hydrocarbylene group may be straight-chained or branched or include cyclic groups, wherein the hydrocarbylene group may optionally be substituted, and wherein the hydrocarbylene group may optionally include one or more heteroatoms N, O or S in its carbon skeleton;

R^1 is $-NR^3R^4$, $-OR^5$, $-(C=NR^6)R^7$, $-(CO)R^8$, $-CN$, $-N_3$, a quaternary ammonium group or an optionally substituted heterocycle;

R^3, R^4, R^5, R^6, R^7 and R^8 are each independently hydrogen or a saturated or unsaturated C_1-C_{10} hydrocarbyl group, wherein the hydrocarbyl group may be straight-chained or branched, or be or include cyclic groups, wherein the hydrocarbyl group may optionally be substituted, and wherein the hydrocarbyl group may optionally include one or more heteroatoms N, O or S in its carbon skeleton;

wherein optionally L and R^3, or L and R^4, or R^3 and R^4 together with the nitrogen atom to which they are attached may form a 3- to 12-membered saturated or unsaturated cyclic group, wherein the cyclic group may optionally be substituted;

wherein optionally L and R^5 together with the oxygen atom to which they are attached may form a 3- to 12-membered saturated or unsaturated cyclic group, wherein the cyclic group may optionally be substituted;

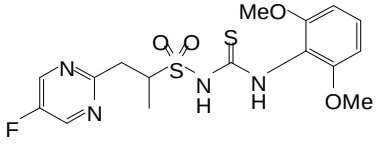
wherein optionally L and R^6, or L and R^7, or R^6 and R^7 together with the -(C=N)– group to which they are attached may form a 3- to 12-membered saturated or unsaturated cyclic group, wherein the cyclic group may optionally be substituted;

wherein optionally L and R^8 together with the –(C=O)– group to which they are attached may form a 3- to 12-membered saturated or unsaturated cyclic group, wherein the cyclic group may optionally be substituted;

R^2 is a cyclic group substituted at the α- and α' positions, wherein R^2 may optionally be further substituted;

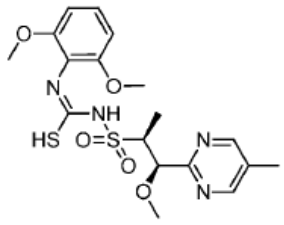
provided that the atom of L which is attached to the sulfur atom of the sulfonylurea group is a carbon atom and is not a ring atom of any cyclic group;

provided the compound of formula (I) is not



; and

provided when R^1 is a quaternary ammonium group or an optionally substituted heterocycle, the compound of formula (I) is not



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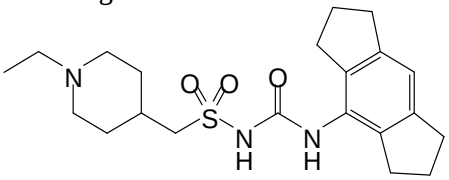
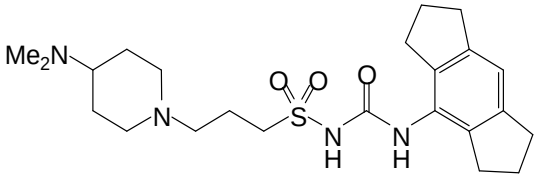
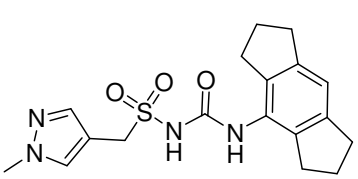
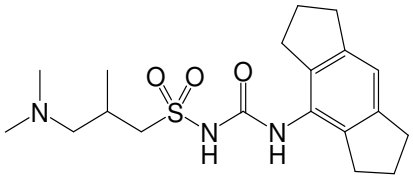
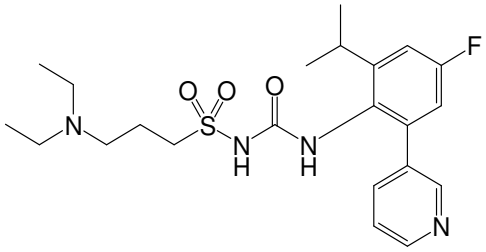
In another aspect, the present disclosure refers to a compound selected from the group consisting of:

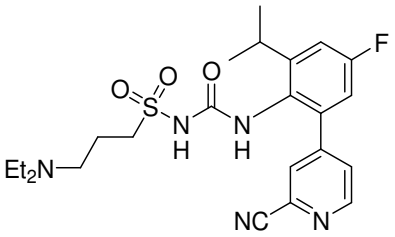


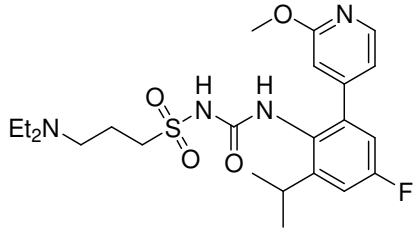


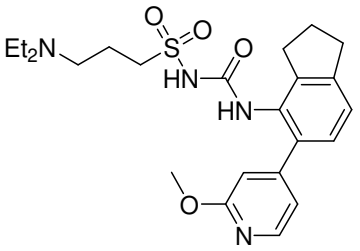


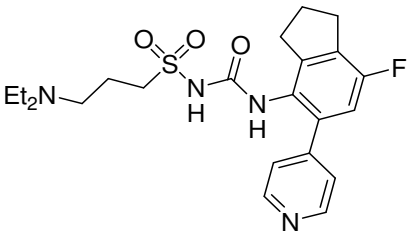


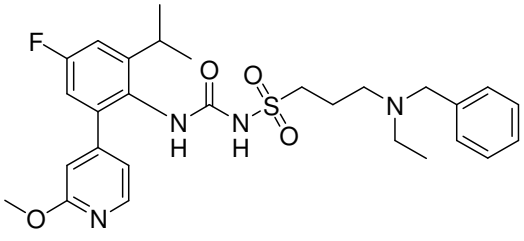


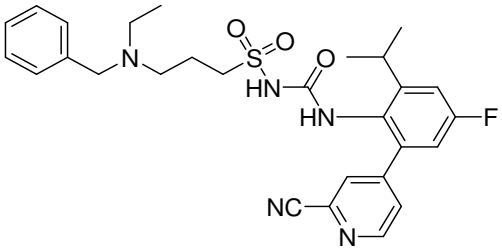












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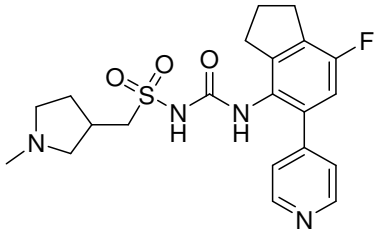

