, C₁₋₆ acylamino, -NHC(NH)CH₂Cl, -NHC(O)CH=CHCH₂N(CH₃)₂, C₁₋₆ alkyl, halogen, C₁₋₆ alkoxy, and hydroxyl; R₁₇ is selected from the group consisting of hydrogen, hydroxyl, cyano, halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ haloalkyl, C₁₋₆ haloalkoxy, C₁₋₆ acylamino, C₁₋₆ alkylamino, C₅₋₆ aryl, and C₁₋₆ heteroaryl, wherein C₁₋₆ alkoxy, and C₁₋₆ haloalkoxy, is optionally substituted with one or more of the groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ haloalkyl, C₁₋₆ alkylhydroxy, cyano, and hydroxyl; and R₁₈ is independently selected from the group consisting of hydrogen, C₁₋₆ alkyl, and combinations thereof.

[00018] The present disclosure further describes the process of preparation of compounds of Formula (I), Formula (II), and Formula (III) or its polymorphs, stereoisomers, prodrugs, solvates, co-crystals, intermediates, pharmaceutically acceptable salts, and metabolites thereof.

[00019] The present disclosure further discloses a pharmaceutical composition comprising a compound of Formula (I), Formula (II), and Formula (III) or a pharmaceutically acceptable salt thereof, together with a pharmaceutically acceptable carrier, optionally in combination with one or more other pharmaceutical compositions.

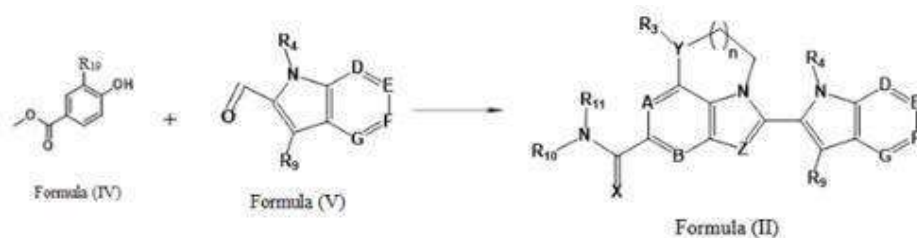
[00019a] In an aspect, there is provided a process of preparation of compounds of Formula (I) as defined above or its stereoisomers and pharmaceutically acceptable salts thereof, the process comprising reacting Formula (IV) and $R_{16}C(O)H$



wherein R_{19} of Formula (IV) is selected from nitro and C_{1-6} alkoxy; R_{16} of $R_{16}C(O)H$ is 5-10 membered bicyclic heteroaryl with 1-2 heteroatoms selected from N or S, wherein, 5-10 membered bicyclic heteroaryl is optionally substituted with 1-3 substituents selected from the group consisting of halogen, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} alkyl- C_6 aryl, C_{2-6} alkenyl- C_6 aryl, C_{1-6} alkyl- C_{1-6} heterocyclyl, C_{1-6} heteroaryl, and C_{1-6} alkyl- C_{1-6} heteroaryl, wherein, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} alkyl- C_6 aryl, C_{1-6} heteroaryl, C_{1-6} alkyl- C_{1-6} heteroaryl, and C_{1-6} alkyl- C_{1-6} heterocyclyl is optionally substituted with one or more of the groups selected from hydrogen, C_{1-6} alkyl, C_{1-6} alkoxy, C_{3-8} cycloalkyl, halogen, hydroxyl, $-CH_2OH$, and $-COOH$; X of Formula (I) is selected from O or S; Y is selected from O or N; Z is N; A is CR_1 ; B is CR_2 ; n is 0-1; R_1 and R_2 are independently selected from hydrogen; R_3 is absent or is selected from hydrogen, C_{1-6} alkyl, C_{3-6} cycloalkyl, $C(O)C_{1-6}$ alkyl, SO_2C_{1-6} alkyl, SO_2C_{3-6} cycloalkyl, and SO_2C_6 aryl, wherein, SO_2C_6 aryl, and SO_2C_{1-6} alkyl, is optionally substituted with C_{1-6} alkoxy, halogen, and C_6 aryl; R_{10} and R_{11} are taken together to form a 5-6 membered monocyclic saturated heterocyclic ring, wherein, the 5-6 membered monocyclic saturated heterocyclic ring is optionally substituted with the substituents selected from amino, C_{1-6} alkylamino, and $-NHC(O)CH=CHCH_2N(CH_3)_2$; R_{12} , R_{13} , R_{14} , and R_{15} are independently selected from hydrogen and C_{1-6} alkyl; R_{16} is 5-10 membered bicyclic heteroaryl with 1-2 heteroatoms selected from N or S, wherein, 5-10 membered bicyclic heteroaryl is optionally substituted with 1-3 substituents selected from the group consisting of halogen, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} alkyl- C_6 aryl, C_{2-6} alkenyl- C_6 aryl, C_{1-6} alkyl- C_{1-6} heterocyclyl, C_{1-6} heteroaryl, and C_{1-6} alkyl- C_{1-6} heteroaryl, wherein, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} alkyl- C_6 aryl, C_{1-6} heteroaryl, C_{1-6} alkyl- C_{1-6} heteroaryl, and

C₁₋₆ alkyl-C₁₋₆ heterocyclyl is optionally substituted with one or more of the groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and -COOH.

