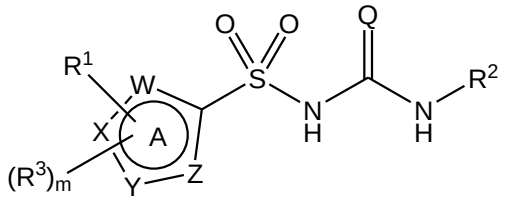
**Claims**

1. A compound of formula (I):



Formula (I)

wherein:

Q is selected from O or S;

W, X, Y and Z are each independently N, O, S, NH or CH, wherein at least one of W, X, Y and Z is N or NH;

$R^1$ is a monovalent group comprising at least one nitrogen atom, wherein $-R^1$ contains from 1 to 7 atoms other than hydrogen or halogen; or

$R^1$ is a divalent group comprising at least one nitrogen atom, wherein $-R^1-$ contains from 1 to 7 atoms other than hydrogen or halogen, and wherein $-R^1-$ is directly attached to any two adjacent W, X, Y or Z;

$R^2$ is a cyclic group substituted at the α and α' positions, wherein each substituent at the α and α' positions comprises a carbon atom, and wherein $R^2$ may optionally be further substituted;

m is 0, 1, 2 or 3;

each $R^3$ is independently a halo, -OH, $-NO_2$, $-NH_2$, $-N_3$, -SH, $-SO_2H$, $-SO_2NH_2$, or a saturated or unsaturated 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; and

wherein optionally any $R^3$, and any two adjacent W, X, Y or Z, may together form a 3- to 12-membered saturated or unsaturated cyclic group fused to ring A, wherein the cyclic group fused to ring A may optionally be substituted.

2. A compound as claimed in claim 1, wherein ring A is monocyclic.

3. A compound as claimed in claim 1 or claim 2, wherein W, X, Y and Z are each independently N, NH or CH.

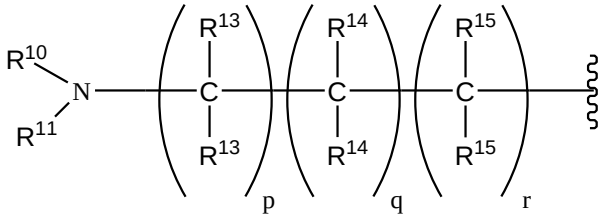
4. A compound as claimed in any one of claims 1 to 3, wherein at least two of W, X, Y and Z are N or NH.

5. A compound as claimed in any one of claims 1 to 4, wherein $R^1$ is directly attached to a ring nitrogen atom of ring A.

6. A compound as claimed in any one of claims 1 to 5, wherein $R^1$ is a monovalent group comprising at least one nitrogen atom, wherein $-R^1$ contains from 1 to 7 atoms other than hydrogen or halogen.

7. A compound as claimed in claim 6, wherein $-R^1$ is a straight-chain or branched group.

8. A compound as claimed in claim 6 or claim 7, wherein $-R^1$ has the formula:



wherein:

p is 0 or 1;

q is 0 or 1;

r is 0 or 1;

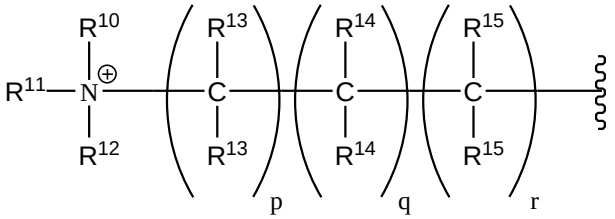
$R^{10}$ and $R^{11}$ are each independently selected from hydrogen or an alkyl, cycloalkyl or saturated heterocyclic group, or $R^{10}$ and $R^{11}$ together with the nitrogen atom to which they are attached form a saturated heterocyclic group;

each $R^{13}$, $R^{14}$ and $R^{15}$ is independently selected from hydrogen or a halo, -CN, -OH, alkyl, -O-alkyl, cycloalkyl, -O-cycloalkyl, saturated heterocyclic or -O-(saturated heterocyclic) group, and/or any two $R^{13}$, two $R^{14}$ or two $R^{15}$ may together with the carbon atom to which they are attached form a C=O group, and/or any two $R^{13}$, $R^{14}$ or $R^{15}$ may together with the carbon atom or carbon atoms to which they are attached form a cycloalkyl or saturated heterocyclic group;

wherein optionally $R^{11}$ together with any $R^{13}$, $R^{14}$ or $R^{15}$ may together with the carbon and nitrogen atoms to which they are attached form a saturated heterocyclic group;

wherein any alkyl, cycloalkyl or saturated heterocyclic group may optionally be substituted with one or more halo, -CN, -OH, oxo (=O), alkyl, haloalkyl, -O-alkyl and/or -O-haloalkyl groups.

9. A compound as claimed in claim 6 or claim 7, wherein $-R^1$ has the formula:



wherein:

p is 0 or 1;

q is 0 or 1;

r is 0 or 1;

$R^{10}$, $R^{11}$ and $R^{12}$ are each independently selected from an alkyl, cycloalkyl or saturated heterocyclic group, or $R^{10}$ and $R^{11}$ together with the nitrogen atom to which they are attached form a saturated heterocyclic group, or $R^{10}$, $R^{11}$ and $R^{12}$ together with the nitrogen atom to which they are attached, form a saturated heterocyclic group;

each $R^{13}$, $R^{14}$ and $R^{15}$ is independently selected from hydrogen or a halo, -CN, -OH, alkyl, -O-alkyl, cycloalkyl, -O-cycloalkyl, saturated heterocyclic or -O-(saturated heterocyclic) group, and/or any two $R^{13}$, two $R^{14}$ or two $R^{15}$ may together with the carbon atom to which they are attached form a C=O group, and/or any two $R^{13}$, $R^{14}$ or $R^{15}$ may together with the carbon atom or carbon atoms to which they are attached form a cycloalkyl or saturated heterocyclic group;

wherein optionally $R^{11}$ together with any $R^{13}$, $R^{14}$ or $R^{15}$ may together with the carbon and nitrogen atoms to which they are attached form a saturated heterocyclic group;

wherein any alkyl, cycloalkyl or saturated heterocyclic group may optionally be substituted with one or more halo, -CN, -OH, oxo (=O), alkyl, haloalkyl, -O-alkyl and/or -O-haloalkyl groups.

10. A compound as claimed in claim 1, wherein $R^1$ is a divalent group comprising at least one nitrogen atom, wherein $-R^1-$ is a saturated or unsaturated hydrocarbylene group, wherein the hydrocarbylene group may be straight-chained or branched, or be or include cyclic groups, wherein the hydrocarbylene group may optionally be substituted, wherein the hydrocarbylene group includes at least one heteroatom N in its

carbon skeleton, and wherein the hydrocarbylene group may optionally include one or more further heteroatoms N, O or S in its carbon skeleton.

11. A compound as claimed in any one of claims 1 to 10, wherein $R^1$ contains only atoms selected from the group consisting of carbon, hydrogen, nitrogen and halogen atoms.

12. A compound as claimed in any one of claims 1 to 11, wherein $R^1$ comprises at least one nitrogen atom that is not directly attached to a *sp²* hybridised atom.

13. A compound as claimed in any one of claims 1 to 12, wherein each $R^3$ is independently selected from halo; -CN; -$NO_2$; -$N_3$; -$R^\beta$; -OH; -$OR^\beta$; -$R^\alpha$-halo; -$R^\alpha$-CN; -$R^\alpha$-$NO_2$; -$R^\alpha$-$N_3$; -$R^\alpha$-$R^\beta$; -$R^\alpha$-OH; -$R^\alpha$-$OR^\beta$; -SH; -$SR^\beta$; -$SOR^\beta$; -$SO_2H$; -$SO_2R^\beta$; -$SO_2NH_2$; -$SO_2NHR^\beta$; -$SO_2N(R^\beta)_2$; -$R^\alpha$-SH; -$R^\alpha$-$SR^\beta$; -$R^\alpha$-$SOR^\beta$; -$R^\alpha$-$SO_2H$; -$R^\alpha$-$SO_2R^\beta$; -$R^\alpha$-$SO_2NH_2$; -$R^\alpha$-$SO_2NHR^\beta$; -$R^\alpha$-$SO_2N(R^\beta)_2$; -$NH_2$; -$NHR^\beta$; -$N(R^\beta)_2$; -$R^\alpha$-$NH_2$; -$R^\alpha$-$NHR^\beta$; -$R^\alpha$-$N(R^\beta)_2$; -CHO; -$COR^\beta$; -COOH; -$COOR^\beta$; -$OCOR^\beta$; -$R^\alpha$-CHO; -$R^\alpha$-$COR^\beta$; -$R^\alpha$-COOH; -$R^\alpha$-$COOR^\beta$; or -$R^\alpha$-$OCOR^\beta$;

wherein each -$R^\alpha$- is independently selected from an alkylene, alkenylene or alkynylene group, wherein the alkylene, alkenylene or alkynylene group contains from 1 to 6 atoms in its backbone, wherein one or more carbon atoms in the backbone of the alkylene, alkenylene or alkynylene group may optionally be replaced by one or more heteroatoms N, O or S, and wherein the alkylene, alkenylene or alkynylene group may optionally be substituted with one or more halo and/or -$R^\beta$ groups; and

wherein each -$R^\beta$ is independently selected from a $C_1$-$C_6$ alkyl, $C_2$-$C_6$ alkenyl, $C_2$-$C_6$ alkynyl or $C_2$-$C_6$ cyclic group, and wherein any -$R^\beta$ may optionally be substituted with one or more $C_1$-$C_4$ alkyl, $C_1$-$C_4$ haloalkyl, $C_3$-$C_7$ cycloalkyl, -O($C_1$-$C_4$ alkyl), -O($C_1$-$C_4$ haloalkyl), -O($C_3$-$C_7$ cycloalkyl), halo, -OH, -$NH_2$, -CN, -C≡CH, oxo (=O), or 4- to 6-membered heterocyclic group.