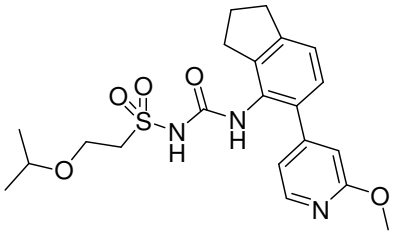

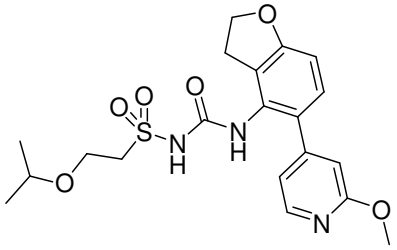

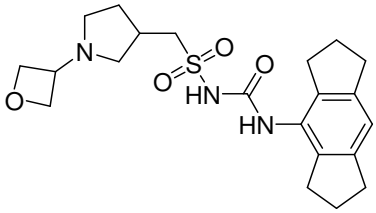

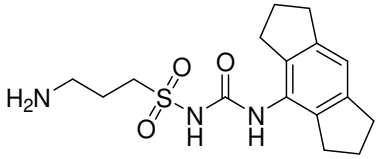

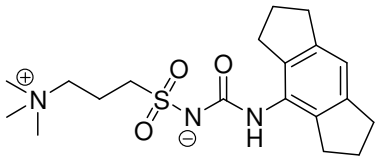

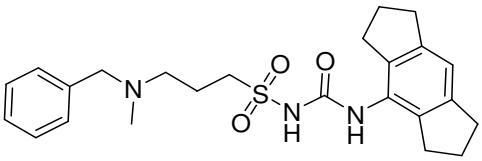

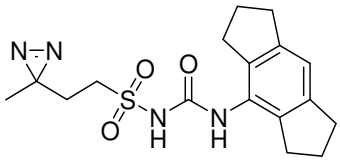

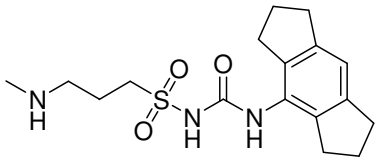

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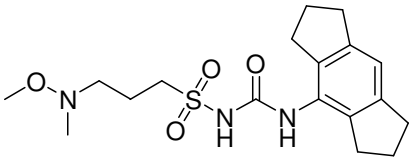
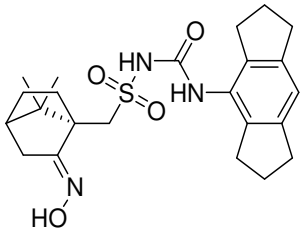
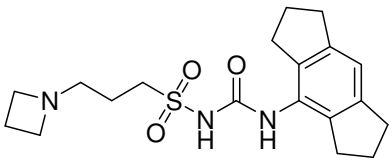
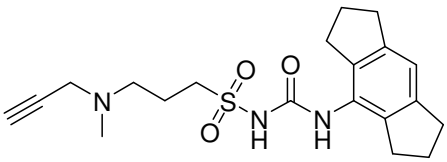
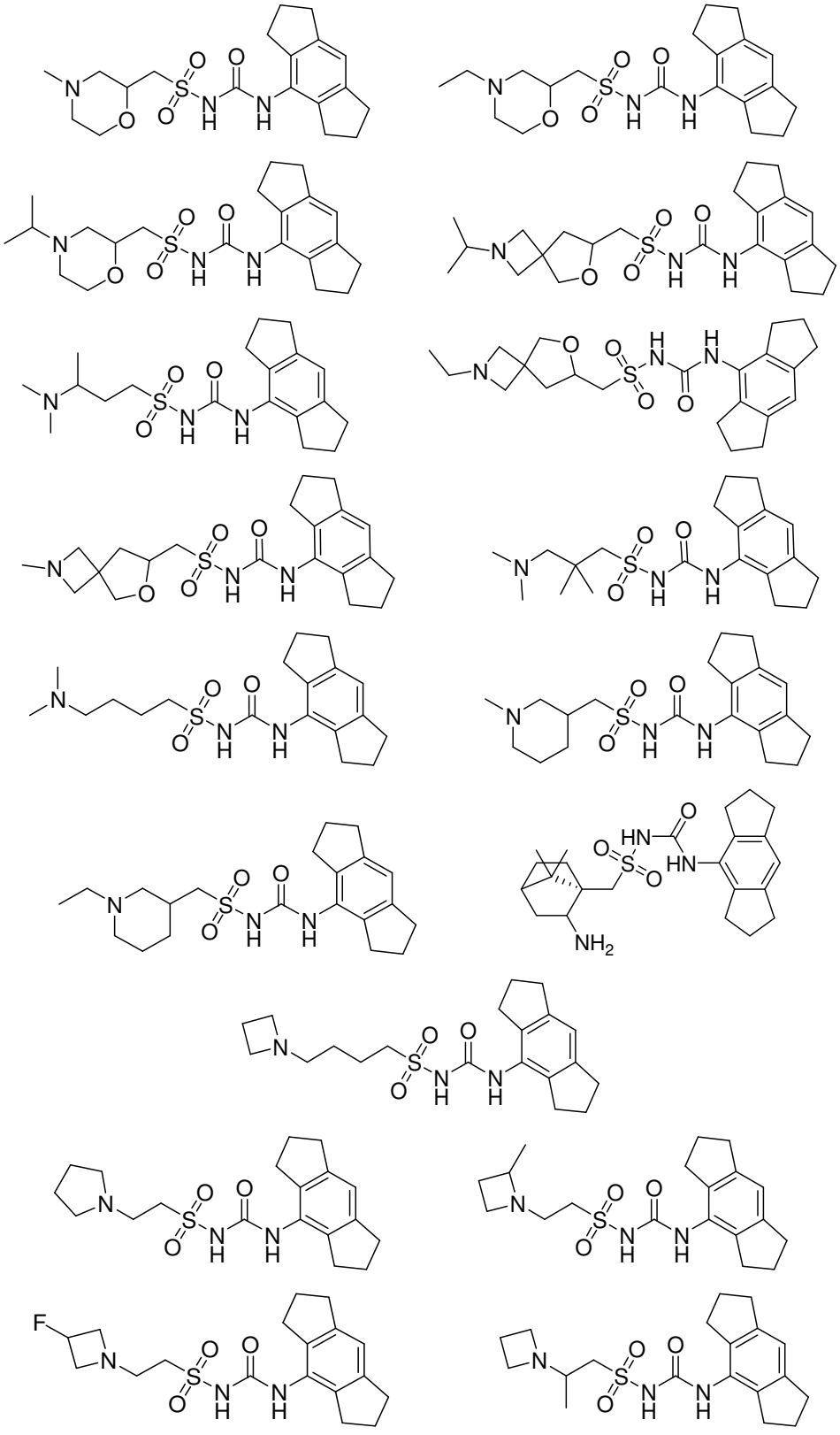
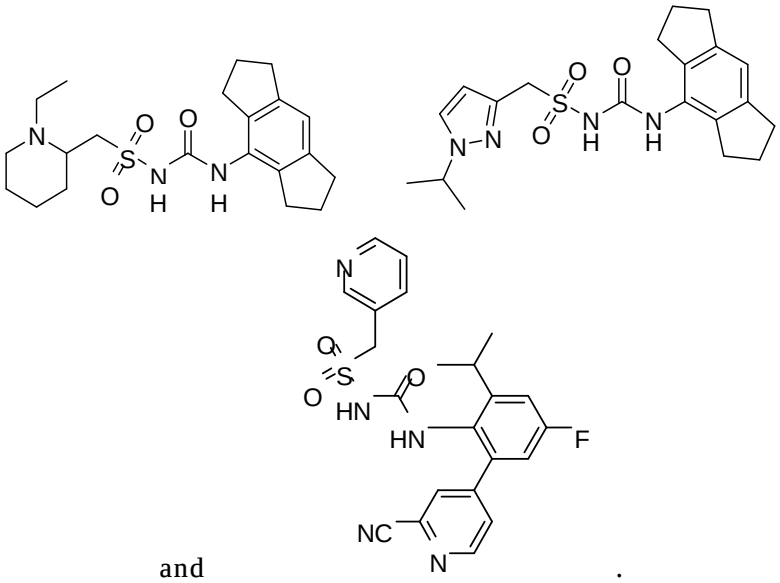












and .

