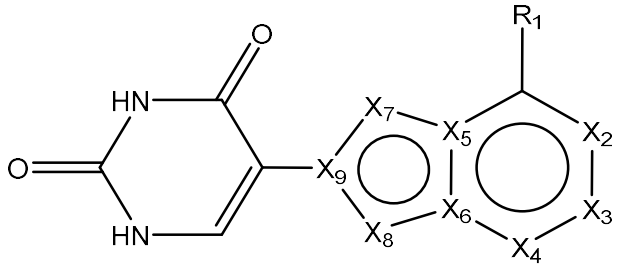
CLAIMS

1. A compound, or pharmaceutically acceptable salt thereof, having the structural formula I shown below:



I

wherein:

R_1 is selected from:

(i) $-NR_{1A}R_{1B}$;

wherein R_{1A} and R_{1B} are each independently selected from hydrogen, (1-6C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl, heterocyclyl, heterocyclyl(1-2C)alkyl;

or

or R_{1A} and R_{1B} are linked such that, together with the nitrogen atom to which they are attached, they form a heterocyclic ring;

and wherein any (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl, heterocyclyl (including those formed by R_{1A} and R_{1B}) or heterocyclyl(1-2C)alkyl group is optionally substituted by one or more R_x;

(ii) a carbon-linked heterocyclyl optionally substituted by one or more R_x;

(iii) $-O-R_{1C}$;

wherein R_{1C} is selected from (1-6C)alkyl, (3-8C)cycloalkyl, (3-8C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl, heterocyclyl, heterocyclyl(1-2C)alkyl, each of which is optionally substituted by one or more R_x;

(iv) (1-6C)alkyl optionally substituted by one or more R_x;

(v) (3-6C)cycloalkyl optionally substituted by one or two substituents independently selected from fluoro, (1-4C)alkyl, (1-4C)haloalkyl, (1-4C)alkoxy, (1-4C)haloalkoxy, hydroxy, (1-4C)hydroxyalkyl, a (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl, heterocyclyl, heterocyclyl(1-2C)alkyl, wherein any alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-

2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl, heterocyclyl or heterocyclyl(1-2C)alkyl group is optionally substituted by one or more R_x;

(vi) a carbon or nitrogen-linked heteroaryl ring optionally substituted by one or two substituents independently selected from fluoro, (1-4C)alkyl, (1-4C)haloalkyl, (1-4C)alkoxy, (1-4C)haloalkoxy, hydroxy or (1-4C)hydroxyalkyl;

wherein each R_x is independently selected from:

halo, cyano, (1-4C)alkyl, $(CH_2)_{q1}NR_{1D}R_{1E}$, $(CH_2)_{q1}OR_{1D}$, $(CH_2)_{q1}C(O)R_{1D}$, $(CH_2)_{q1}C(O)OR_{1D}$, $O(CH_2)_{q1}C(O)R_{1D}$, $(CH_2)_{q1}OC(O)R_{1D}$, $(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, $O(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, $(CH_2)_{q1}N(R_{1E})C(O)R_{1D}$, $(CH_2)_{q1}S(O)_pR_{1D}$ (where p is 0, 1 or 2), $(CH_2)_{q1}SO_2N(R_{1E})R_{1D}$, $(CH_2)_{q1}N(R_{1E})SO_2R_{1D}$, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, aryl, aryl(1-4C)alkyl, heteroaryl, heteroaryl(1-4C)alkyl, heterocyclyl, heterocyclyl(1-4C)alkyl, or a spiro-fused (3-6C)cycloalkyl or heterocyclyl;

wherein q1 is 0, 1, 2 or 3; and

wherein R_{1D} is selected from hydrogen, (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, aryl, aryl(1-4C)alkyl, heteroaryl, heteroaryl(1-4C)alkyl, heterocyclyl, or heterocyclyl(1-4C)alkyl;

and R_{1E} is selected from hydrogen, (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, aryl or aryl(1-4C)alkyl;

or R_{1D} and R_{1E} are linked such that, together with the atom or atoms to which they are attached, they form a 4 to 10 membered heterocyclic ring;