14. A compound as claimed in any one of claims 1 to 13, 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.

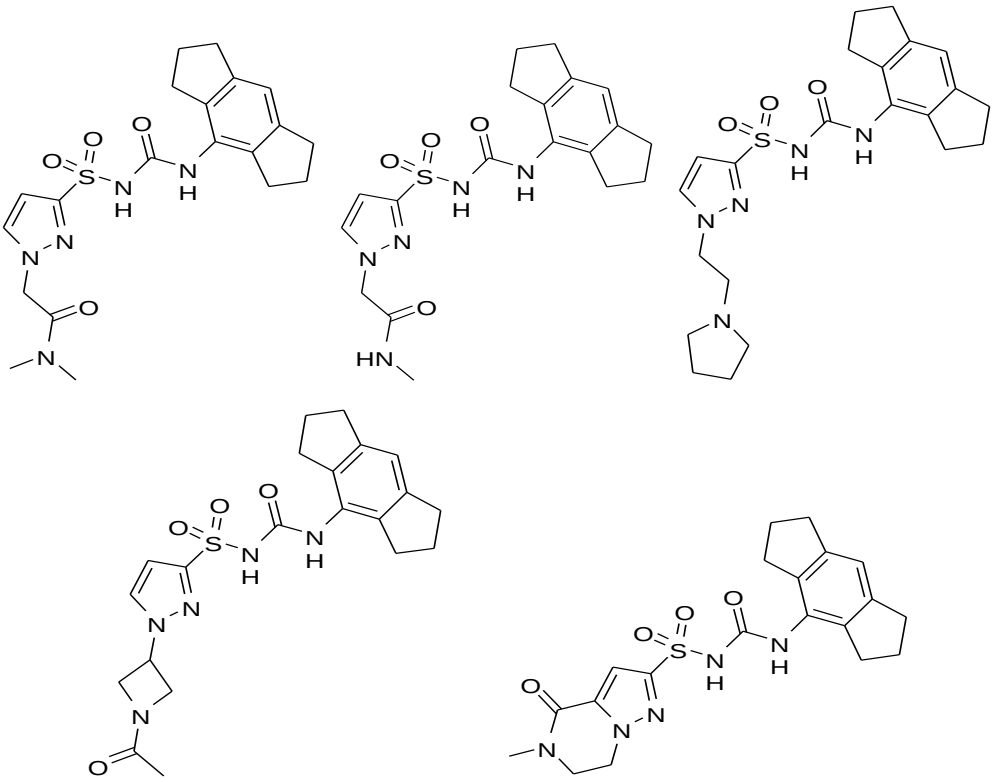
15. A compound as claimed in claim 14, wherein $R^2$ is a fused aryl or a fused heteroaryl group, wherein a first cycloalkyl, cycloalkenyl, non-aromatic heterocyclic, aryl or heteroaryl ring is fused to the aryl or heteroaryl group across the α,β positions

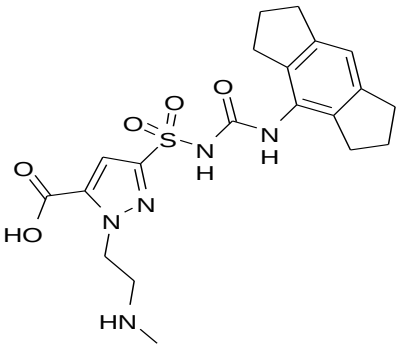
and a second cycloalkyl, cycloalkenyl, non-aromatic heterocyclic, aryl or heteroaryl ring is fused to the aryl or heteroaryl group across the α',β' positions, and wherein $R^2$ may optionally be further substituted.

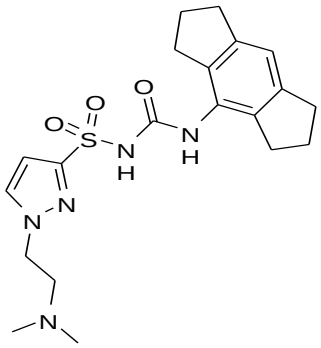
16. A compound as claimed in any one of claims 1 to 13, wherein $R^2$ is a cyclic group substituted at the α-position with a monovalent heterocyclic group or a monovalent aromatic group, wherein a ring atom of the heterocyclic or aromatic group is directly attached to the α-ring atom of the cyclic group, wherein the heterocyclic or aromatic group may optionally be substituted, and wherein the cyclic group may optionally be further substituted.

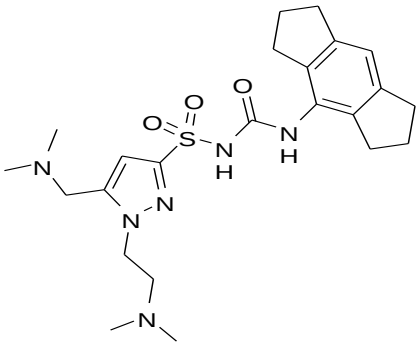
17. A compound as claimed in any one of claims 1 to 16, wherein Q is O.

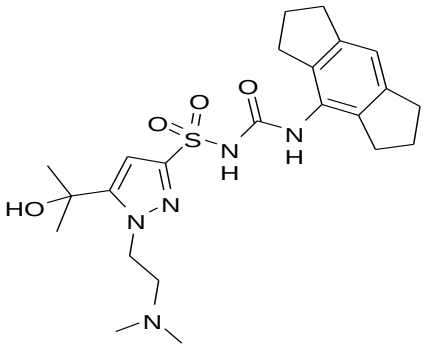
18. A compound selected from the group consisting of:

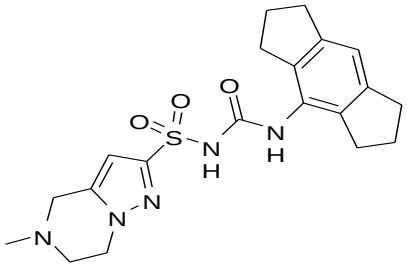


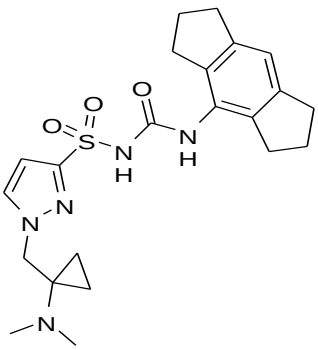


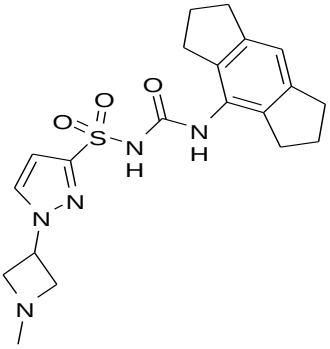


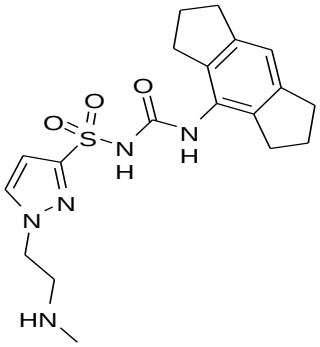


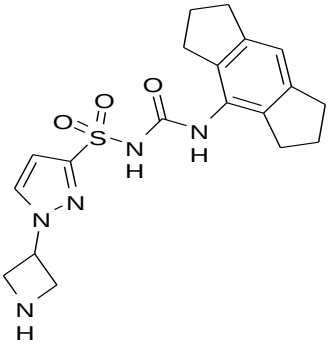


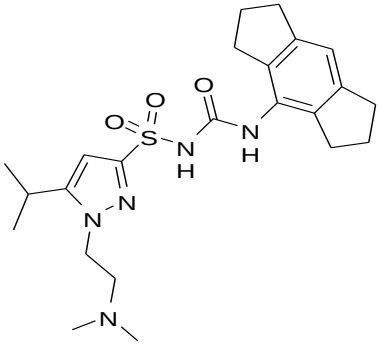


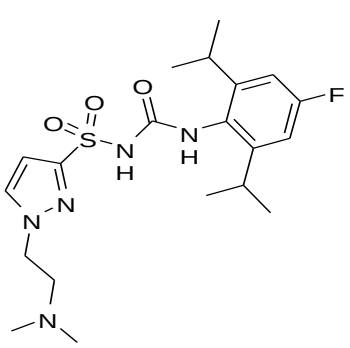


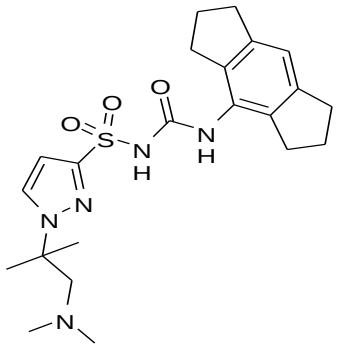


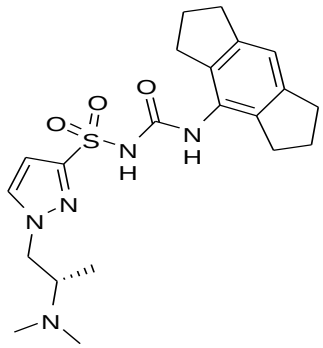


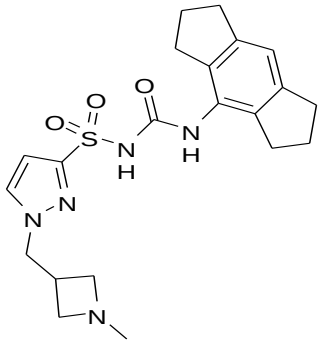


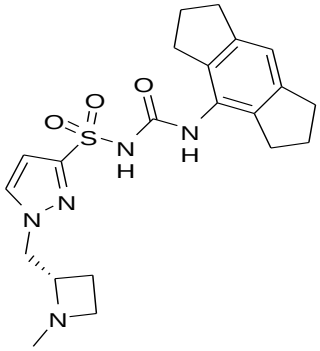


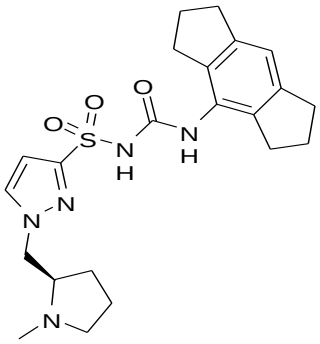


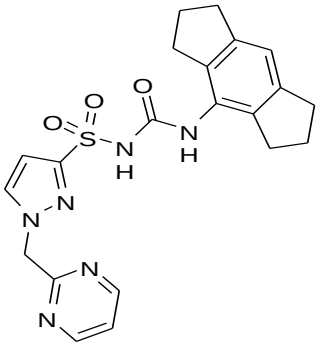


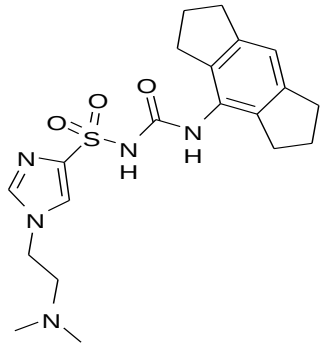


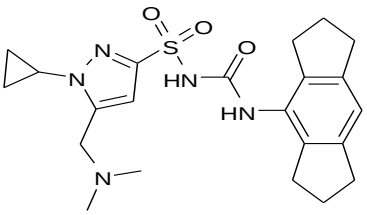


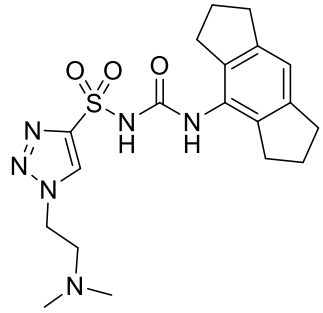


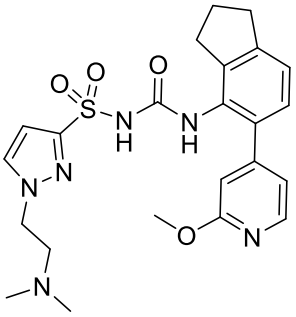


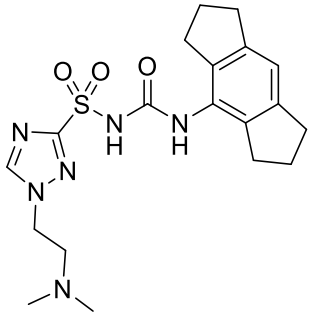


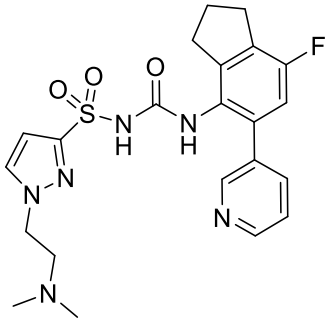


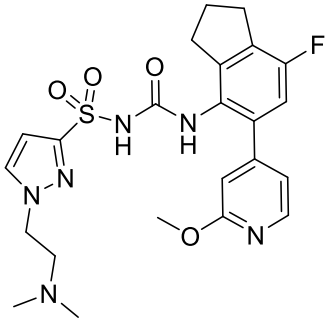


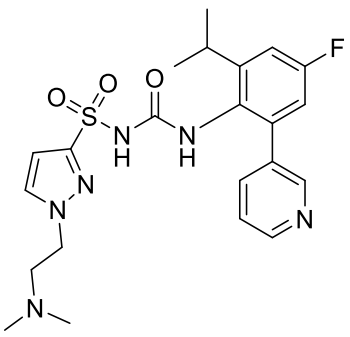


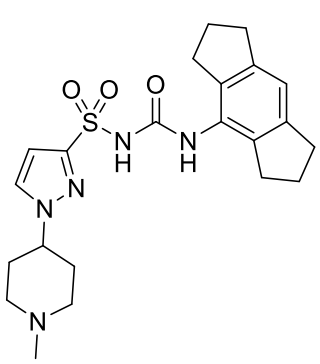


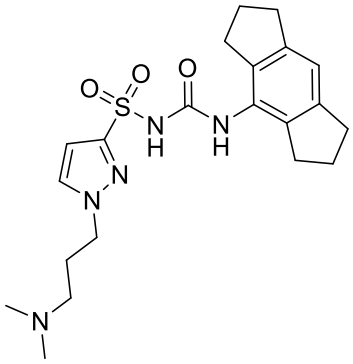


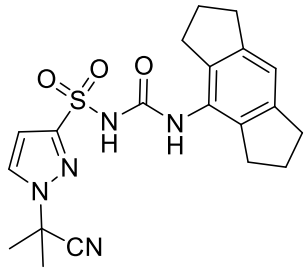


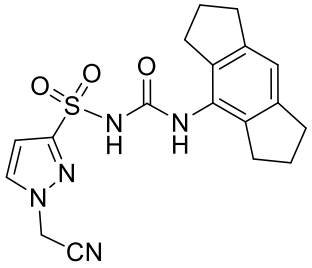


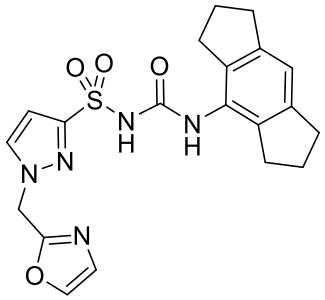


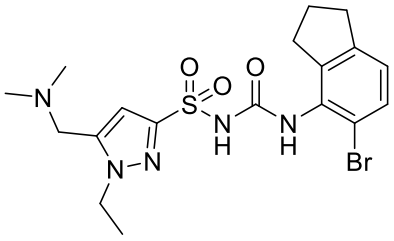


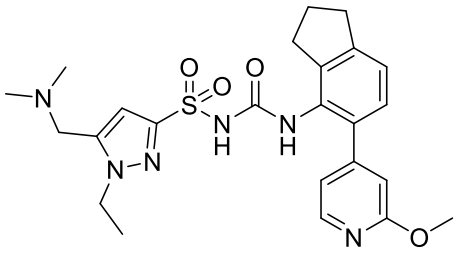


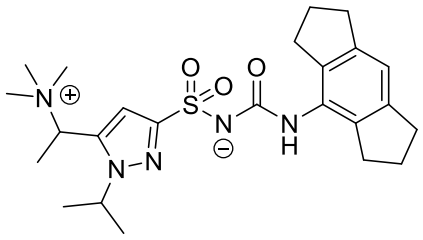


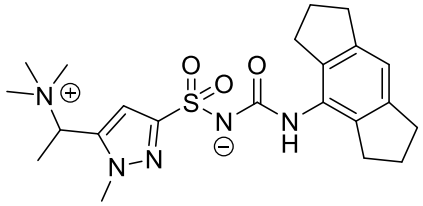


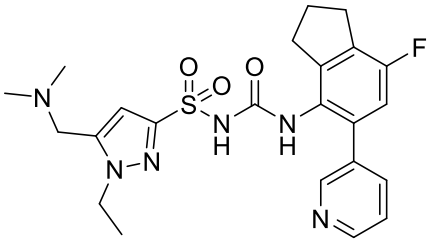


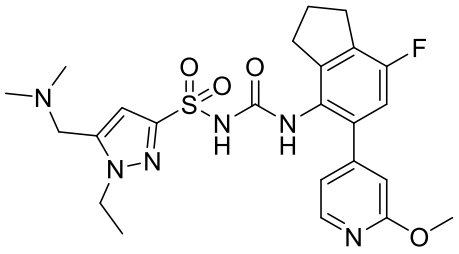


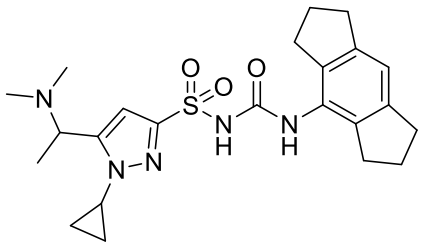


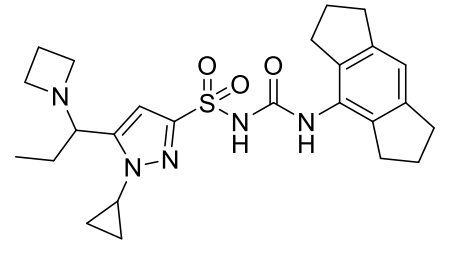


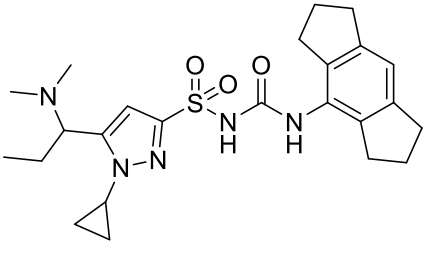


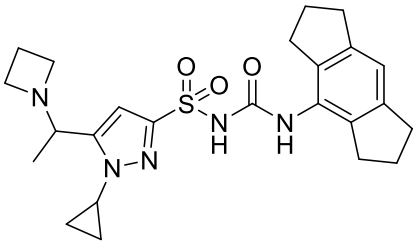


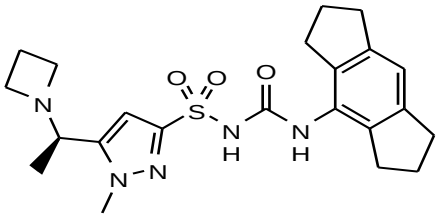


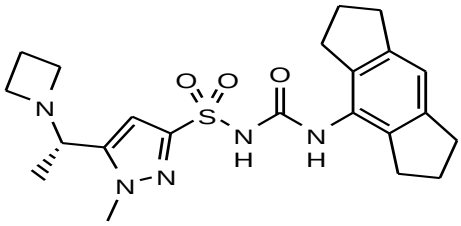


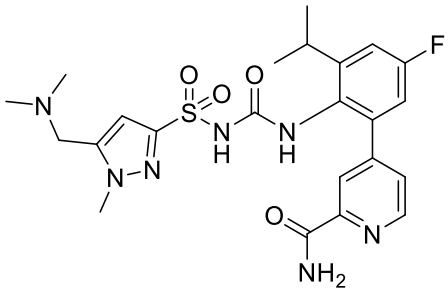


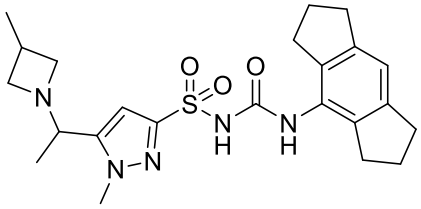


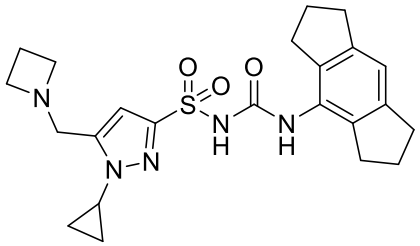


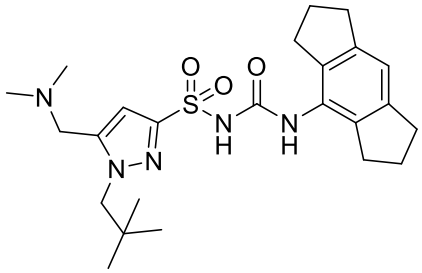


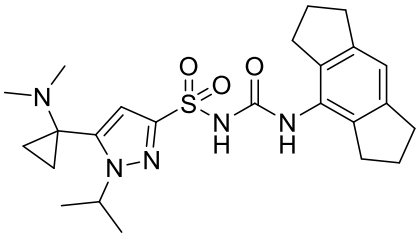


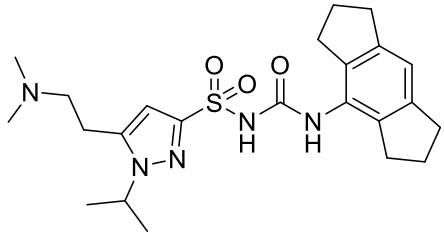