In yet another aspect, the present disclosure refers to a pharmaceutically acceptable salt or solvate of a compound as disclosed herein. In a further aspect, the present disclosure refers to a pharmaceutical composition comprising a compound as disclosed herein, or a pharmaceutically acceptable salt or solvate as disclosed herein, and a pharmaceutically acceptable excipient. In still another aspect, the present disclosure refers to a compound as disclosed herein, or a pharmaceutically acceptable salt or solvate as disclosed herein, or a pharmaceutical composition as disclosed herein, for use in medicine.

In a further aspect, the present disclosure refers to a compound, pharmaceutically acceptable salt, solvate, or pharmaceutical composition as disclosed herein, for use in the treatment or prevention of a disease, disorder or condition, wherein the disease, disorder or condition is selected from:

(i) inflammation;

(ii) an auto-immune disease;

(iii) cancer;

(iv) an infection;

(v) a central nervous system disease;

(vi) a metabolic disease;
(vii) a cardiovascular disease;
(viii) a respiratory disease;
(ix) a liver disease;
(x) a renal disease;
(xi) an ocular disease;
(xii) a skin disease;
(xiii) a lymphatic condition;
(xiv) a psychological disorder;
(xv) graft versus host disease; and
(xvi) allodynia.

In a further aspect, the present disclosure refers to a compound, pharmaceutically acceptable salt, solvate, or pharmaceutical composition as disclosed herein, for use in the treatment or prevention of a disease, disorder or condition, wherein the disease, disorder or condition is selected from:

(i) cryopyrin-associated periodic syndromes (CAPS);
(ii) Muckle-Wells syndrome (MWS);
(iii) familial cold autoinflammatory syndrome (FCAS);
(iv) neonatal onset multisystem inflammatory disease (NOMID);
(v) familial Mediterranean fever (FMF);
(vi) pyogenic arthritis, pyoderma gangrenosum and acne syndrome (PAPA);
(vii) hyperimmunoglobulinemia D and periodic fever syndrome (HIDS);
(viii) Tumour Necrosis Factor (TNF) Receptor-Associated Periodic Syndrome (TRAPS);
(ix) systemic juvenile idiopathic arthritis;
(x) adult-onset Still's disease (AOSD);
(xi) relapsing polychondritis;
(xii) Schnitzler's syndrome;
(xiii) Sweet's syndrome;
(xiv) Behcet's disease;
(xv) anti-synthetase syndrome;
(xvi) deficiency of interleukin 1 receptor antagonist (DIRA); and
(xvii) haploinsufficiency of A20 (HA20).

In yet another aspect, the present disclosure refers to a compound as disclosed herein, or a pharmaceutically acceptable salt or solvate as disclosed herein, or a pharmaceutical composition as disclosed herein, for use in inhibiting NLRP3.

In still another aspect, the present disclosure refers to the use of a compound as disclosed herein, or a pharmaceutically acceptable salt or solvate disclosed herein, or a pharmaceutical composition as disclosed herein, in the manufacture of a medicament for treating or preventing a disease, disorder or condition selected from:

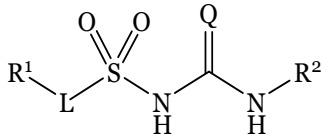
(i) inflammation;
(ii) an auto-immune disease;
(iii) cancer;
(iv) an infection;
(v) a central nervous system disease;
(vi) a metabolic disease;
(vii) a cardiovascular disease;
(viii) a respiratory disease;
(ix) a liver disease;
(x) a renal disease;
(xi) an ocular disease;
(xii) a skin disease;
(xiii) a lymphatic condition;
(xiv) a psychological disorder;
(xv) graft versus host disease; and
(xvi) allodynia.

In another aspect, the present disclosure refers to the use of a compound as disclosed herein, or a pharmaceutically acceptable salt or solvate as disclosed herein, or a pharmaceutical composition as disclosed herein, in the manufacture of a medicament for treating or preventing a disease, disorder or condition selected from:

(i) cryopyrin-associated periodic syndromes (CAPS);
(ii) Muckle-Wells syndrome (MWS);
(iii) familial cold autoinflammatory syndrome (FCAS);
(iv) neonatal onset multisystem inflammatory disease (NOMID);

Claims

1. A compound of formula (I):



Formula (I)

wherein:

Q is selected from O or S;

L is a saturated or unsaturated C_1-C_{12} hydrocarbylene group, wherein the hydrocarbylene group may be straight-chained or branched or include cyclic groups, wherein the hydrocarbylene group may optionally be substituted, and wherein the hydrocarbylene group may optionally include one or more heteroatoms N, O or S in its carbon skeleton;

R^1 is $-NR^3R^4$, $-OR^5$, $-(C=NR^6)R^7$, $-(CO)R^8$, $-CN$, $-N_3$, a quaternary ammonium group or an optionally substituted heterocycle;

R^3, R^4, R^5, R^6, R^7 and R^8 are each independently hydrogen or a saturated or unsaturated C_1-C_{10} hydrocarbyl group, wherein the hydrocarbyl group may be straight-chained or branched, or be or include cyclic groups, wherein the hydrocarbyl group may optionally be substituted, and wherein the hydrocarbyl group may optionally include one or more heteroatoms N, O or S in its carbon skeleton;

wherein optionally L and R^3, or L and R^4, or R^3 and R^4 together with the nitrogen atom to which they are attached may form a 3- to 12-membered saturated or unsaturated cyclic group, wherein the cyclic group may optionally be substituted;

wherein optionally L and R^5 together with the oxygen atom to which they are attached may form a 3- to 12-membered saturated or unsaturated cyclic group, wherein the cyclic group may optionally be substituted;

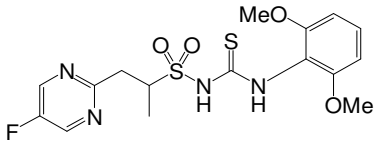
wherein optionally L and R^6, or L and R^7, or R^6 and R^7 together with the -(C=N)– group to which they are attached may form a 3- to 12-membered saturated or unsaturated cyclic group, wherein the cyclic group may optionally be substituted;

wherein optionally L and R^8 together with the –(C=O)– group to which they are attached may form a 3- to 12-membered saturated or unsaturated cyclic group, wherein the cyclic group may optionally be substituted;

R^2 is a cyclic group substituted at the α and α' positions, wherein R^2 may optionally be further substituted;

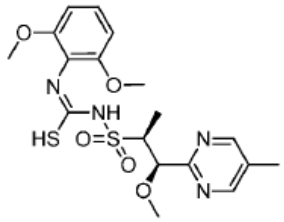
provided that the atom of L which is attached to the sulfur atom of the sulfonylurea group is a carbon atom and is not a ring atom of any cyclic group;

provided the compound of formula (I) is not



; and

provided when R^1 is a quaternary ammonium group or an optionally substituted heterocycle, the compound of formula (I) is not



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2. A compound as claimed in claim 1, wherein L is a saturated or unsaturated C_1-C_8 hydrocarbylene group, wherein the hydrocarbylene group may be straight-chained or branched or include cyclic groups, and wherein the hydrocarbylene group may optionally be substituted with one or more substituents independently selected from halo, -CN, -$N(R^9)_2$, -OR^9 or oxo (=O) groups, wherein R^9 is independently selected from a hydrogen atom or a C_1-C_3 alkyl group.