and wherein any (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, aryl, aryl(1-4C)alkyl, heteroaryl, heteroaryl(1-4C)alkyl, heterocyclyl, heterocyclyl(1-4C)alkyl group present in a R_x, R_{1D} and R_{1E} substituent, or a heterocyclyl groups formed when R_{1D} and R_{1E} are linked, is optionally further substituted by halo, cyano, hydroxy, oxo, (1-4C)alkyl, (1-4C)haloalkyl, (1-4C)hydroxyalkyl, $(CH_2)_{q2}NR_{1F}R_{1G}$, $(CH_2)_{q2}OR_{1F}$, $(CH_2)_{q2}C(O)R_{1F}$, $(CH_2)_{q2}C(O)OR_{1F}$, $(CH_2)_{q2}OC(O)R_{1F}$, $(CH_2)_{q2}C(O)N(R_{1G})R_{1F}$, $(CH_2)_{q2}N(R_{1G})C(O)R_{1F}$, $(CH_2)_{q2}S(O)_pR_{1F}$ (where p is 0, 1 or 2), $(CH_2)_{q2}SO_2N(R_{1G})R_{1F}$, $(CH_2)_{q2}N(R_{1G})SO_2R_{1F}$;

wherein q2 is 0, 1, 2 or 3; and

wherein R_{1F} and R_{1G} are each independently selected from hydrogen or (1-4C)alkyl optionally substituted by halo; and

X_2 is selected from N or CR_2; wherein R_2 is selected from hydrogen, halo, (1-3C)alkyl, (1-3C)alkoxy, (1-3C)haloalkyl, (1-3C)haloalkoxy or cyano;

X_3 is selected from N or CR_3; wherein R_3 is selected from hydrogen, halo (1-3C)alkyl, (1-3C)alkoxy, (1-3C)haloalkyl, (1-3C)haloalkoxy or cyano,

X_4 is selected from N or CR_4; wherein R_4 is selected from hydrogen, halo (e.g. fluoro or chloro), (1-3C)alkyl, (1-3C)alkoxy, (1-3C)haloalkyl, (1-3C)haloalkoxy or cyano;

X_5 is selected from N or C;

X_6 is selected from N or C;

X_7 is selected from N, NR_{7N}, CR_7, O or S; wherein:

R_7 is selected from hydrogen, halo, methyl or methoxy;

R_{7N} is selected from hydrogen or methyl;

X_8 is selected from N, NR_{8N} , CR_8, O or S; wherein:

R_8 is selected from hydrogen, halo, methyl or methoxy;

R_{8N} is selected from hydrogen or methyl;

X_9 is selected from N or C;

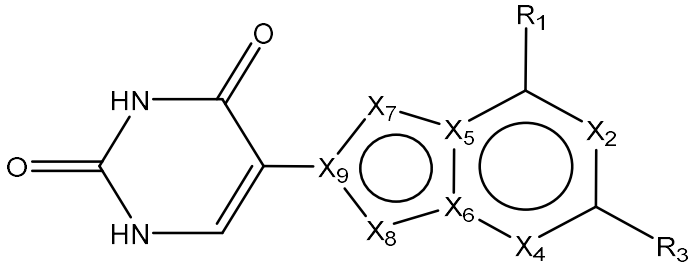
with the proviso that:

(i) X_5 and X_6 cannot both be N;

(ii) only one of X_7 and X_8 can be O or S;

(iii) no more than four of the atoms in groups X_2, X_3, X_4, X_5, X_6, X_7, X_8 and X_9 which, together with the carbon atom attached to R_1, make up the bicyclic ring, may be a heteroatom.

2. A compound according to claim 1, or pharmaceutically acceptable salt thereof, having the structural formula I-I shown below:



I-I

wherein:

R_1 is selected from:

(i) $-NR_{1A}R_{1B}$;

wherein R_{1A} and R_{1B} are each independently selected from hydrogen, (1-6C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl, heterocyclyl, heterocyclyl(1-2C)alkyl;

or

or R_{1A} and R_{1B} are linked such that, together with the nitrogen atom to which they are attached, they form a heterocyclic ring;

and wherein any (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl, heterocyclyl (including those formed by R_{1A} and R_{1B}) or heterocyclyl(1-2C)alkyl group is optionally substituted by one or more R_x;

(ii) a carbon-linked heterocyclyl optionally substituted by one or more R_x;

(iii) $-O-R_{1C}$;

wherein R_{1C} is selected from (1-6C)alkyl, (3-8C)cycloalkyl, (3-8C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl, heterocyclyl, heterocyclyl(1-2C)alkyl, each of which is optionally substituted by one or more R_x;

(iv) (1-6C)alkyl optionally substituted by one or more R_x;