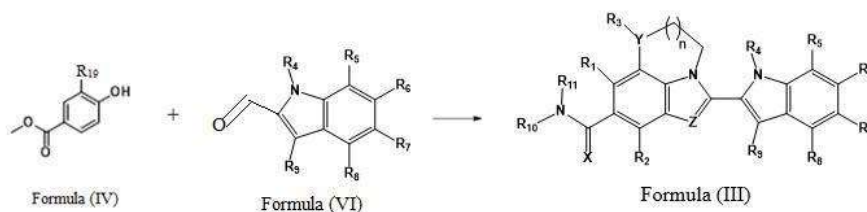
[00019b] In another aspect, there is provided a process of preparation of compounds of Formula (II) as defined above or its stereoisomers and pharmaceutically acceptable salts thereof, the process comprising reacting Formula (IV) and Formula (V)



wherein R₁₉ of Formula (IV) is selected from nitro and C₁₋₆ alkoxy; X of Formula (II) is selected from O or S; Y is selected from O or N; Z is N; A is CR₁; B is CR₂; D is selected from N or CR₅; E is CR₆; F is CR₇; G is CR₈; n is 1-2; R₁, R₂ and R₉ are independently selected from hydrogen; R₅, R₆, R₇ and R₈ are independently selected from the group consisting of hydrogen, halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₂₋₆ alkenyl- C₆ aryl, and C₁₋₆ heteroaryl; R₃ is absent or is selected from the group consisting of hydrogen, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, C(O)C₁₋₆ alkyl, SO₂C₁₋₆ alkyl, SO₂C₃₋₆ cycloalkyl, and SO₂C₆ aryl, wherein, SO₂C₆ aryl, and SO₂C₁₋₆ alkyl, is optionally substituted with C₁₋₆ alkoxy, halogen, and C₆ aryl; R₄ is selected from the group consisting of C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, is optionally substituted with one or more groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and -COOH; R₁₀ and R₁₁ are taken together to form a 5-6 membered monocyclic saturated heterocyclic ring, wherein the 5-6 membered monocyclic saturated heterocyclic ring is optionally substituted with the substituents selected from the group consisting of amino, C₁₋₆ alkylamino, and -NHC(O)CH=CHCH₂N(CH₃)₂; D of Formula (V) is selected from N or CR₅; E is CR₆; F is CR₇; G is CR₈, R₉ is H; and R₄ is selected from the group consisting of C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, is

optionally substituted with one or more groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and -COOH.

[00019c] In another aspect, there is provided a process of preparation of compounds of Formula (III) as defined above or its stereoisomers and pharmaceutically acceptable salts thereof, the process comprising reacting Formula (IV) and Formula (VI)



wherein R₁₉ of Formula (IV) is selected from nitro and C₁₋₆ alkoxy; X of Formula (III) is selected from O or S; Y is O or N; Z is N; n is 1-2; R₁, R₂ and R₉ are independently selected from hydrogen; R₅, R₆, R₇ and R₈ are independently selected from the group consisting of hydrogen, halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₂₋₆ alkenyl- C₆ aryl, and C₁₋₆ heteroaryl; R₃ is absent or is selected from the group consisting of hydrogen, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, C(O)C₁₋₆ alkyl, SO₂C₁₋₆ alkyl, SO₂C₃₋₆ cycloalkyl, and SO₂C₆ aryl, wherein, SO₂C₆ aryl, and SO₂C₁₋₆ alkyl, is optionally substituted with C₁₋₆ alkoxy, halogen, and C₆ aryl; R₄ is selected from the group consisting of C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, is optionally substituted with one or more groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and COOH; R₁₀ and R₁₁ are taken together to form a 5-6 membered monocyclic saturated heterocyclic ring, wherein, the 5-6 membered monocyclic saturated heterocyclic ring is optionally substituted with the substituents selected from the group consisting of amino, C₁₋₆ alkylamino, and -NHC(O)CH=CHCH₂N(CH₃)₂; and R₉ of formula (VI) is hydrogen; R₅, R₆, R₇ and R₈ are independently selected from the group consisting of hydrogen, halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₂₋₆ alkenyl- C₆ aryl, and C₁₋₆ heteroaryl; R₄ is selected from the group consisting of C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl is optionally substituted with one or more groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and COOH.

[00019d] In yet another aspect, the present disclosure provides a pharmaceutical composition comprising a compound of Formula (I), Formula (II), and Formula (III) or a pharmaceutically acceptable salt thereof as provided herein with a pharmaceutically acceptable carrier, optionally in combination with one or more other pharmaceutical compositions.

[0019e] In yet another aspect, the present disclosure provides compounds as claimed herein or a pharmaceutically acceptable salt thereof for use as a medicament

[00020] In yet another example, the present disclosure further discloses a method for inhibiting one or more PAD family in a cell with an effective amount of the compound of the present disclosure.

[0020a] In yet another aspect, there is provided an *in vitro* method for inhibiting one or more PAD family in a cell with an effective amount of the compound as defined herein.

[00021] The present disclosure further discloses a method of treating a condition mediated by one or more PAD's, the method comprising administering to a subject suffering from a condition mediated by one or more PAD family, a therapeutically effective amount of the compound of Formula (I), Formula (II), and Formula (III) or the pharmaceutical composition of the present disclosure with other clinically relevant agents or biological agents to a subject in need thereof.