3. A compound as claimed in claim 1 or 2, wherein R^1 is –NR^3R^4, and R^3 and R^4 are each independently hydrogen or a C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 cycloalkyl, phenyl or benzyl group, each of which may optionally be substituted with one or more substituents independently selected from halo, -CN, -$N(R^9)_2$, -OR^9 or oxo (=O) groups, wherein R^9 is independently selected from a hydrogen atom or a C_1-C_3 alkyl group.

4. A compound as claimed in claim 1 or 2, wherein R^1 is –OR^5, and R^5 is hydrogen or a C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 cycloalkyl, phenyl or benzyl group, each of which may optionally be substituted with one or more substituents independently selected from halo, -CN, -$N(R^9)_2$, -OR^9 or oxo (=O) groups, wherein R^9 is independently selected from a hydrogen atom or a C_1-C_3 alkyl group.

5. A compound as claimed in claim 1 or 2, wherein R^1 is –$(C{=}NR^6)R^7$, and R^6 and

R^7 are each independently hydrogen or a C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 cycloalkyl, phenyl or benzyl group, each of which may optionally be substituted with one or more substituents independently selected from halo, -CN, -$N(R^9)_2$, -OR^9 or oxo (=O) groups, wherein R^9 is independently selected from a hydrogen atom or a C_1-C_3 alkyl group.

6. A compound as claimed in claim 1 or 2, wherein R^1 is –(CO)R^8, and R^8 is hydrogen or a C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 cycloalkyl, phenyl or benzyl group, each of which may optionally be substituted with one or more substituents independently selected from halo, -CN, -$N(R^9)_2$, -OR^9 or oxo (=O) groups, wherein R^9 is independently selected from a hydrogen atom or a C_1-C_3 alkyl group.

7. A compound as claimed in claim 1 or 2, wherein R^1 is –(CO)R^8, and L and R^8 together with the –(C=O)– group to which they are attached form a 4-, 5- or 6-membered saturated cyclic group, wherein the cyclic group may optionally include one further heteroatom N, O or S in its carbon skeleton, and wherein the cyclic group may optionally be substituted with one or more substituents independently selected from halo, -CN, -$N(R^9)_2$, -OR^9, C_1-C_3 alkyl, C_1-C_3 alkylene or oxo (=O) groups, wherein R^9 is independently selected from a hydrogen atom or a C_1-C_3 alkyl group.

8. A compound as claimed in any one of claims 1 to 7, wherein R^2 is an aryl or a heteroaryl group, wherein the aryl or the heteroaryl group is substituted at the α and α' positions, and wherein R^2 may optionally be further substituted.

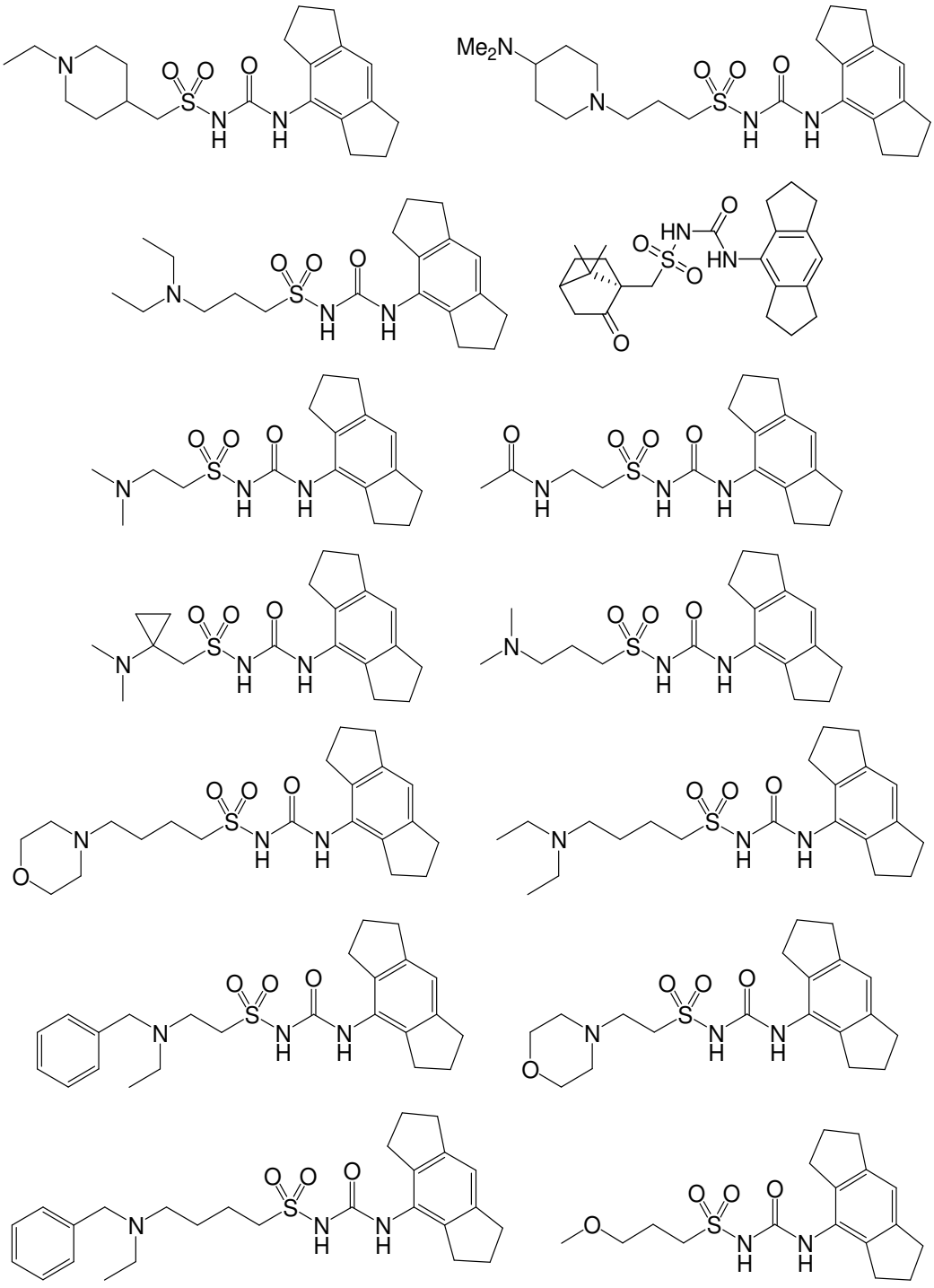
9. A compound as claimed in claim 8, wherein R^2 is a fused aryl or a fused heteroaryl group, wherein a first cycloalkyl, cycloalkenyl, non-aromatic heterocyclic, aryl or heteroaryl ring is fused to the aryl or heteroaryl group across the α,β positions and a second cycloalkyl, cycloalkenyl, non-aromatic heterocyclic, aryl or heteroaryl ring is fused to the aryl or heteroaryl group across the α',β' positions, and wherein R^2 may optionally be further substituted.