(v) (3-6C)cycloalkyl optionally substituted by one or two substituents independently selected from fluoro, (1-4C)alkyl, (1-4C)haloalkyl, (1-4C)alkoxy, (1-4C)haloalkoxy, hydroxy, (1-4C)hydroxyalkyl, a (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl, heterocyclyl, heterocyclyl(1-2C)alkyl, wherein any alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl, heterocyclyl or heterocyclyl(1-2C)alkyl group is optionally substituted by one or more R_x;

(vi) a carbon or nitrogen-linked heteroaryl ring optionally substituted by one or two substituents independently selected from fluoro, (1-4C)alkyl, (1-4C)haloalkyl, (1-4C)alkoxy, (1-4C)haloalkoxy, hydroxy or (1-4C)hydroxyalkyl;

wherein each R_x is independently selected from:

halo, cyano, (1-4C)alkyl, $(CH_2)_{q1}NR_{1D}R_{1E}$, $(CH_2)_{q1}OR_{1D}$, $(CH_2)_{q1}C(O)R_{1D}$, $(CH_2)_{q1}C(O)OR_{1D}$, $O(CH_2)_{q1}C(O)R_{1D}$, $(CH_2)_{q1}OC(O)R_{1D}$, $(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, $O(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, $(CH_2)_{q1}N(R_{1E})C(O)R_{1D}$, $(CH_2)_{q1}S(O)_pR_{1D}$ (where p is 0, 1 or 2), $(CH_2)_{q1}SO_2N(R_{1E})R_{1D}$, $(CH_2)_{q1}N(R_{1E})SO_2R_{1D}$, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, aryl, aryl(1-4C)alkyl, heteroaryl, heteroaryl(1-4C)alkyl, heterocyclyl, heterocyclyl(1-4C)alkyl, or a spiro-fused (3-6C)cycloalkyl or heterocyclyl;

wherein q1 is 0, 1, 2 or 3; and

wherein R_{1D} is selected from hydrogen, (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, aryl, aryl(1-4C)alkyl, heteroaryl, heteroaryl(1-4C)alkyl, heterocyclyl, or heterocyclyl(1-4C)alkyl;
and R_{1E} is selected from hydrogen, (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, aryl or aryl(1-4C)alkyl;
or R_{1D} and R_{1E} are linked such that, together with the atom or atoms to which they are attached, they form a 4 to 10 membered heterocyclic ring;

and wherein any (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, aryl, aryl(1-4C)alkyl, heteroaryl, heteroaryl(1-4C)alkyl, heterocyclyl, heterocyclyl(1-4C)alkyl group present in a R_x, R_{1D} and R_{1E} substituent, or a heterocyclyl groups formed when R_{1D} and R_{1E} are linked, is optionally further substituted by halo, cyano, hydroxy, oxo, (1-4C)alkyl, (1-4C)haloalkyl, (1-4C)hydroxyalkyl, $(CH_2)_{q2}NR_{1F}R_{1G}$, $(CH_2)_{q2}OR_{1F}$, $(CH_2)_{q2}C(O)R_{1F}$, $(CH_2)_{q2}C(O)OR_{1F}$, $(CH_2)_{q2}OC(O)R_{1F}$, $(CH_2)_{q2}C(O)N(R_{1G})R_{1F}$, $(CH_2)_{q2}N(R_{1G})C(O)R_{1F}$, $(CH_2)_{q2}S(O)_pR_{1F}$ (where p is 0, 1 or 2), $(CH_2)_{q2}SO_2N(R_{1G})R_{1F}$, $(CH_2)_{q2}N(R_{1G})SO_2R_{1F}$;

wherein q2 is 0, 1, 2 or 3; and
wherein R_{1F} and R_{1G} are each independently selected from hydrogen or (1-4C)alkyl optionally substituted by halo; and

X_2 is selected from N or CR_2; wherein R_2 is selected from hydrogen, halo, (1-3C)alkyl, (1-3C)alkoxy, (1-3C)haloalkyl, (1-3C)haloalkoxy or cyano;

R_3 is selected from hydrogen, halo (1-3C)alkyl, (1-3C)alkoxy, (1-3C)haloalkyl, (1-3C)haloalkoxy or cyano,

X_4 is selected from N or CR_4; wherein R_4 is selected from hydrogen, halo, (1-3C)alkyl, (1-3C)alkoxy, (1-3C)haloalkyl, (1-3C)haloalkoxy or cyano;

X_5 is selected from N or C;

X_6 is selected from N or C;

X_7 is selected from N, NR_{7N}, CR_7, O or S; wherein:

R_7 is selected from hydrogen, halo, methyl or methoxy;

R_{7N} is selected from hydrogen or methyl;

X_8 is selected from N, NR_{8N} , CR_8, O or S; wherein:

R_8 is selected from hydrogen, halo, methyl or methoxy;

R_{8N} is selected from hydrogen or methyl;

X_9 is selected from N or C;

with the proviso that:

(i) X_5 and X_6 cannot both be N;

(ii) only one of X_7 and X_8 can be O or S;

(iii) no more than four of the atoms in groups X_2, X_4, X_5, X_6, X_7, X_8 and X_9 which, together with CR_1 and CR_3, make up the bicyclic ring, may be a heteroatom.