[00021a] In yet another aspect, the present disclosure provides use of a pharmaceutical composition provided herein in the manufacture of a medicament for treating a condition selected from vasculitis, systemic lupus erythematosus, cancer, asthma, rheumatoid arthritis, ulcerative colitis, psoriasis, cystic fibrosis and cutaneous lupus erythematosus

.

[00021b] In yet another aspect, the present disclosure provides use of the compound of Formula (I), Formula (II), and Formula (III) as provided herein in the manufacture of a medicament for the treatment of rheumatoid arthritis, vasculitis, systemic lupus erythematosus, ulcerative colitis, cancer, cystic fibrosis, asthma, cutaneous lupus erythematosus and psoriasis.

[00022] In yet another aspect, the present disclosure further discloses use of the compound of Formula (I), Formula (II) and Formula (III) as defined above in the manufacture of a medicament for the treatment of rheumatoid arthritis, vasculitis, systemic lupus erythematosus, ulcerative colitis, cancer, cystic fibrosis, asthma, cutaneous lupus erythematosus, and psoriasis.

[00022a] In yet another aspect, the present disclosure provides use of the compound provided herein or the pharmaceutical composition provided herein together with other clinically relevant agents or biological agents in the manufacture of a medicament for the treatment and/or prevention of treatment of rheumatoid arthritis, vasculitis, systemic lupus erythematosus, ulcerative colitis, cancer, cystic fibrosis, asthma, cutaneous lupus erythematosus and psoriasis.

[00022b] In yet another aspect, the present disclosure provides use of the compound provided herein or the pharmaceutical composition provided herein together with other clinically relevant agents or biological agents in the manufacture of a medicament for the treatment and/or prevention of acid-induced lung injury, respiratory distress syndrome, allergen induced asthma, allergic bronchopulmonary, chronic lung disease of prematurity, chronic obstructive pulmonary disease, colitis, cystic fibrosis, gouty arthritis, inflammatory bowel disease, inflammatory lung disease, inflammatory pain, juvenile rheumatoid arthritis, kidney disease, kidney injury caused by parasitic infections, kidney transplant rejection prophylaxis, lung injury, lupus, lupus nephritis, multiple sclerosis, muscular dystrophy, non-allergen induced asthma, osteoarthritis, periodontitis, peritoneal endometriosis, psoriasis, pulmonary disease, pulmonary fibrosis, pyogenic sterile arthritis, renal disease, rheumatic disease, rheumatoid arthritis, sepsis, severe pain and ulcerative colitis.

[00022c] In yet another aspect, the present disclosure provides use of a therapeutically effective amount of the compound provided herein or the pharmaceutical composition provided herein in the manufacture of a medicament for the treatment and/or prevention of a condition selected from acid-induced lung injury, respiratory distress syndrome, allergen induced asthma, allergic bronchopulmonary, chronic lung disease of prematurity, chronic obstructive pulmonary disease, colitis, cystic fibrosis, gouty arthritis, inflammatory bowel disease, inflammatory lung disease, inflammatory pain, juvenile rheumatoid arthritis, kidney disease, kidney injury caused by parasitic

infections, kidney transplant rejection prophylaxis, lung injury, lupus, lupus nephritis, multiple sclerosis, muscular dystrophy, non-allergen induced asthma, osteoarthritis, periodontitis, peritoneal endometriosis, psoriasis, pulmonary disease, pulmonary fibrosis, pyogenic sterile arthritis, renal disease, rheumatic disease, rheumatoid arthritis, sepsis, severe pain and ulcerative colitis.

[00022d] In yet another aspect, the present disclosure provides use of a combination of the compounds provided herein or the pharmaceutical composition provided herein with other clinically relevant agents or biological agents in the manufacture of a medicament for the treatment of rheumatoid arthritis.

[00022e] In yet another aspect, the present disclosure provides use of a combination of the compounds provided herein or the pharmaceutical composition provided herein with other clinically relevant immune modulators agents in the manufacture of a medicament for the treatment of cancer.

[00023] These and other features, aspects, and advantages of the present subject matter will become better understood with reference to the following description. This summary is provided to introduce a selection of concepts in a simplified form. This summary is not intended to identify key features or essential features of the disclosure, nor is it intended to be used to limit the scope of the subject matter.

DETAILED DESCRIPTION

[00024] Those skilled in the art will be aware that the present disclosure is subject to variations and modifications other than those specifically described. It is to be understood that the present disclosure includes all such variations and modifications. The disclosure also includes all such steps, features, compositions and compounds referred to or indicated in this specification, individually or collectively, and any and all combinations of any or more of such steps or features.

Definitions

[00025] For convenience, before further description of the present disclosure, certain terms employed in the specification, and examples are collected here. These definitions should be read in the light of the remainder of the disclosure and understood as by a person of skill in the art. The terms used herein have the meanings recognized and known to those of skill in the art, however, for convenience and completeness, particular terms and their meanings are set forth below.

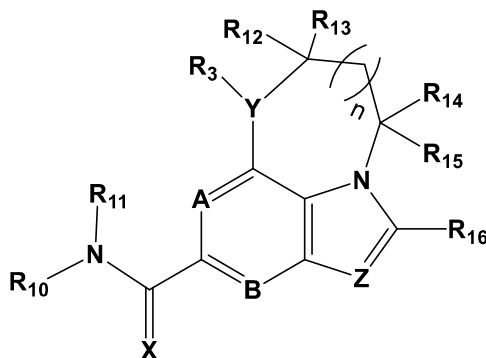
[00026] The articles “a”, “an” and “the” are used to refer to one or to more than one (i.e., to at least one) of the grammatical object of the article.