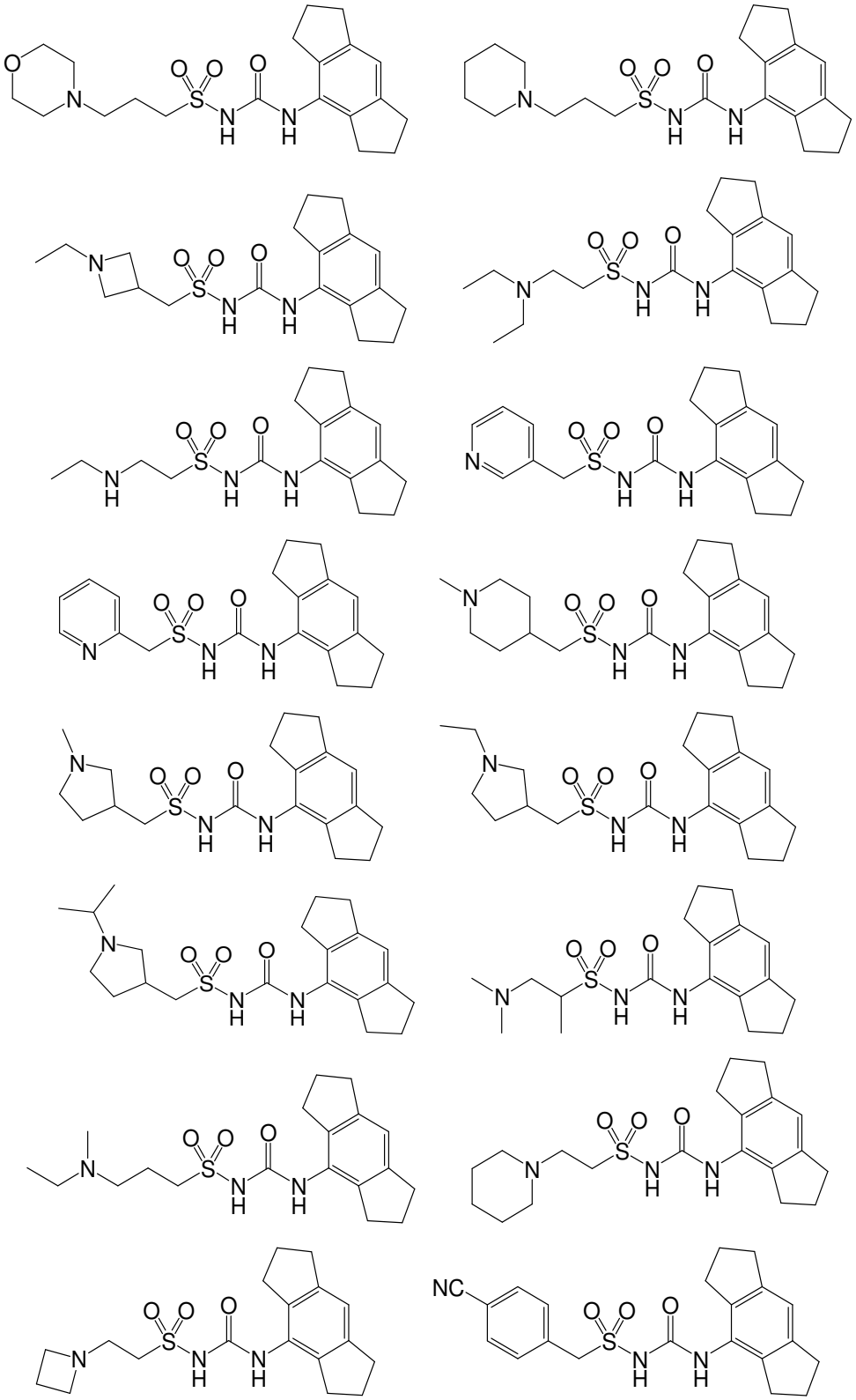
10. A compound as claimed in any one of claims 1 to 7, wherein R^2 is a cyclic group substituted at the α-position with a monovalent heterocyclic group or a monovalent aromatic group, wherein a ring atom of the heterocyclic or aromatic group is directly attached to the α-ring atom of the cyclic group, wherein the heterocyclic or aromatic group may optionally be substituted, and wherein the cyclic group is further substituted

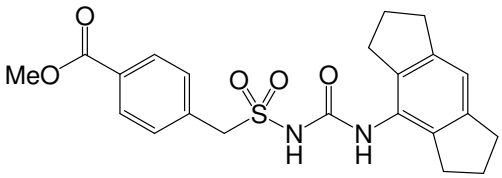
at the α' position and may optionally be further substituted.

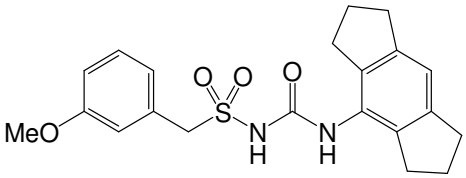
11. A compound as claimed in any one of claims 1 to 10, wherein Q is O.

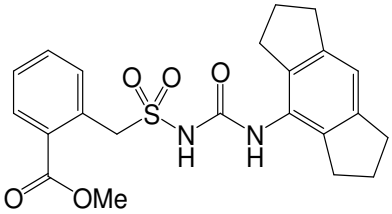
12. A compound selected from the group consisting of:

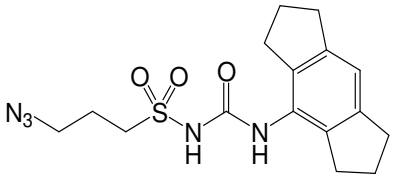


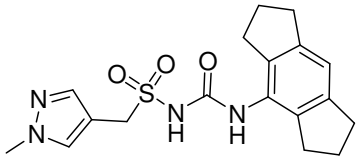


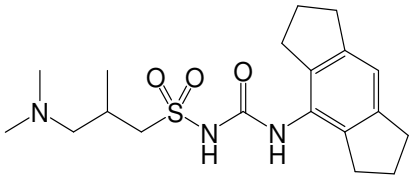


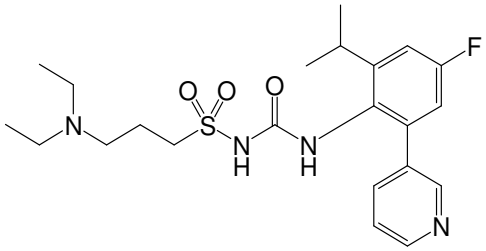


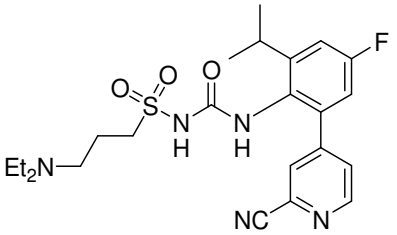


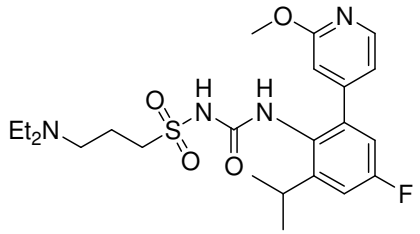


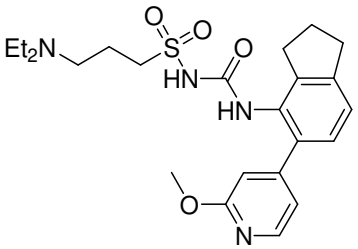


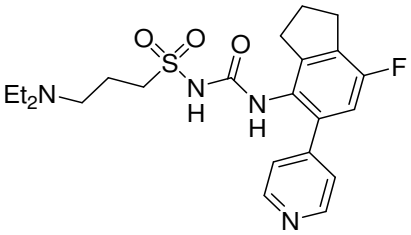


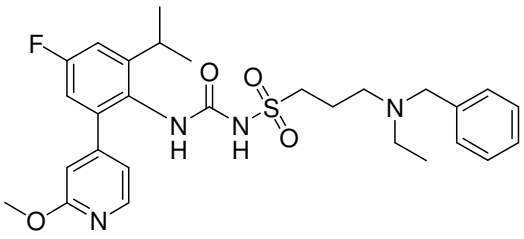


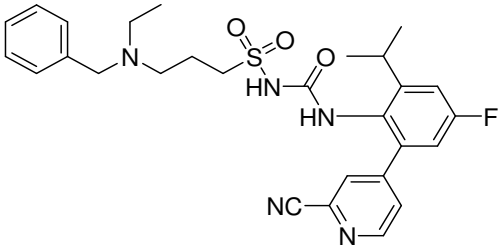


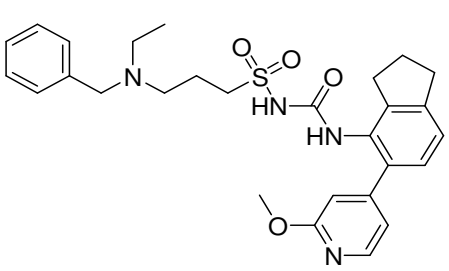


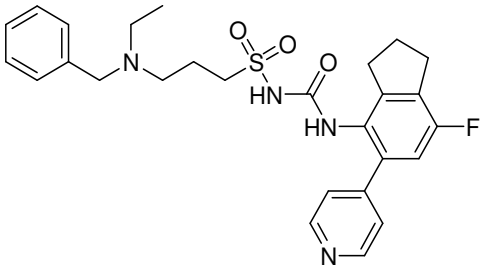


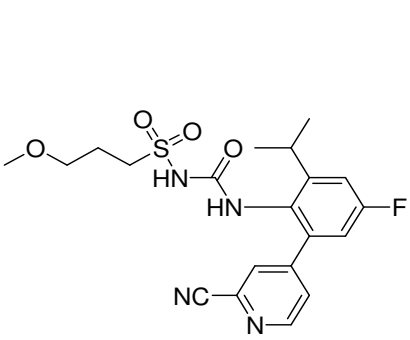


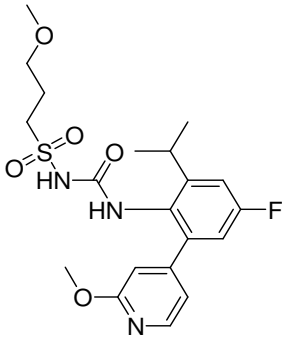


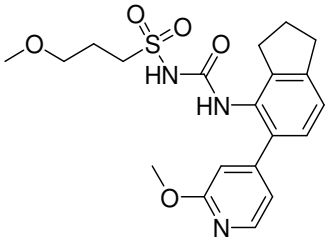


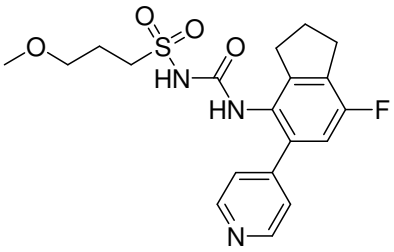


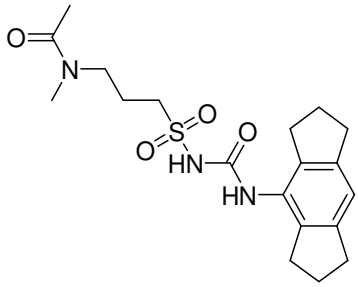


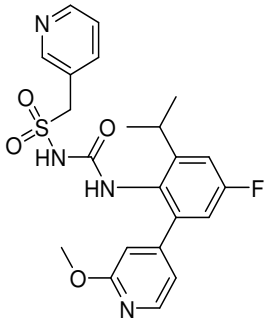


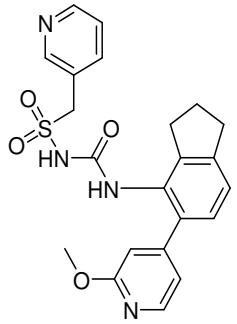


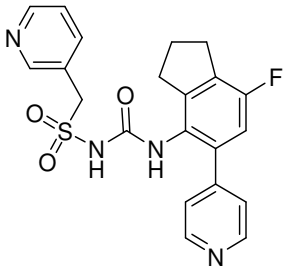


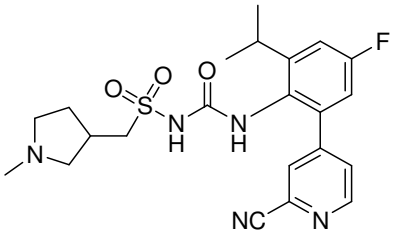


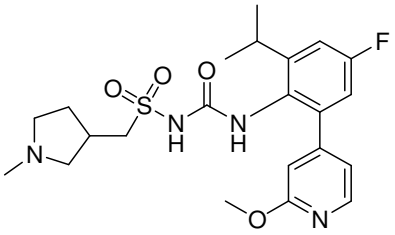


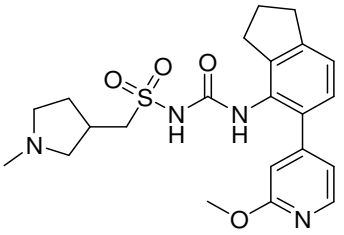












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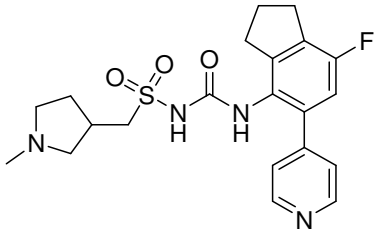

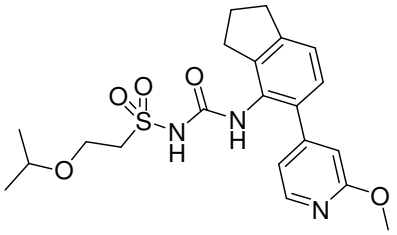

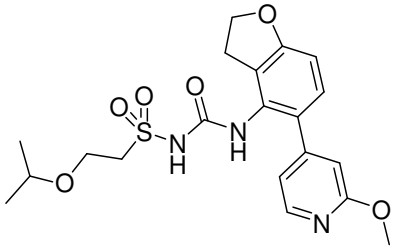

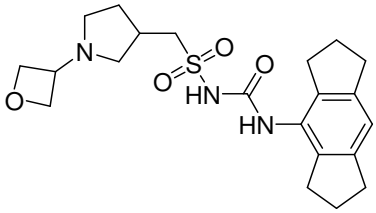

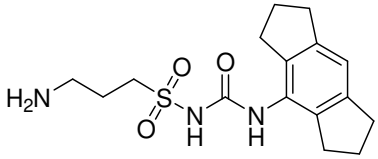

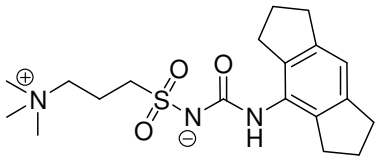

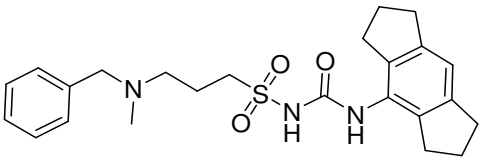

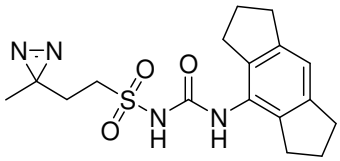

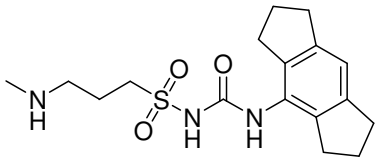

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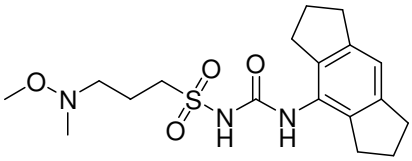