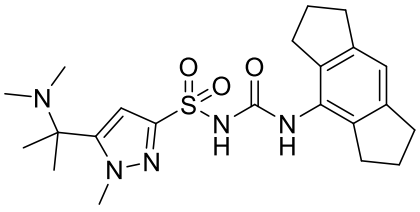


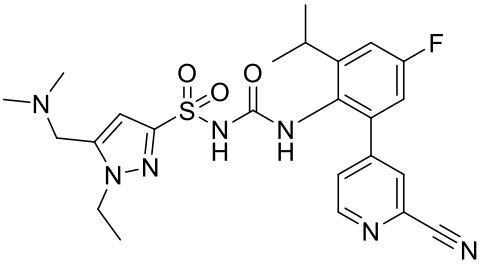


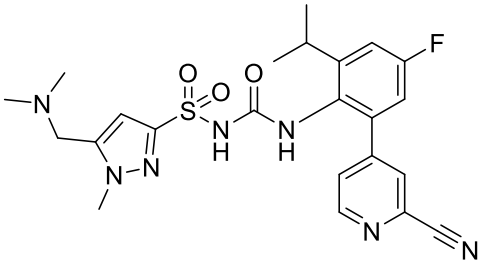


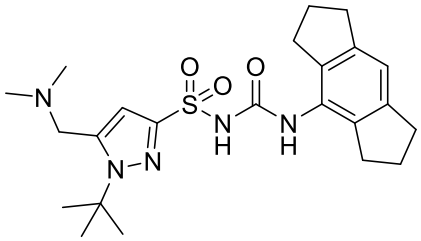


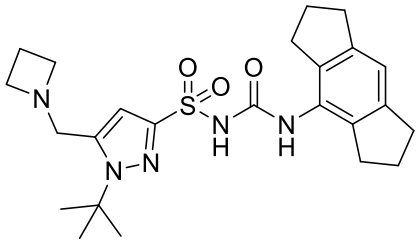


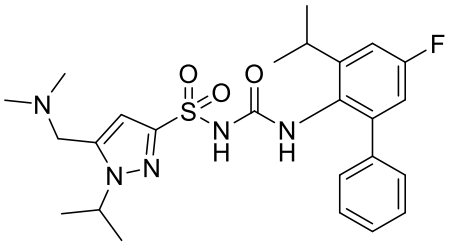


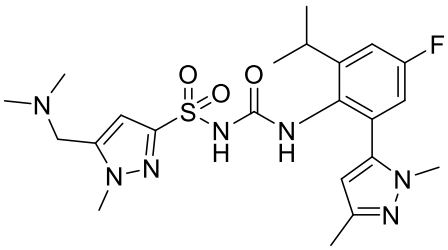


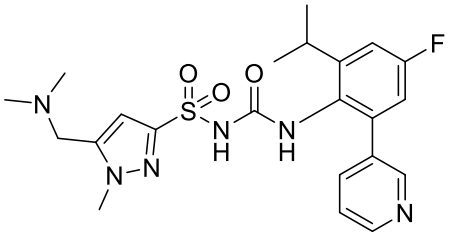


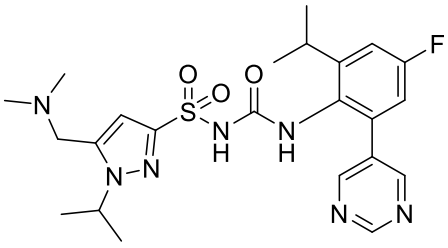


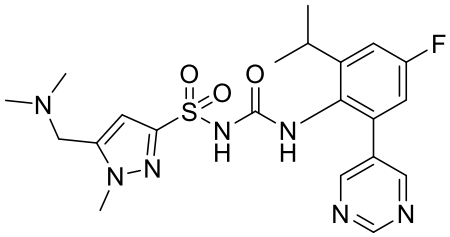


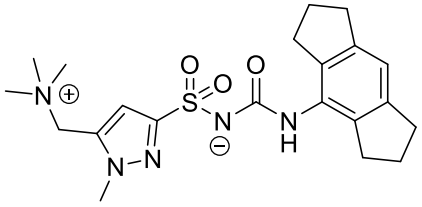


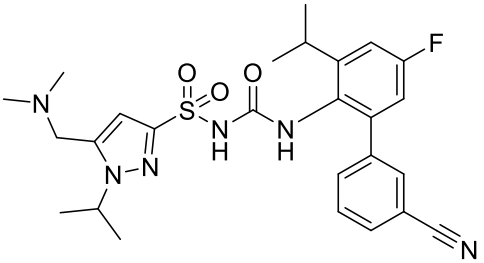


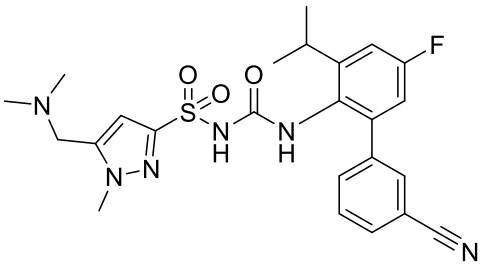


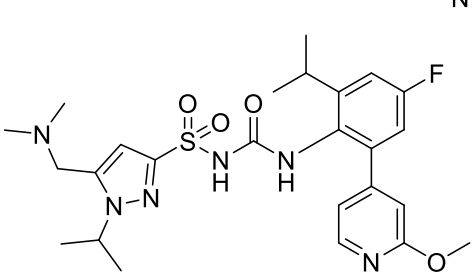


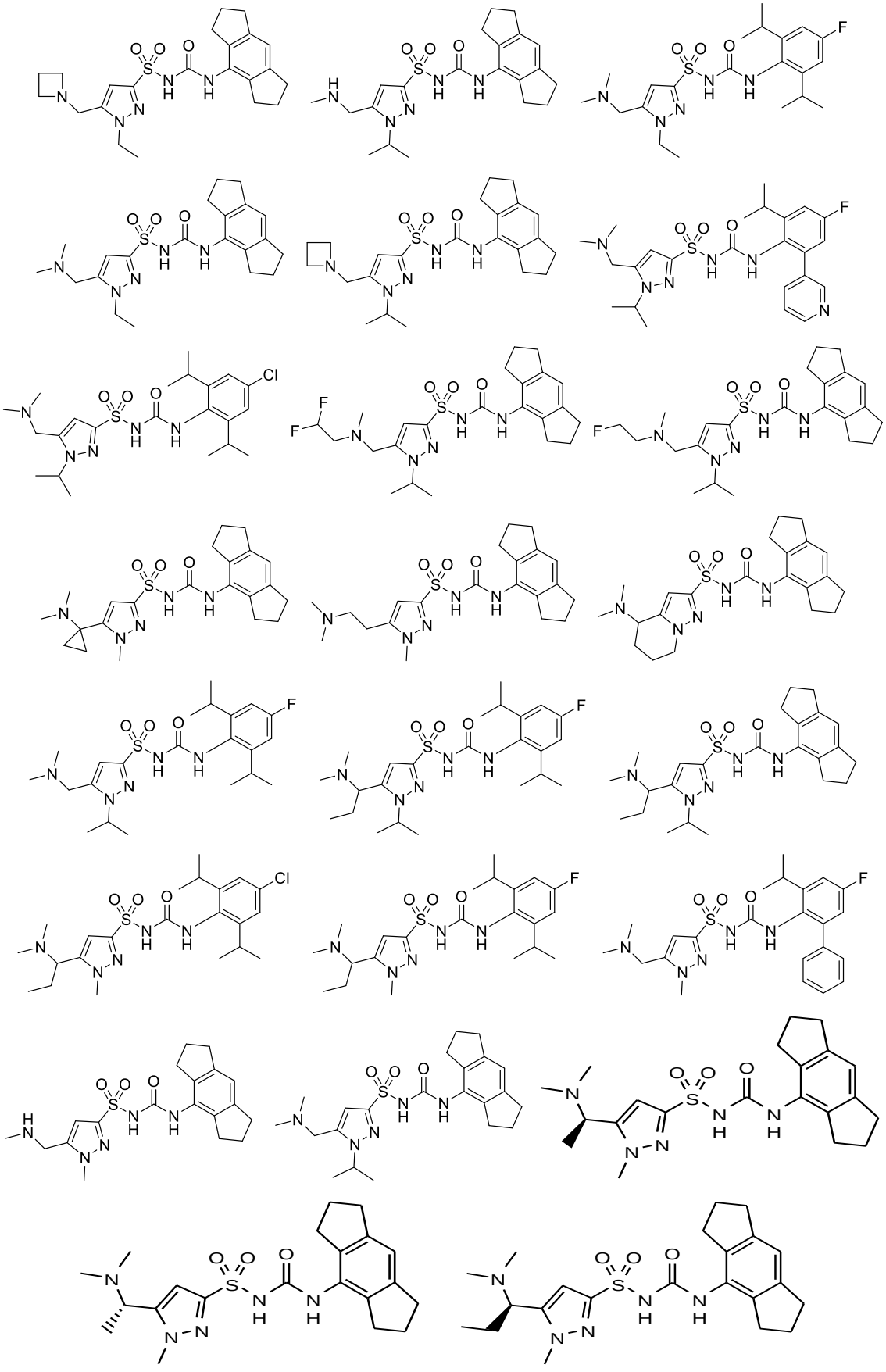


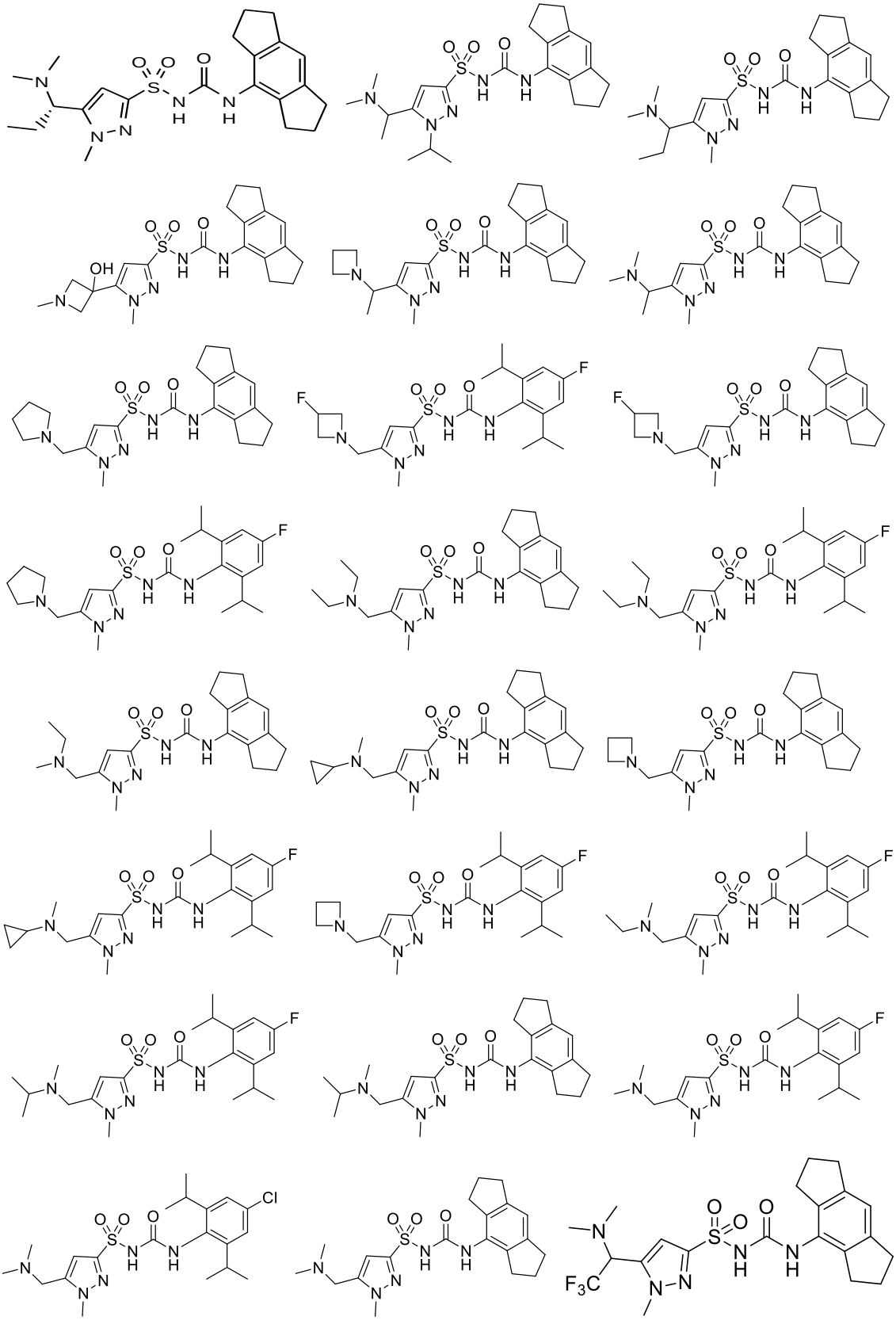


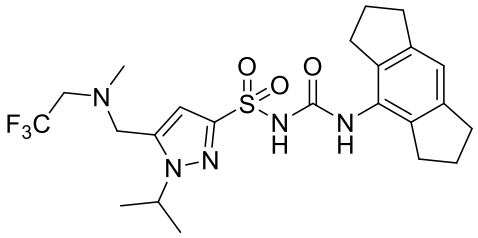


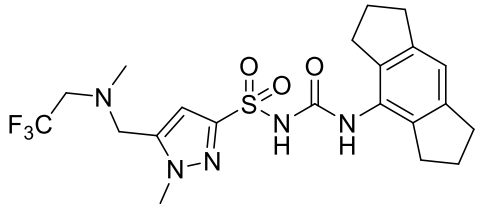


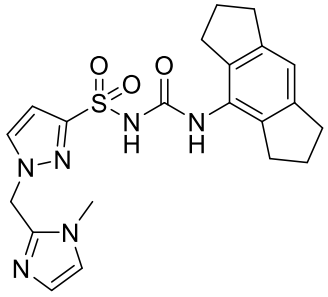


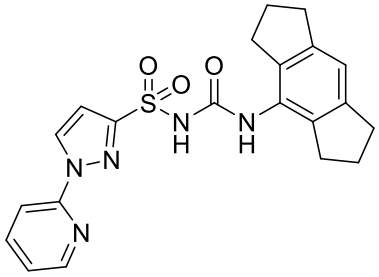


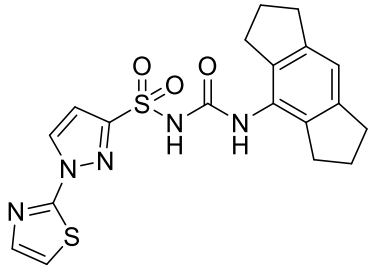


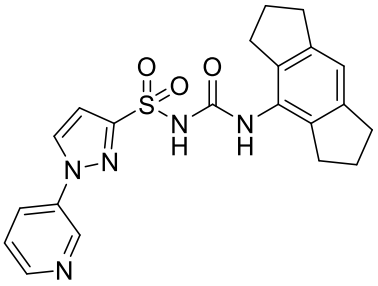


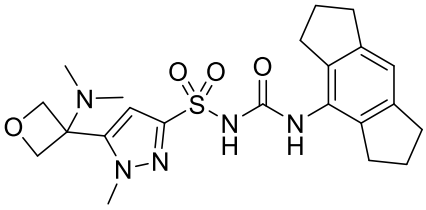


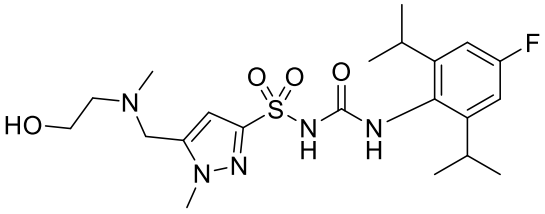


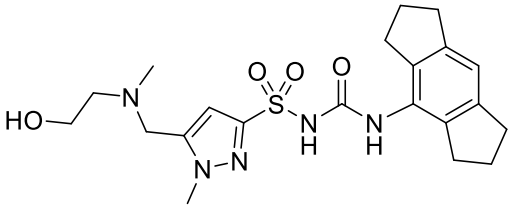


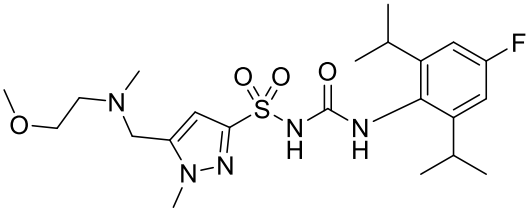


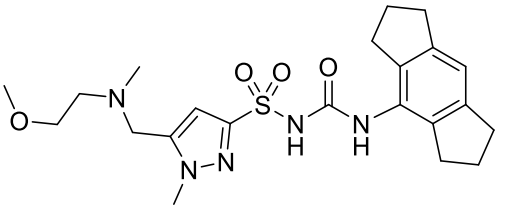


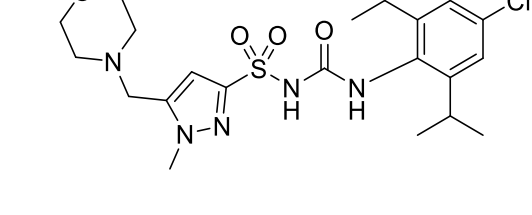


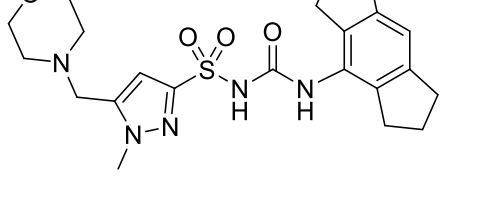


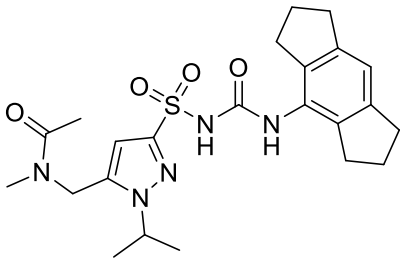


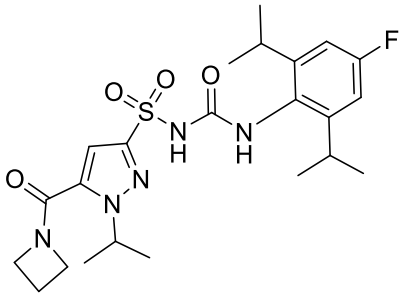


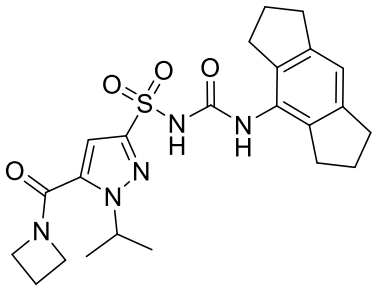


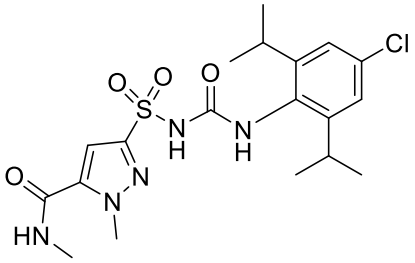


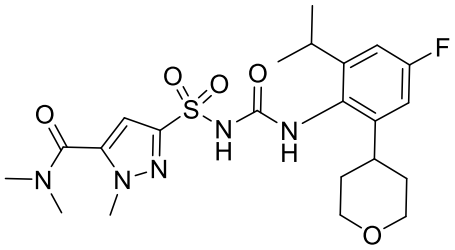


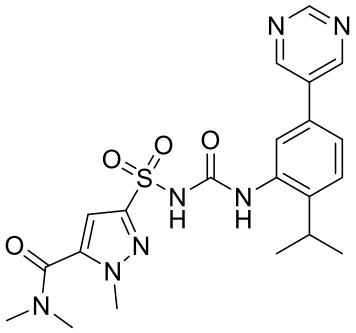


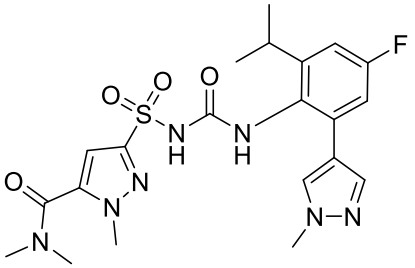


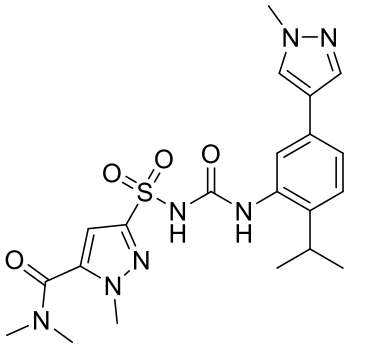


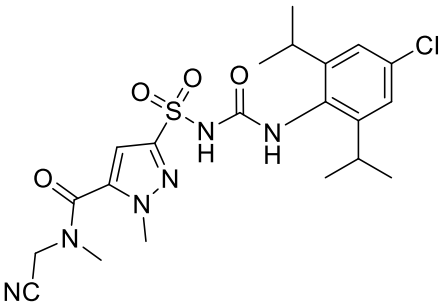


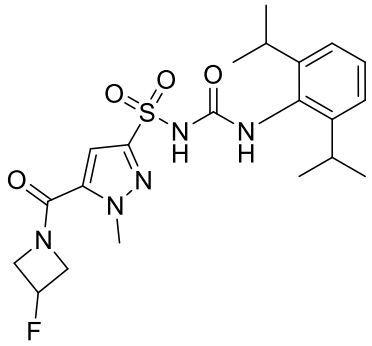


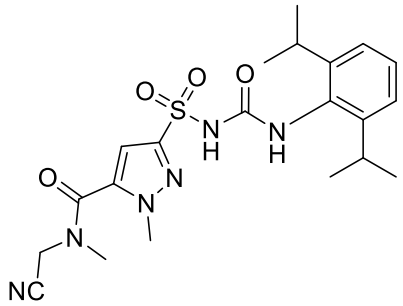


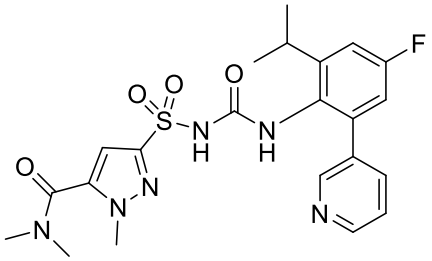


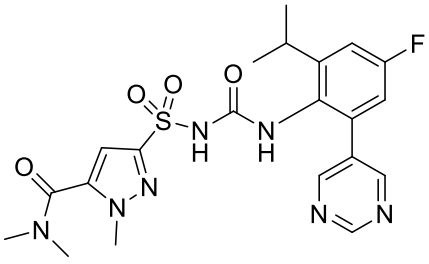


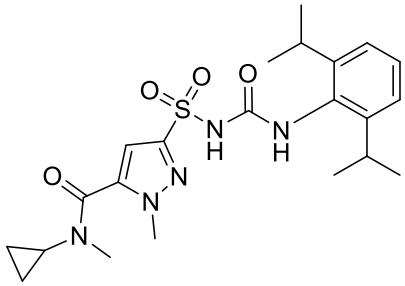


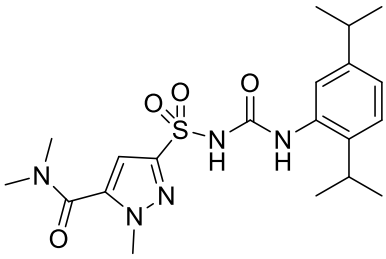