[00027] Throughout the description and the claims which follow, unless the context requires otherwise, the word “comprise”, and variations such as “comprises” and “comprising”, will be understood to imply the inclusion of a stated integer or step or group of integers but not to the exclusion of any other integer or step or group of integers or steps.

[00028] The term “including” is used to mean “including but not limited to”. “Including” and “including but not limited to” are used interchangeably.

I/We claim:

1. A compound of Formula (I)



Formula (I)

their stereoisomers and pharmaceutically acceptable salts thereof, wherein

X is O or S;

Y is O or N;

Z is N;

A is CR₁;

B is CR₂;

n is 0-1;

R₁ and R₂ are independently selected from hydrogen;

R₃ is absent or is selected from hydrogen, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, C(O)C₁₋₆ alkyl, SO₂C₃₋₆ cycloalkyl, SO₂C₆ aryl, and SO₂C₁₋₆ alkyl, wherein SO₂C₁₋₆ alkyl, and SO₂C₆ aryl is optionally substituted with C₁₋₆ alkoxy, halogen, and C₆ aryl;

R₁₀ and R₁₁ are taken together to form a 5-6 membered monocyclic saturated heterocyclic ring, wherein,

the 5-6 membered monocyclic saturated heterocyclic ring is optionally substituted with the substituents selected from amino, -NHC(O)CH=CHCH₂N(CH₃)₂, or C₁₋₆ alkylamino;

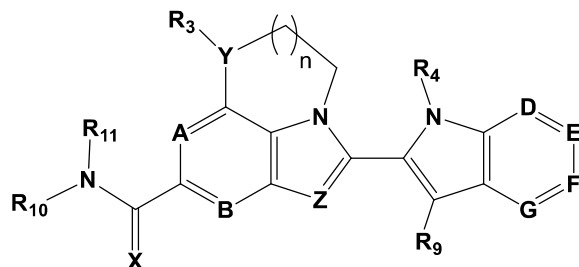
R₁₂, R₁₃, R₁₄ and R₁₅ are independently selected from hydrogen or C₁₋₆ alkyl; and

R₁₆ is 5-10 membered bicyclic heteroaryl with 1-2 heteroatoms selected from N or S, wherein,

5-10 membered bicyclic heteroaryl is optionally substituted with 1-3 substituents selected from the group consisting of halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl- C₆ aryl, C₂₋₆ alkenyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, C₁₋₆ heteroaryl, and C₁₋₆ alkyl-C₁₋

₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ heteroaryl, C₁₋₆ alkyl-C₁₋₆ heteroaryl, and C₁₋₆ alkyl-C₁₋₆ heterocyclyl is optionally substituted with one or more of the groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and -COOH.

2. A compound of Formula (II)



Formula (II)

their stereoisomers and pharmaceutically acceptable salts thereof,

wherein,

X is O or S;

Y is O or N;

Z is N;

A is CR₁;

B is CR₂;

D is selected from N or CR₅;

E is CR₆;

F is CR₇;

G is CR₈;

n is 1-2;

R₁, R₂ and R₉ are independently selected from hydrogen;

R₅, R₆, R₇ and R₈ are independently selected from the group consisting of hydrogen, halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₂₋₆ alkenyl- C₆ aryl, and C₁₋₆ heteroaryl;

R₃ is absent or is selected from the group consisting of hydrogen, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, C(O)C₁₋₆ alkyl, SO₂C₁₋₆ alkyl, SO₂C₃₋₆ cycloalkyl, and SO₂C₆ aryl, wherein, SO₂C₆ aryl, and SO₂C₁₋₆ alkyl, is optionally substituted with C₁₋₆ alkoxy, halogen, and C₆ aryl;

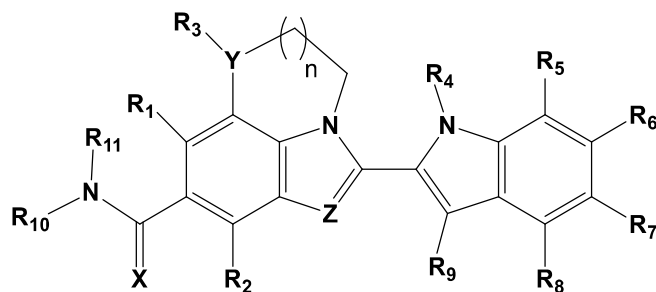
R₄ is selected from the group consisting of C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, is

optionally substituted with one or more groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and -COOH; and

R₁₀ and R₁₁ are taken together to form a 5-6 membered monocyclic saturated heterocyclic ring, wherein,

the 5-6 membered monocyclic saturated heterocyclic ring is optionally substituted with the substituents selected from the group consisting of amino, C₁₋₆ alkylamino, and -NHC(O)CH=CHCH₂N(CH₃)₂.