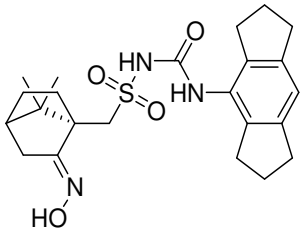

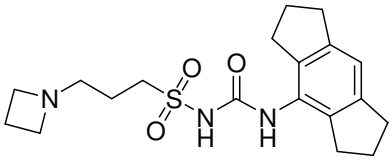

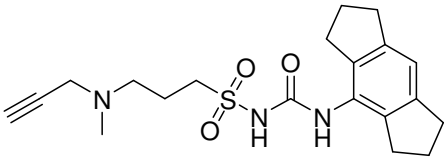

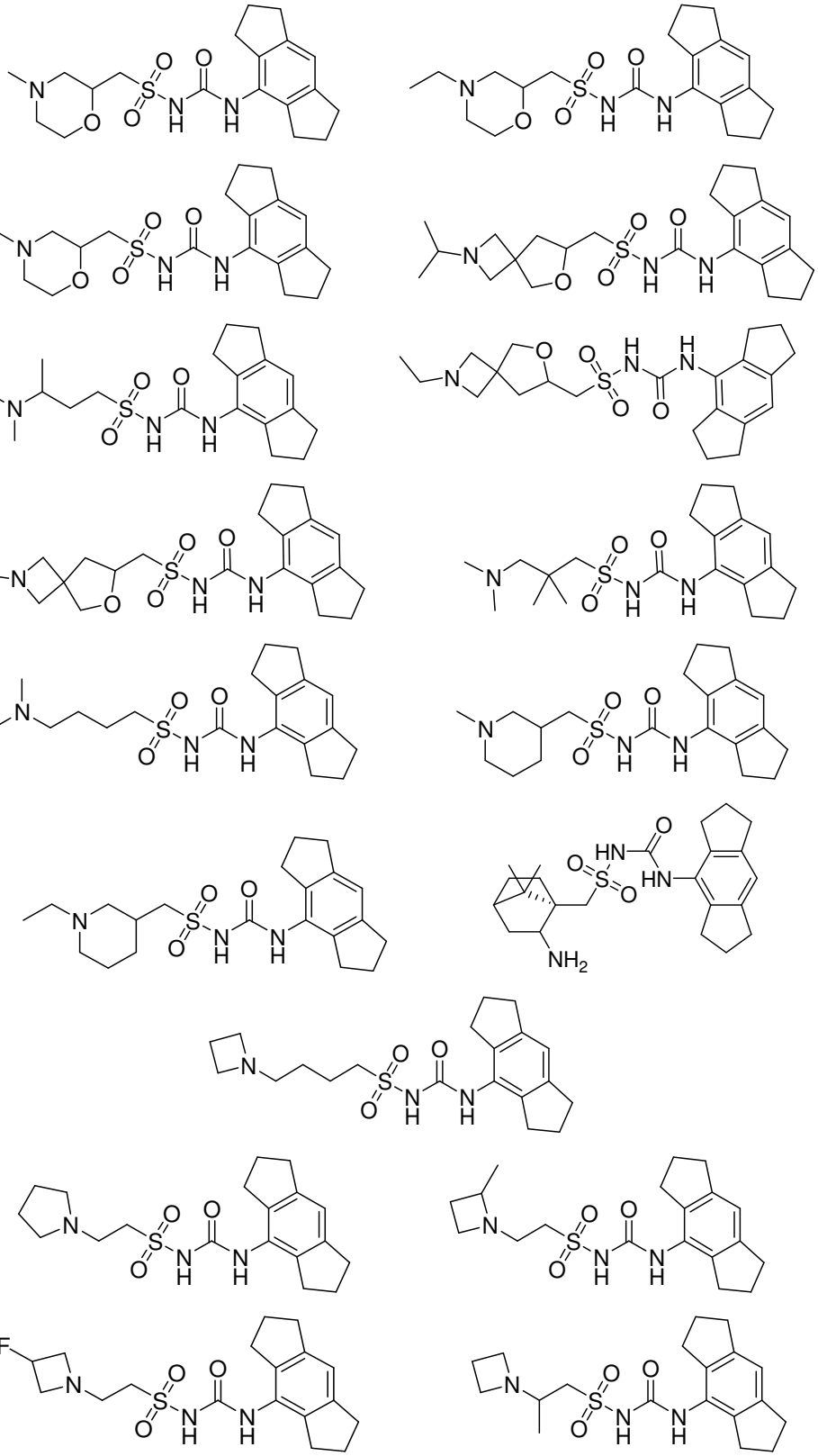

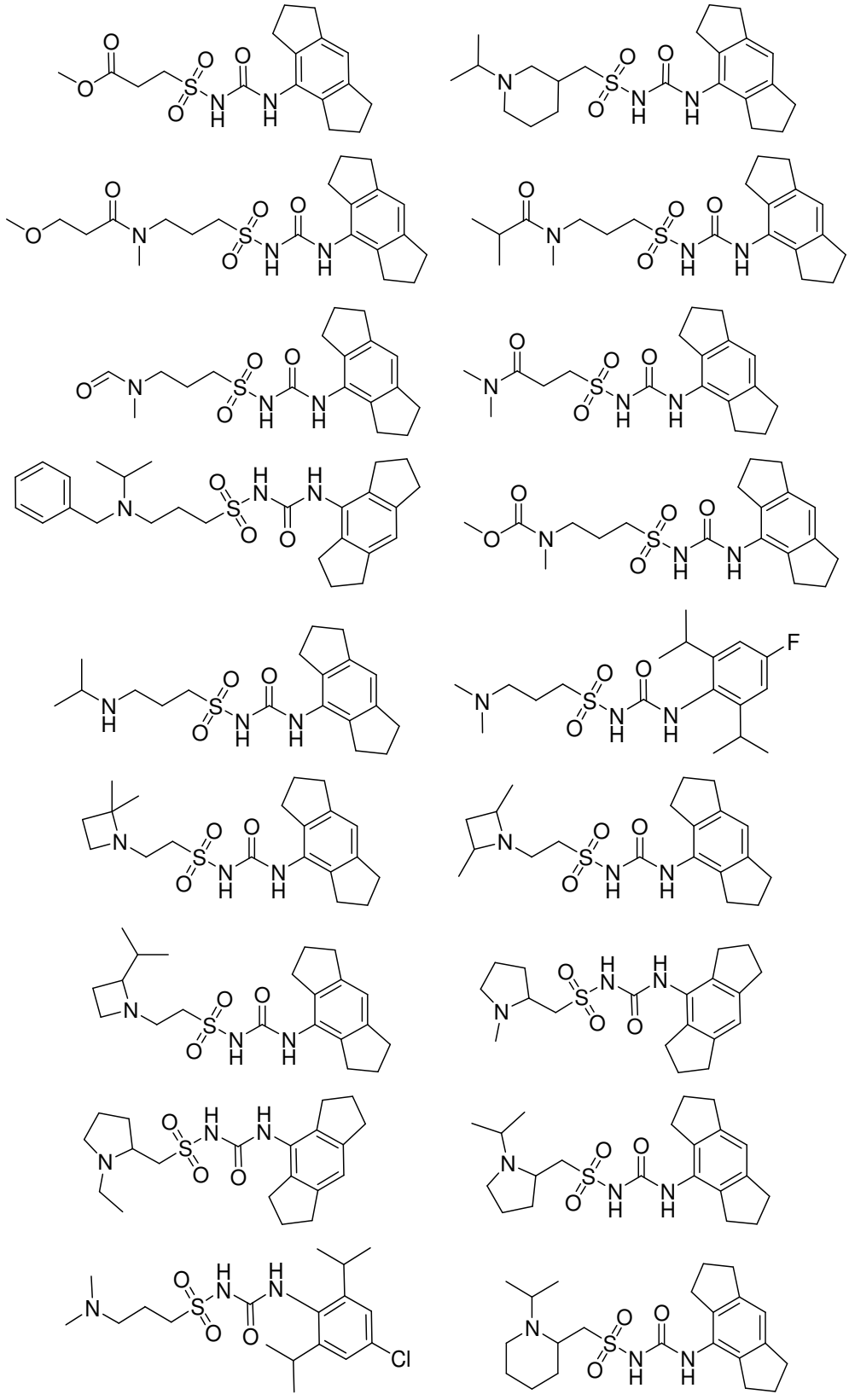

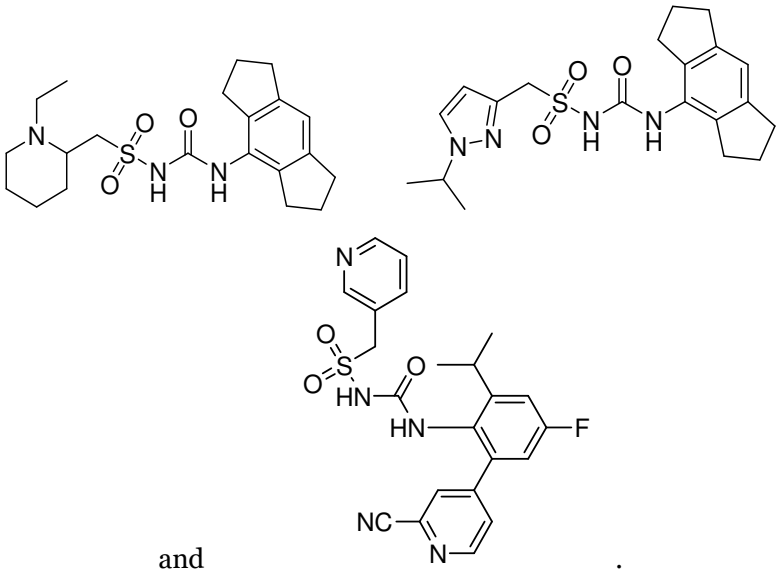

and .

13. A pharmaceutically acceptable salt or solvate of a compound as claimed in any one of claims 1 to 12.

14. A pharmaceutical composition comprising a compound as claimed in any one of claims 1 to 12, or a pharmaceutically acceptable salt or solvate as claimed in claim 13, and a pharmaceutically acceptable excipient.

15. A compound as claimed in any one of claims 1 to 12, or a pharmaceutically acceptable salt or solvate as claimed in claim 13, or a pharmaceutical composition as claimed in claim 14, for use in medicine.

16. A compound, pharmaceutically acceptable salt, solvate or pharmaceutical composition as claimed in claim 15, for use in the treatment or prevention of a disease, disorder or condition, wherein the disease, disorder or condition is selected from:

(i) inflammation;

(ii) an auto-immune disease;

(iii) cancer;

(iv) an infection;

(v) a central nervous system disease;

(vi) a metabolic disease;

(vii) a cardiovascular disease;

(viii) a respiratory disease;

(ix) a liver disease;
(x) a renal disease;
(xi) an ocular disease;
(xii) a skin disease;
(xiii) a lymphatic condition;
(xiv) a psychological disorder;
(xv) graft versus host disease; and
(xvi) allodynia.

17. A compound, pharmaceutically acceptable salt, solvate or pharmaceutical composition as claimed in claim 15, for use in the treatment or prevention of a disease, disorder or condition, wherein the disease, disorder or condition is selected from:
(i) cryopyrin-associated periodic syndromes (CAPS);
(ii) Muckle-Wells syndrome (MWS);
(iii) familial cold autoinflammatory syndrome (FCAS);
(iv) neonatal onset multisystem inflammatory disease (NOMID);
(v) familial Mediterranean fever (FMF);
(vi) pyogenic arthritis, pyoderma gangrenosum and acne syndrome (PAPA);
(vii) hyperimmunoglobulinemia D and periodic fever syndrome (HIDS);
(viii) Tumour Necrosis Factor (TNF) Receptor-Associated Periodic Syndrome (TRAPS);
(ix) systemic juvenile idiopathic arthritis;
(x) adult-onset Still's disease (AOSD);