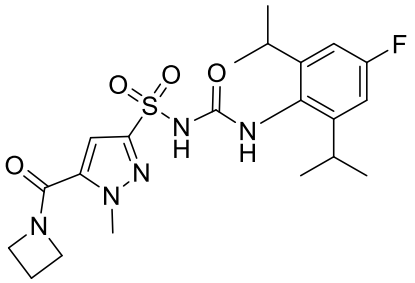


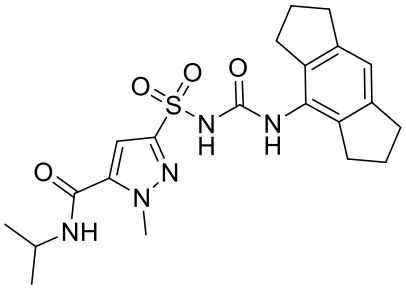


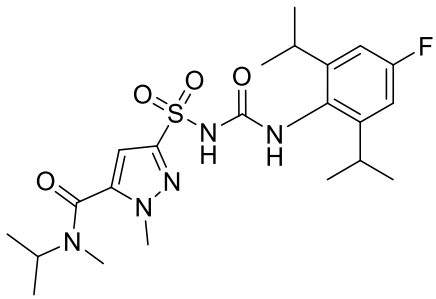


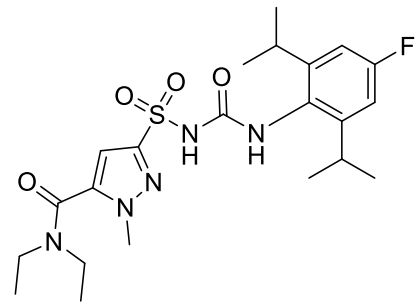


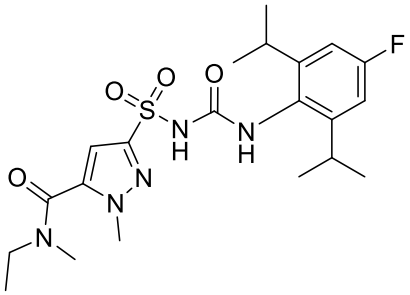


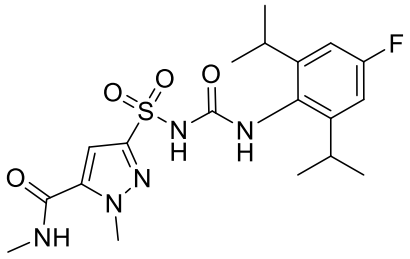


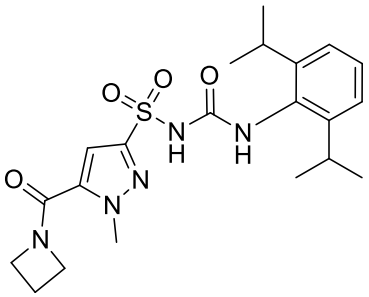


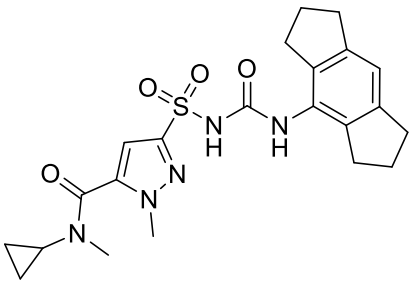


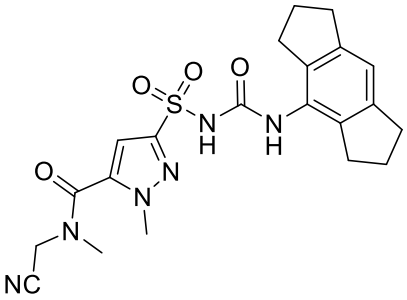


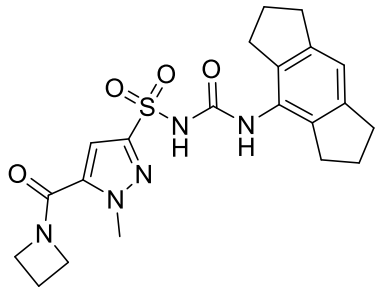


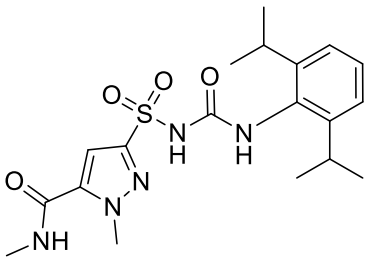


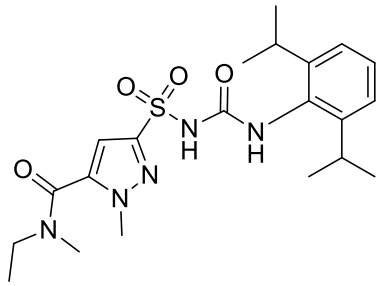


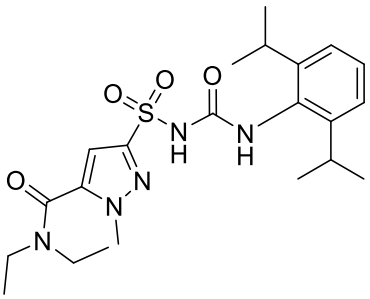


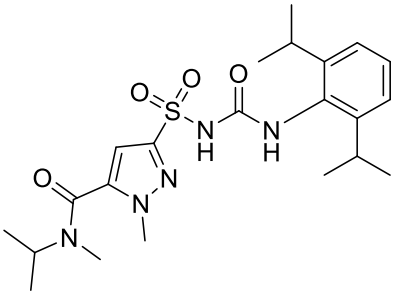


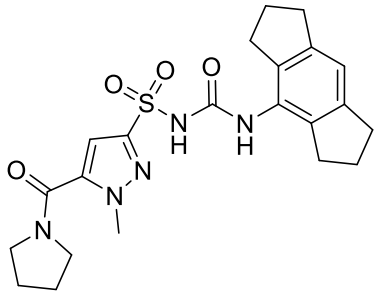


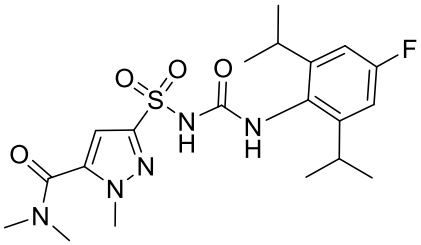


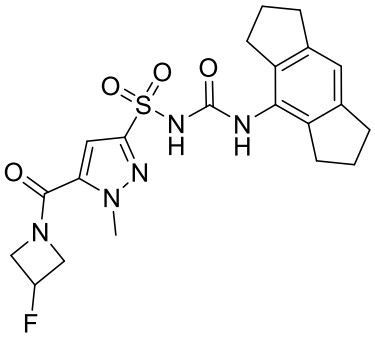


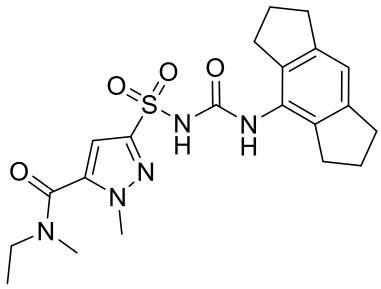


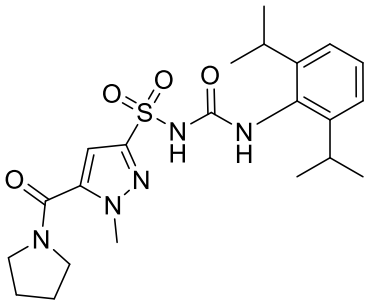


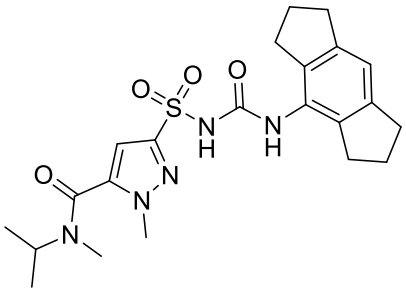


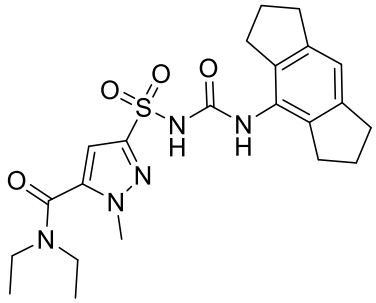


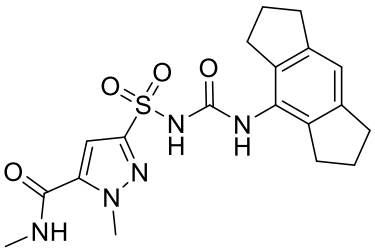


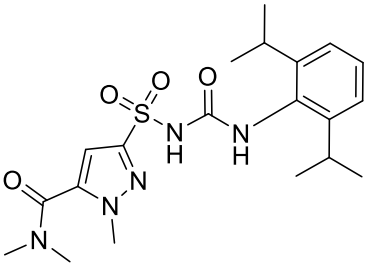


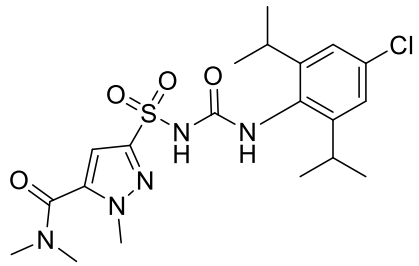


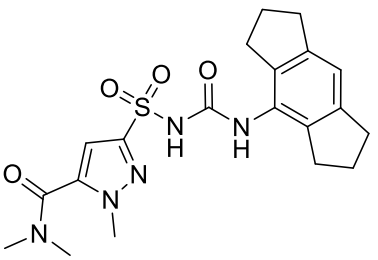


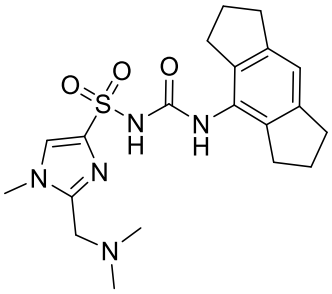


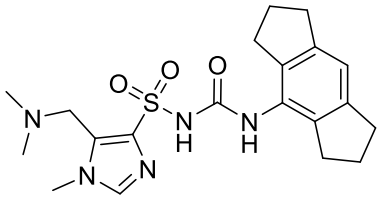


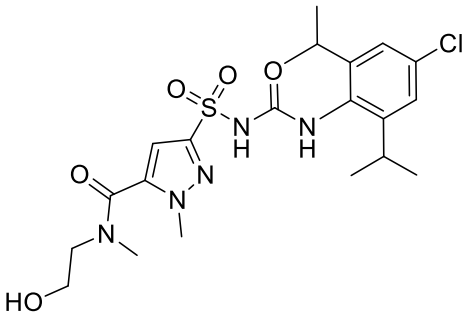


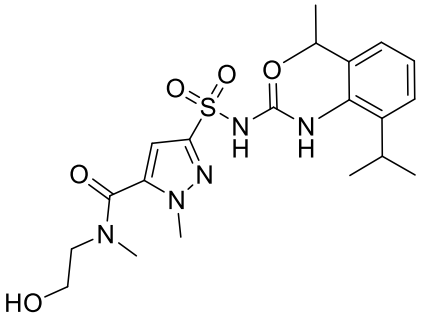


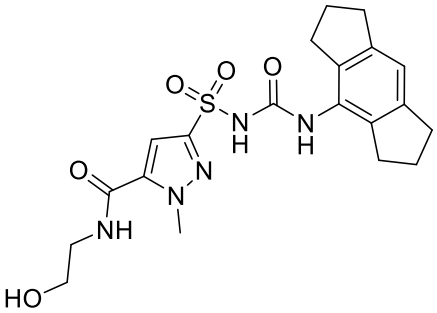


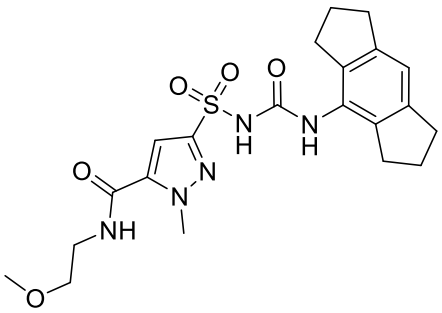


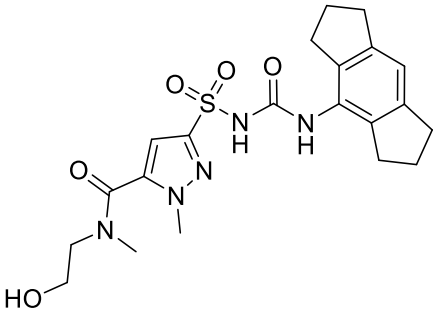


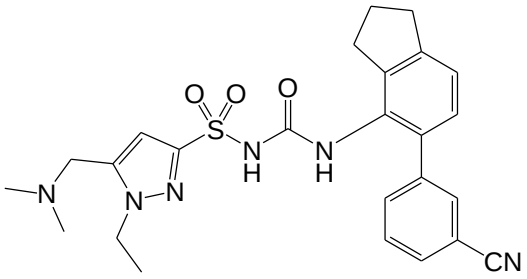


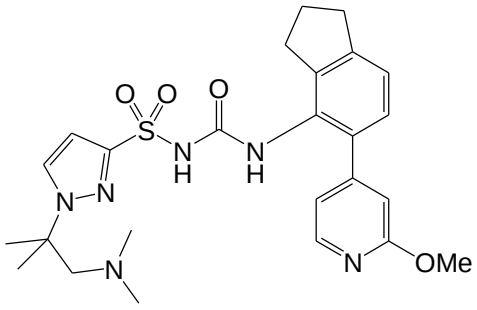


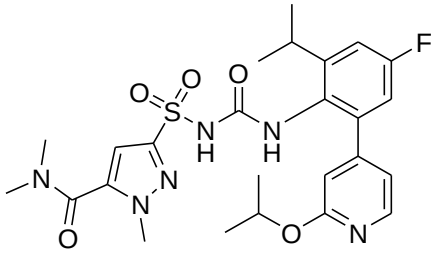


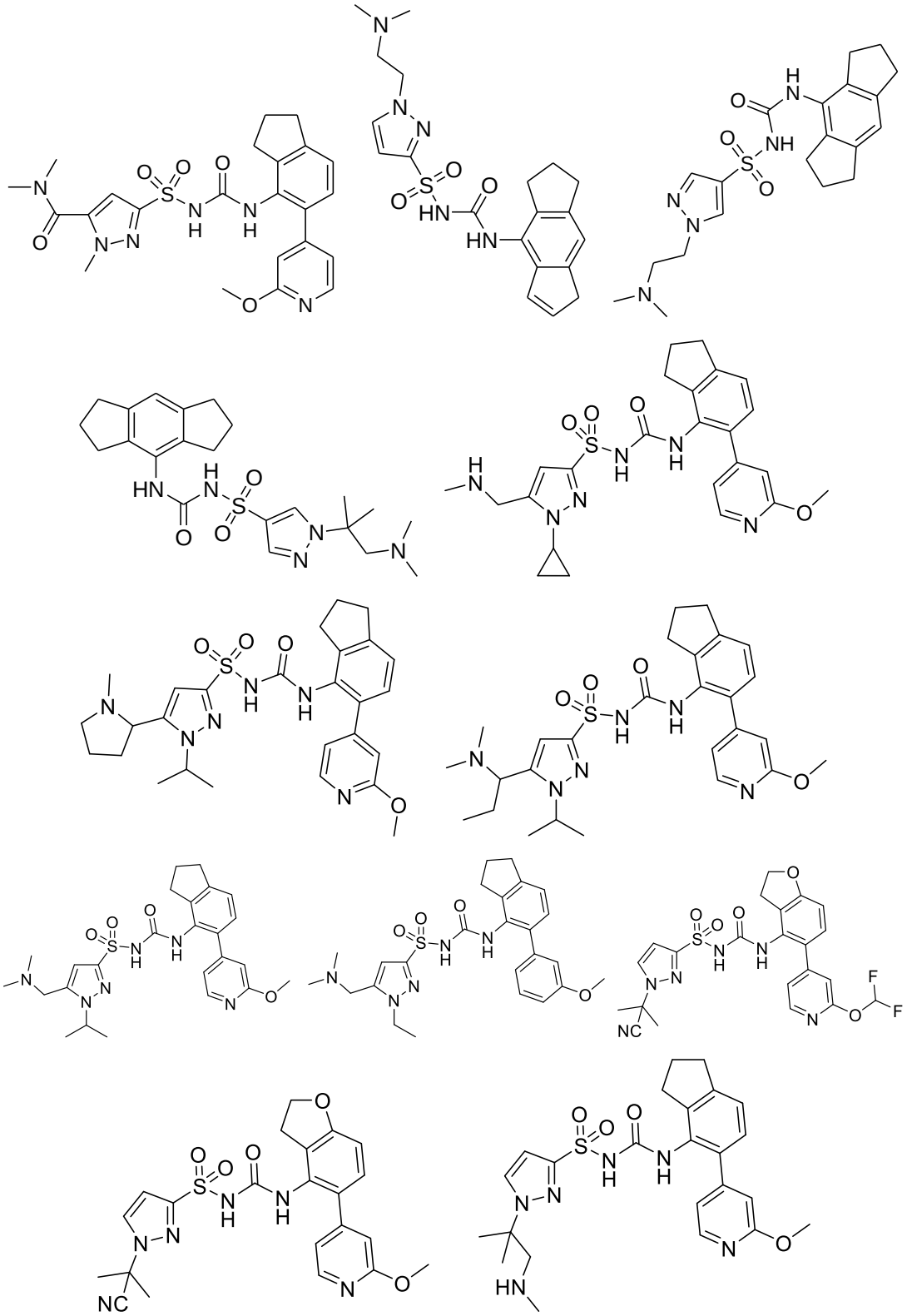


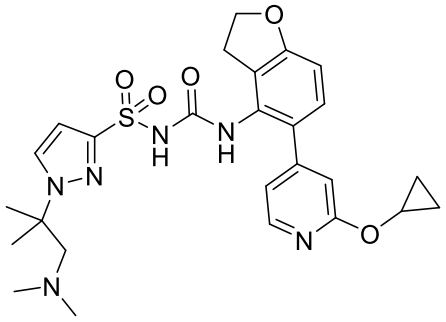


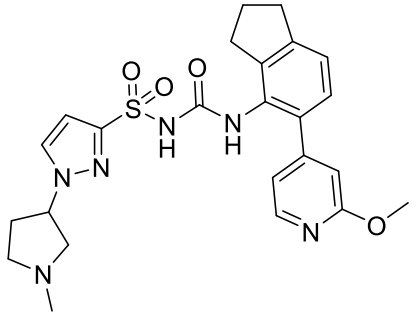


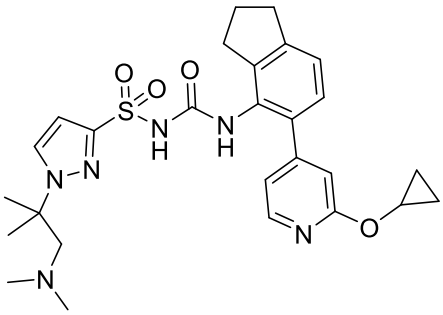


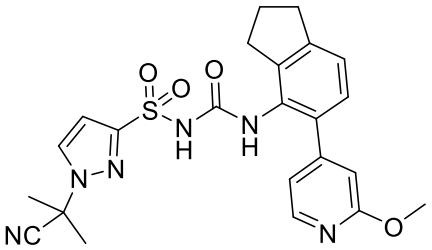


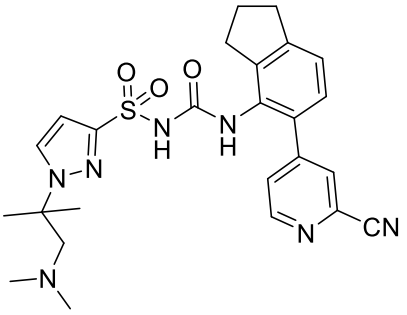


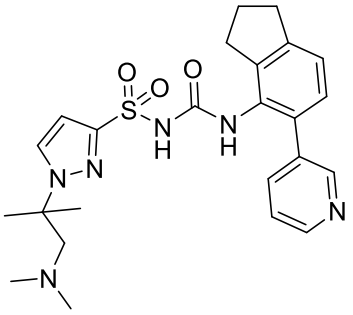


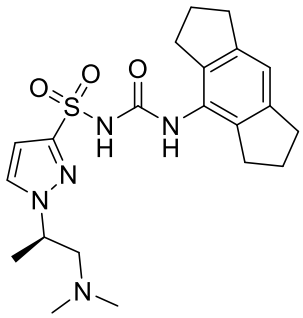


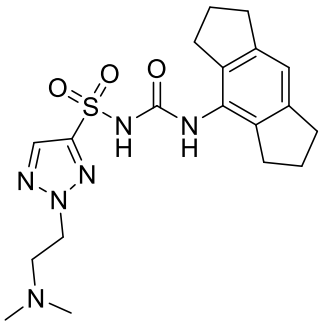


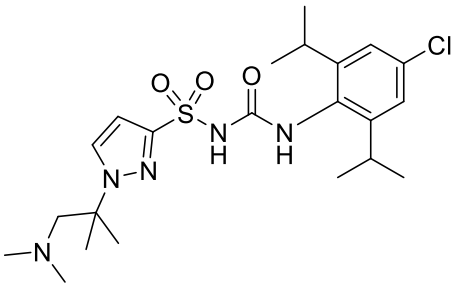