3. A compound of Formula (III)



Formula (III)

their stereoisomers and pharmaceutically acceptable salts thereof,

wherein,

X is O or S;

Y is O or N;

Z is N;

n is 1-2;

R₁, R₂ and R₉ are independently selected from hydrogen;

R₅, R₆, R₇ and R₈ are independently selected from the group consisting of hydrogen, halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₂₋₆ alkenyl- C₆ aryl, and C₁₋₆ heteroaryl;

R₃ is absent or is selected from the group consisting of hydrogen, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, C(O)C₁₋₆ alkyl, SO₂C₁₋₆ alkyl, SO₂C₃₋₆ cycloalkyl, and SO₂C₆ aryl, wherein, SO₂C₆ aryl, and SO₂C₁₋₆ alkyl, is optionally substituted with C₁₋₆ alkoxy, halogen, and C₆ aryl;

R₄ is selected from the group consisting of C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, is optionally substituted with one or more groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and -COOH; and

R₁₀ and R₁₁ are taken together to form a 5-6 membered monocyclic saturated heterocyclic ring, wherein,

the 5-6 membered monocyclic saturated heterocyclic ring is optionally substituted with the substituents selected from the group consisting of amino, C₁₋₆ alkylamino, and -NHC(O)CH=CHCH₂N(CH₃)₂.

4. The compound of Formula (I) as claimed in claim 1 or its stereoisomers and pharmaceutically acceptable salts thereof, which is selected from a group consisting of:

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(1)**,

(R)-(3-aminopyrrolidin-1-yl)(2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(2)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-ethyl-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(3)**,

(2-(aminomethyl)piperidin-1-yl)(2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(4)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-ethyl-1H-pyrrolo[2,3-b]pyridin-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(5)**,

(R)-(3-aminopiperidin-1-yl)(1-(1-(cyclopropylmethyl)-1H-indol-2-yl)-8,9-dihydro-7H-6-oxa-2,9a-diazabenz[cd]azulen-4-yl)methanone **(6)**,

(R)-(3-aminopyrrolidin-1-yl)(1-(1-(cyclopropylmethyl)-1H-indol-2-yl)-8,9-dihydro-7H-6-oxa-2,9a-diazabenz[cd]azulen-4-yl)methanone **(7)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-7-methyl-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(8)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-5-fluoro-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(9)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(pyridin-4-ylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(10)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(pyridin-2-ylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(11)**,

(R)-(3-aminopiperidin-1-yl)(2-(3-ethylbenzo[b]thiophen-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(12)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(4-chlorobenzyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(13)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(2-fluorobenzyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(14)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(4-fluorobenzyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(15)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(pyridin-3-ylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(16)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-5,6-dimethoxy-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(17)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-benzyl-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(18)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(4-methoxybenzyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(19)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(2-methoxyethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(20)**,

(R)-(3-aminopiperidin-1-yl)(2-(6-methoxy-1-(2-methoxyethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(21)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(2-hydroxyethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(22)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-6-methoxy-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(23)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-((3-fluoropyridin-4-yl)methyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(24)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(pyrazin-2-ylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(25)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-((3-fluoropyridin-2-yl)methyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(26)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(pyrimidin-2-ylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(27)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-6-fluoro-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(28)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(pyrimidin-5-ylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(29)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(pyridazin-3-ylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(30)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-isobutyl-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(31)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-5,6-difluoro-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(32)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-((3-fluoropyridin-2-yl)methyl)-6-methoxy-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(33)**,

(R)-(3-aminopiperidin-1-yl)(2-(7-chloro-1-((3-fluoropyridin-2-yl)methyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(34)**,

(R)-(3-aminopiperidin-1-yl)(2-(6-fluoro-1-((3-fluoropyridin-2-yl)methyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(35)**,

(R)-(3-aminopiperidin-1-yl)(2-(7-chloro-1-(2-methoxyethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(36)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(4-(hydroxymethyl)benzyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone trifluoroacetic acid salt **(37)**,

(R,E)-N-(1-(2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylene-7-carbonyl)piperidin-3-yl)-4-(dimethylamino)but-2-enamide trifluoroacetic acid salt **(38)**,

(R)-(3-aminopiperidin-1-yl)(2-(7-chloro-1-(4-methoxybenzyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(39)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-((tetrahydro-2H-pyran-4-yl)methyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(40)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclobutylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(41)**,

(R)-2-(2-(7-(3-aminopiperidine-1-carbonyl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-2-yl)-1H-indol-1-yl)acetic acid **(42)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(piperidin-4-ylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(43)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(oxetan-3-ylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(44)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-((1-methylpiperidin-4-yl)methyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(45)**,

(R)-(3-aminopiperidin-1-yl)(2-(5-fluoro-1-(4-methoxybenzyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(46)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(2,2-difluoroethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(47)**,

(R)-(3-aminopiperidin-1-yl)(2-(5-fluoro-1-(2-methoxyethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(48)**,

(R)-(3-aminopiperidin-1-yl)(2-(6-fluoro-1-(4-fluorobenzyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(49)**,

(R)-(3-aminopiperidin-1-yl)(2-(6-fluoro-1-(4-methoxybenzyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(50)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(4-fluorobenzyl)-6-methoxy-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(51)**,

3-aminopiperidin-1-yl)(2-(6-fluoro-1-(2-methoxyethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(52)**,

(R)-(3-aminopiperidin-1-yl)(2-(7-chloro-1-(cyclobutylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(53)**,

(R)-(3-aminopiperidin-1-yl)(2-(5,6-difluoro-1-(2-methoxyethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(54)**,