(xi) relapsing polychondritis;
(xii) Schnitzler's syndrome;
(xiii) Sweet's syndrome;
(xiv) Behcet's disease;
(xv) anti-synthetase syndrome;
(xvi) deficiency of interleukin 1 receptor antagonist (DIRA); and
(xvii) haploinsufficiency of A20 (HA20).

18. A compound as claimed in any one of claims 1 to 12, or a pharmaceutically acceptable salt or solvate as claimed in claim 13, or a pharmaceutical composition as claimed in claim 14, for use in inhibiting NLRP3.

19. Use of a compound as claimed in any one of claims 1 to 12, or a

pharmaceutically acceptable salt or solvate as claimed in claim 13, or a pharmaceutical composition as claimed in claim 14, in the manufacture of a medicament for treating or preventing a disease, disorder or condition selected from:

(i) inflammation;
(ii) an auto-immune disease;
(iii) cancer;
(iv) an infection;
(v) a central nervous system disease;
(vi) a metabolic disease;
(vii) a cardiovascular disease;
(viii) a respiratory disease;
(ix) a liver disease;
(x) a renal disease;
(xi) an ocular disease;
(xii) a skin disease;
(xiii) a lymphatic condition;
(xiv) a psychological disorder;
(xv) graft versus host disease; and
(xvi) allodynia.

20. Use of a compound as claimed in any one of claims 1 to 12, or a pharmaceutically acceptable salt or solvate as claimed in claim 13, or a pharmaceutical composition as claimed in claim 14, in the manufacture of a medicament for treating or preventing a disease, disorder or condition selected from:

(i) cryopyrin-associated periodic syndromes (CAPS);
(ii) Muckle-Wells syndrome (MWS);
(iii) familial cold autoinflammatory syndrome (FCAS);
(iv) neonatal onset multisystem inflammatory disease (NOMID);
(v) familial Mediterranean fever (FMF);
(vi) pyogenic arthritis, pyoderma gangrenosum and acne syndrome (PAPA);
(vii) hyperimmunoglobulinemia D and periodic fever syndrome (HIDS);
(viii) Tumour Necrosis Factor (TNF) Receptor-Associated Periodic Syndrome (TRAPS);
(ix) systemic juvenile idiopathic arthritis;
(x) adult-onset Still's disease (AOSD);
(xi) relapsing polychondritis;

(xii) Schnitzler's syndrome;

(xiii) Sweet's syndrome;

(xiv) Behcet's disease;

(xv) anti-synthetase syndrome;

(xvi) deficiency of interleukin 1 receptor antagonist (DIRA); and

(xvii) haploinsufficiency of A20 (HA20).