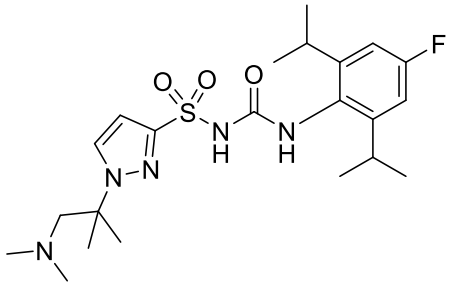


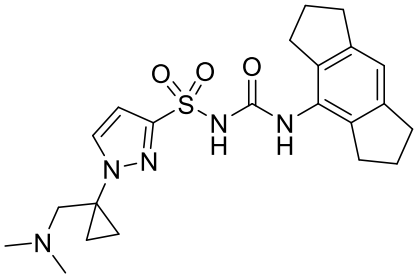


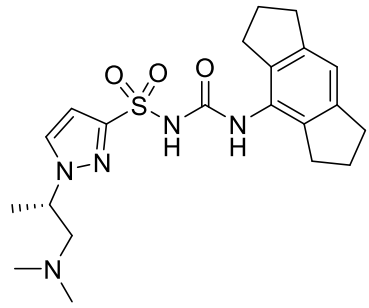


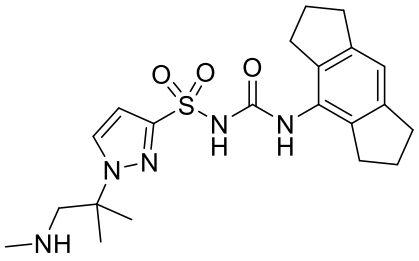


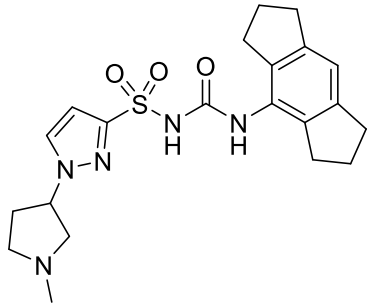


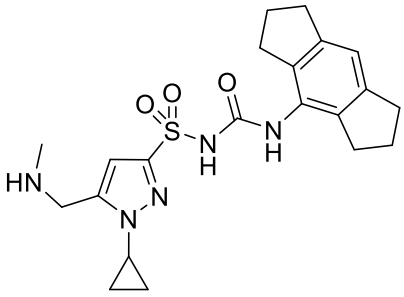


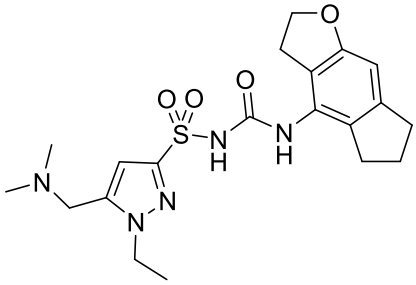


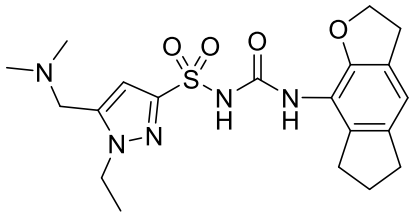


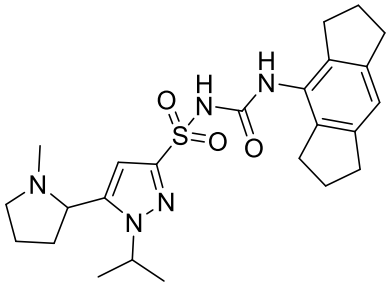


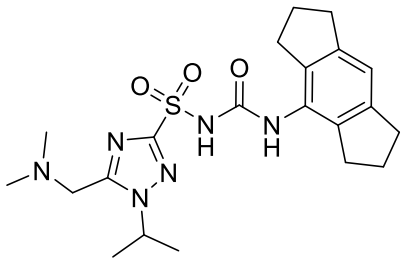










and .

19. A pharmaceutically acceptable salt or solvate of a compound as claimed in any one of claims 1 to 18.

20. A pharmaceutical composition comprising a compound as claimed in any one of claims 1 to 18, or a pharmaceutically acceptable salt or solvate as claimed in claim 19, and a pharmaceutically acceptable excipient.

21. A compound as claimed in any one of claims 1 to 18, or a pharmaceutically acceptable salt or solvate as claimed in claim 19, or a pharmaceutical composition as claimed in claim 20, for use in medicine.

22. Use of a compound as claimed in any one of claims 1 to 18, or a pharmaceutically acceptable salt or solvate as claimed in claim 19, or a pharmaceutical composition as claimed in claim 20, in the manufacture of a medicament for 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;
(xvi) allodynia; and
(xvii) any disease where an individual has been determined to carry a germline or somatic non-silent mutation in NLRP3.

23. The use as claimed in claim 22, wherein the disease, disorder or condition is selected from:

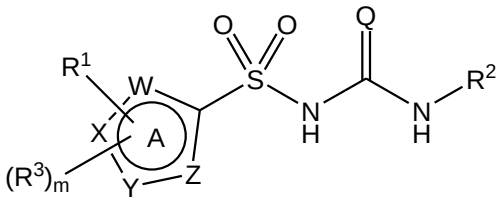
(i) inflammation;
(ii) an infection;

(iii) a cardiovascular disease;
(iv) a respiratory disease;
(v) a liver disease;
(vi) a renal disease;
(vii) an ocular disease;
(viii) a skin disease;
(ix) a psychological disorder;
(x) a lymphatic condition; and/or
(xi) any disease, disorder or condition in which an individual has been determined to carry a germline or somatic non-silent mutation in NLRP3.