(R)-(3-aminopiperidin-1-yl)(2-(7-chloro-1-isobutyl-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(55)**,

(R)-(3-aminopiperidin-1-yl)(2-(7-chloro-1-(2,2-difluoroethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(56)**,

(R)-(3-aminopiperidin-1-yl)(2-(7-chloro-1-(cyclopropylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(57)**,

(R,E)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-5-styryl-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(58)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-((4-methylthiazol-2-yl)methyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(59)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-5-methoxy-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(60)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-6-(hydroxymethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(61)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-3,3-dimethyl-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(62)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(63)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-5-fluoro-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(64)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-6-fluoro-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(65)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(pyridin-3-ylmethyl)-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(66)**,

(R)-(3-aminopiperidin-1-yl)(2-(5-bromo-1-(cyclopropylmethyl)-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(67)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-5-(pyridin-3-yl)-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(68)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(pyridin-2-ylmethyl)-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(69)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(2-fluorobenzyl)-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(70)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(pyridin-4-ylmethyl)-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(71)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-6-methyl-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(72)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-6-methoxy-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(73)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-6-methoxy-1H-indol-2-yl)-6-methyl-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(74)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-5-fluoro-1H-indol-2-yl)-6-methyl-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(75)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-6-(methylsulfonyl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(76)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-5,6-difluoro-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(77)**,

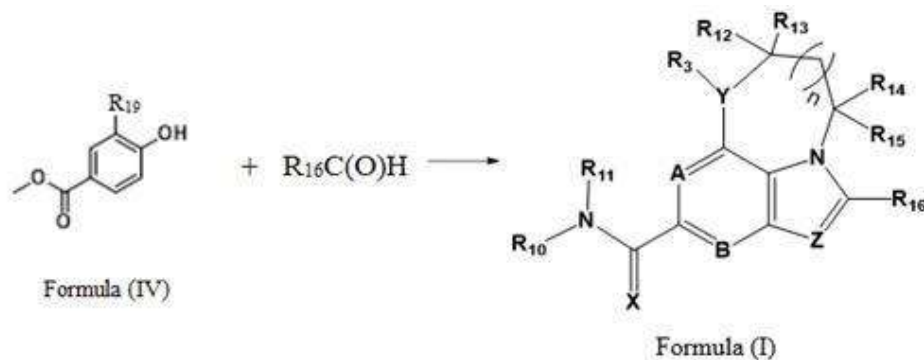
(R)-(3-aminopiperidin-1-yl)(6-cyclopropyl-2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(78)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-6-(phenethylsulfonyl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(79)**,

(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-4-fluoro-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(80)**,

(R)-(3-aminopiperidin-1-yl)(6-((4-chlorophenyl)sulfonyl)-2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(81)**,
(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-6-(cyclopropylsulfonyl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(82)**,
(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-6-((2-ethoxyethyl)sulfonyl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(83)**,
(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-7-methyl-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanone **(84)**,
(R)-1-(8-(3-aminopiperidine-1-carbonyl)-2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-4,5-dihydro-6H-imidazo[1,5,4-de]quinoxalin-6-yl)ethan-1-one **(85)**,
(R)-(3-aminopiperidin-1-yl)(2-(1-(cyclopropylmethyl)-1H-indol-2-yl)-5,6-dihydro-4H-imidazo[1,5,4-de]quinoxalin-8-yl)methanethione **(86)**,
(R)-(3-aminopiperidin-1-yl)(2-(7-chloro-1-(cyclopropylmethyl)-6-fluoro-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(87)**, and
(R)-(3-aminopiperidin-1-yl)(2-(7-chloro-1-(pyrimidin-5-ylmethyl)-1H-indol-2-yl)-3,4-dihydro-5-oxa-1,2a-diazaacenaphthylen-7-yl)methanone **(88)**.

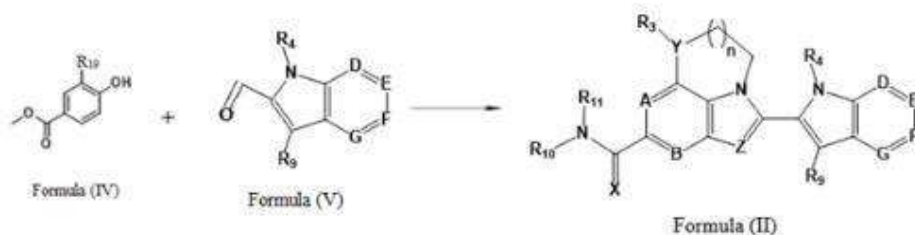
5. A process of preparation of compounds of Formula (I) as claimed in any of claims 1 and 4 or its stereoisomers and pharmaceutically acceptable salts thereof, the process comprising reacting Formula (IV) and $R_{16}C(O)H$



wherein R_{19} of Formula (IV) is selected from nitro and C_{1-6} alkoxy; R_{16} of $R_{16}C(O)H$ is 5-10 membered bicyclic heteroaryl with 1-2 heteroatoms selected from N or S, wherein, 5-10 membered bicyclic heteroaryl is optionally substituted with 1-3 substituents selected from the group consisting of halogen, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} alkyl- C_6 aryl, C_{2-6} alkenyl- C_6 aryl, C_{1-6} alkyl- C_{1-6} heterocyclyl, C_{1-6} heteroaryl, and C_{1-6} alkyl- C_{1-6}

heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ heteroaryl, C₁₋₆ alkyl-C₁₋₆ heteroaryl, and C₁₋₆ alkyl-C₁₋₆ heterocyclyl is optionally substituted with one or more of the groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and -COOH; X of Formula (I) is selected from O or S; Y is selected from O or N; Z is N; A is CR₁; B is CR₂; n is 0-1; R₁ and R₂ are independently selected from hydrogen; R₃ is absent or is selected from hydrogen, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, C(O)C₁₋₆ alkyl, SO₂C₁₋₆ alkyl, SO₂C₃₋₆ cycloalkyl, and SO₂C₆ aryl, wherein, SO₂C₆ aryl, and SO₂C₁₋₆ alkyl, is optionally substituted with C₁₋₆ alkoxy, halogen, and C₆ aryl; R₁₀ and R₁₁ are taken together to form a 5-6 membered monocyclic saturated heterocyclic ring, wherein, the 5-6 membered monocyclic saturated heterocyclic ring is optionally substituted with the substituents selected from amino, C₁₋₆ alkylamino, and -NHC(O)CH=CHCH₂N(CH₃)₂; R₁₂, R₁₃, R₁₄, and R₁₅ are independently selected from hydrogen and C₁₋₆ alkyl; R₁₆ is 5-10 membered bicyclic heteroaryl with 1-2 heteroatoms selected from N or S, wherein, 5-10 membered bicyclic heteroaryl is optionally substituted with 1-3 substituents selected from the group consisting of halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₂₋₆ alkenyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, C₁₋₆ heteroaryl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ heteroaryl, C₁₋₆ alkyl-C₁₋₆ heteroaryl, and C₁₋₆ alkyl-C₁₋₆ heterocyclyl is optionally substituted with one or more of the groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and -COOH.

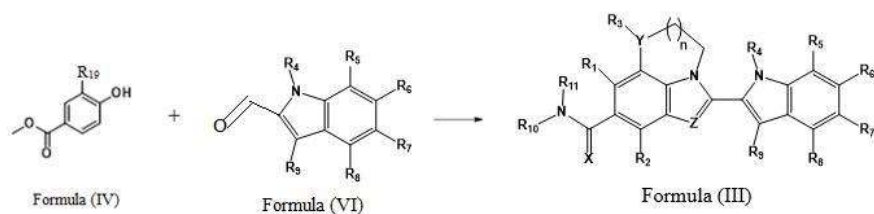
6. A process of preparation of compounds of Formula (II) as claimed in any of claims 2 and 4 or its stereoisomers and pharmaceutically acceptable salts thereof, the process comprising reacting Formula (IV) and Formula (V)



wherein R₁₉ of Formula (IV) is selected from nitro and C₁₋₆ alkoxy; X of Formula (II) is selected from O or S; Y is selected from O or N; Z is N; A is CR₁; B is CR₂; D is selected from N or CR₅; E is CR₆; F is CR₇; G is CR₈; n is 1-2; R₁, R₂ and R₉ are independently selected from hydrogen; R₅, R₆, R₇ and R₈ are independently selected

from the group consisting of hydrogen, halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₂₋₆ alkenyl- C₆ aryl, and C₁₋₆ heteroaryl; R₃ is absent or is selected from the group consisting of hydrogen, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, C(O)C₁₋₆ alkyl, SO₂C₁₋₆ alkyl, SO₂C₃₋₆ cycloalkyl, and SO₂C₆ aryl, wherein, SO₂C₆ aryl, and SO₂C₁₋₆ alkyl, is optionally substituted with C₁₋₆ alkoxy, halogen, and C₆ aryl; R₄ is selected from the group consisting of C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, is optionally substituted with one or more groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and -COOH; R₁₀ and R₁₁ are taken together to form a 5-6 membered monocyclic saturated heterocyclic ring, wherein the 5-6 membered monocyclic saturated heterocyclic ring is optionally substituted with the substituents selected from the group consisting of amino, C₁₋₆ alkylamino, and -NHC(O)CH=CHCH₂N(CH₃)₂; D of Formula (V) is selected from N or CR₅; E is CR₆; F is CR₇; G is CR₈, R₉ is H; and R₄ is selected from the group consisting of C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, is optionally substituted with one or more groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and -COOH.

7. A process of preparation of compounds of Formula (III) as claimed in any of claims 3-4 or its stereoisomers and pharmaceutically acceptable salts thereof, the process comprising reacting Formula (IV) and Formula (VI)



wherein R₁₉ of Formula (IV) is selected from nitro and C₁₋₆ alkoxy; X of Formula (III) is selected from O or S; Y is O or N; Z is N; n is 1-2; R₁, R₂ and R₉ are independently selected from hydrogen; R₅, R₆, R₇ and R₈ are independently selected from the group consisting of hydrogen, halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₂₋₆ alkenyl- C₆ aryl, and C₁₋₆ heteroaryl; R₃ is absent or is selected from the group consisting of hydrogen, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, C(O)C₁₋₆ alkyl, SO₂C₁₋₆ alkyl, SO₂C₃₋₆ cycloalkyl, and SO₂C₆ aryl, wherein, SO₂C₆ aryl, and SO₂C₁₋₆ alkyl, is optionally substituted with C₁₋₆ alkoxy,

halogen, and C₆ aryl; R₄ is selected from the group consisting of C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, is optionally substituted with one or more groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and COOH; R₁₀ and R₁₁ are taken together to form a 5-6 membered monocyclic saturated heterocyclic ring, wherein, the 5-6 membered monocyclic saturated heterocyclic ring is optionally substituted with the substituents selected from the group consisting of amino, C₁₋₆ alkylamino, and -NHC(O)CH=CHCH₂N(CH₃)₂; and R₉ of formula (VI) is hydrogen; R₅, R₆, R₇ and R₈ are independently selected from the group consisting of hydrogen, halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₂₋₆ alkenyl- C₆ aryl, and C₁₋₆ heteroaryl; R₄ is selected from the group consisting of C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl, wherein, C₁₋₆ alkyl, C₁₋₆ alkyl-C₆ aryl, C₁₋₆ alkyl-C₁₋₆ heterocyclyl, and C₁₋₆ alkyl-C₁₋₆ heteroaryl is optionally substituted with one or more groups selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₈ cycloalkyl, halogen, hydroxyl, -CH₂OH, and COOH.

8. A pharmaceutical composition comprising a compound of Formula (I), Formula (II), and Formula (III) or a pharmaceutically acceptable salt thereof as claimed in any of claims 1-4 together with a pharmaceutically acceptable carrier, optionally in combination with one or more other pharmaceutical compositions.

9. The pharmaceutical composition as claimed in claim 8, wherein the composition is in the form selected from the group consisting of a tablet, capsule, powder, syrup, solution, aerosol, and suspension.

10. Compounds as claimed in any of the claims 1-4 or a pharmaceutically acceptable salt thereof for use as a medicament.

11. An *in vitro* method for inhibiting one or more PAD family in a cell with an effective amount of the compound as claimed in any of the claims 1-4.

12. Use of a pharmaceutical composition as claimed in any one of the claim 8 or 9 in the manufacture of a medicament for treating a condition selected from vasculitis, systemic lupus erythematosus, cancer, asthma, rheumatoid arthritis, ulcerative colitis, psoriasis, cystic fibrosis and cutaneous lupus erythematosus.

13. Use of the compound of Formula (I), Formula (II), and Formula (III) as claimed in any one of claims 1-4 in the manufacture of a medicament for the treatment of

rheumatoid arthritis, vasculitis, systemic lupus erythematosus, ulcerative colitis, cancer, cystic fibrosis, asthma, cutaneous lupus erythematosus and psoriasis.

14. Use of the compound as claimed in any one of claims 1-4 or the pharmaceutical composition as claimed in claim 8, or 9 together with other clinically relevant agents or biological agents in the manufacture of a medicament for the treatment and/or prevention of treatment of rheumatoid arthritis, vasculitis, systemic lupus erythematosus, ulcerative colitis, cancer, cystic fibrosis, asthma, cutaneous lupus erythematosus and psoriasis.

15. Use of the compound as claimed in any one of claims 1-4 or the pharmaceutical composition as claimed in claim 8, or 9 together with other clinically relevant agents or biological agents in the manufacture of a medicament for the treatment and/or prevention of acid-induced lung injury, respiratory distress syndrome, allergen induced asthma, allergic bronchopulmonary, chronic lung disease of prematurity, chronic obstructive pulmonary disease, colitis, cystic fibrosis, gouty arthritis, inflammatory bowel disease, inflammatory lung disease, inflammatory pain, juvenile rheumatoid arthritis, kidney disease, kidney injury caused by parasitic infections, kidney transplant rejection prophylaxis, lung injury, lupus, lupus nephritis, multiple sclerosis, muscular dystrophy, non-allergen induced asthma, osteoarthritis, periodontitis, peritoneal endometriosis, psoriasis, pulmonary disease, pulmonary fibrosis, pyogenic sterile arthritis, renal disease, rheumatic disease, rheumatoid arthritis, sepsis, severe pain and ulcerative colitis.

16. Use of a therapeutically effective amount of the compound as claimed in any one of the claims 1-4, or the pharmaceutical composition as claimed in claim 8 or 9 in the manufacture of a medicament for the treatment and/or prevention of a condition selected from acid-induced lung injury, respiratory distress syndrome, allergen induced asthma, allergic bronchopulmonary, chronic lung disease of prematurity, chronic obstructive pulmonary disease, colitis, cystic fibrosis, gouty arthritis, inflammatory bowel disease, inflammatory lung disease, inflammatory pain, juvenile rheumatoid arthritis, kidney disease, kidney injury caused by parasitic infections, kidney transplant rejection prophylaxis, lung injury, lupus, lupus nephritis, multiple sclerosis, muscular dystrophy, non-allergen induced asthma, osteoarthritis, periodontitis, peritoneal endometriosis, psoriasis, pulmonary disease, pulmonary fibrosis, pyogenic sterile arthritis, renal disease, rheumatic disease, rheumatoid arthritis, sepsis, severe pain and ulcerative colitis.

17. Use of a combination of the compounds as claimed in any of claims 1-4 or the pharmaceutical composition as claimed in claim 8 or 9, with other clinically relevant agents or biological agents in the manufacture of a medicament for the treatment of rheumatoid arthritis.

18. Use of a combination of the compounds as claimed in any of claims 1-4 or the pharmaceutical composition as claimed in claim 8 or 9, with other clinically relevant immune modulators agents in the manufacture of a medicament for the treatment of cancer.