24. Use of a compound as claimed in any one of claims 1 to 18, or a pharmaceutically acceptable salt or solvate as claimed in claim 19, or a pharmaceutical composition as claimed in claim 20, in the manufacture of a medicament for 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).

25. Use of a compound or a pharmaceutically acceptable salt or solvate thereof, or a pharmaceutical composition comprising a pharmaceutically acceptable excipient and such a compound, pharmaceutically acceptable salt or solvate, in the manufacture of a medicament for the treatment or prevention of a disease, disorder or condition, wherein the compound is a compound of formula (I):




Formula (I)

wherein:

Q is selected from O or S;

W, X, Y and Z are each independently N, O, S, NH or CH, wherein at least one of W, X, Y and Z is N or NH;

$R^1$ is a monovalent group comprising at least one nitrogen atom, wherein $-R^1$ contains from 1 to 7 atoms other than hydrogen or halogen; or

$R^1$ is a divalent group comprising at least one nitrogen atom, wherein $-R^1-$ contains from 1 to 7 atoms other than hydrogen or halogen, and wherein $-R^1-$ is directly attached to any two adjacent W, X, Y or Z;

$R^2$ is a cyclic group substituted at the α-position, wherein $R^2$ may optionally be further substituted;

m is 0, 1, 2 or 3;

each $R^3$ is independently a halo, -OH, $-NO_2$, $-NH_2$, $-N_3$, -SH, $-SO_2H$, $-SO_2NH_2$, or a saturated or unsaturated 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 any $R^3$, and any two adjacent W, X, Y or Z, may together form a 3- to 12-membered saturated or unsaturated cyclic group fused to ring A, wherein the cyclic group fused to ring A may optionally be substituted;

and wherein the disease, disorder or condition is selected from:

(i) cryopyrin-associated periodic syndromes (CAPS);

(ii) Muckle-Wells syndrome (MWS);

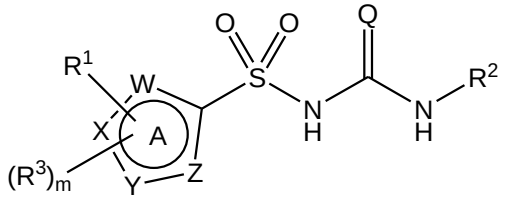
(iii) familial cold autoinflammatory syndrome (FCAS);

(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).

26. A method of inhibiting NLRP3 *ex vivo* or *in vitro*, the method comprising the use of a compound as claimed in any one of claims 1 to 18, or a pharmaceutically acceptable salt or solvate as claimed in claim 19, or a pharmaceutical composition as claimed in claim 20, to inhibit NLRP3.

27. A method of inhibiting NLRP3 *ex vivo* or *in vitro*, the method comprising the use of a compound or a pharmaceutically acceptable salt or solvate thereof, or a pharmaceutical composition comprising a pharmaceutically acceptable excipient and such a compound, pharmaceutically acceptable salt or solvate, to inhibit NLRP3, wherein the compound is a compound of formula (I):




Formula (I)

wherein:

Q is selected from O or S;

W, X, Y and Z are each independently N, O, S, NH or CH, wherein at least one of W, X, Y and Z is N or NH;

$R^1$ is a monovalent group comprising at least one nitrogen atom, wherein -$R^1$ contains from 1 to 7 atoms other than hydrogen or halogen; or

$R^1$ is a divalent group comprising at least one nitrogen atom, wherein -$R^1$- contains from 1 to 7 atoms other than hydrogen or halogen, and wherein -$R^1$- is directly attached to any two adjacent W, X, Y or Z;

$R^2$ is a cyclic group substituted at the α-position, wherein $R^2$ may optionally be further substituted;

m is 0, 1, 2 or 3;

each $R^3$ is independently a halo, -OH, -$NO_2$, -$NH_2$, -$N_3$, -SH, -$SO_2H$, -$SO_2NH_2$, or a saturated or unsaturated 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; and

wherein optionally any $R^3$, and any two adjacent W, X, Y or Z, may together form a 3- to 12-membered saturated or unsaturated cyclic group fused to ring A, wherein the cyclic group fused to ring A may optionally be substituted.