3. A compound according to claim 1 or claim 2, or a pharmaceutically acceptable salt thereof, wherein R_1 is selected from:

(i) $-NR_{1A}R_{1B}$;
wherein R_{1A} and R_{1B} are each independently selected from hydrogen, (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl , heteroaryl, heteroaryl(1-2C)alkyl, heterocyclyl, heterocyclyl(1-2C)alkyl, or R_{1A} and R_{1B} are linked such that, together with the nitrogen atom to which they are attached, they form a heterocyclic ring;
and wherein any (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl, heterocyclyl (including those formed by R_{1A} and R_{1B}) or heterocyclyl(1-2C)alkyl group is optionally substituted by one or more R_x;

(ii) a carbon-linked heterocyclyl optionally substituted by one or more R_x;

(iii) $-O-R_{1C}$;
wherein R_{1C} is selected from (1-6C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl, heterocyclyl, heterocyclyl(1-2C)alkyl, each of which is optionally substituted by one or more R_x;

(iv) (1-6C)alkyl optionally substituted by one or more R_x;

(v) (3-6C)cycloalkyl optionally substituted by one or two substituents independently selected from fluoro, (1-4C)alkyl, (1-3C)haloalkyl, (1-3C)alkoxy, (1-3C)haloalkoxy, hydroxy or (1-3C)hydroxyalkyl;

(vi) (3-6C)cycloalkyl optionally substituted by one or two substituents independently selected from fluoro, (1-4C)alkyl, (1-4C)haloalkyl, (1-4C)alkoxy, (1-4C)haloalkoxy, hydroxy, (1-4C)hydroxyalkyl, a (3-6C)cycloalkyl, aryl, heteroaryl, or heterocyclyl;

(vii) a carbon or nitrogen-linked monocyclic heteroaryl ring optionally substituted by one or two substituents independently selected from fluoro, (1-3C)alkyl, (1-3C)haloalkyl, (1-3C)alkoxy, (1-3C)haloalkoxy, hydroxy or (1-3C)hydroxyalkyl;

wherein each R_x is independently selected from:

halo, cyano, (1-4C)alkyl, $(CH_2)_{q1}NR_{1D}R_{1E}$, $(CH_2)_{q1}OR_{1D}$, $(CH_2)_{q1}C(O)R_{1D}$, $O(CH_2)_{q1}C(O)R_{1D}$, $(CH_2)_{q1}C(O)OR_{1D}$, $(CH_2)_{q1}OC(O)R_{1D}$, $(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, $O(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, $(CH_2)_{q1}N(R_{1E})C(O)R_{1D}$, $(CH_2)_{q1}S(O)_pR_{1D}$ (where p is 0, 1 or 2), $(CH_2)_{q1}SO_2N(R_{1E})R_{1D}$, $(CH_2)_{q1}N(R_{1E})SO_2R_{1D}$, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, aryl, aryl(1-4C)alkyl, heteroaryl, heteroaryl(1-4C)alkyl, heterocyclyl, heterocyclyl(1-4C)alkyl, or a spiro-fused (3-6C)cycloalkyl or heterocyclyl;

wherein

q1 is 0, 1, or 2;

R_{1D} is selected from hydrogen, (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, aryl, aryl(1-4C)alkyl, heteroaryl, heteroaryl(1-4C)alkyl, heterocyclyl, or heterocyclyl(1-4C)alkyl; and

R_{1E} is selected from hydrogen, (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, aryl or aryl(1-4C)alkyl;

and wherein any (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, aryl, aryl(1-4C)alkyl, heteroaryl, heteroaryl(1-4C)alkyl, heterocyclyl, heterocyclyl(1-4C)alkyl group present in a R_x, R_{1D} and R_{1E} substituent, or a heterocyclyl groups formed when R_{1D} and R_{1E} are linked, is optionally further substituted by halo, cyano, hydroxy, oxo, (1-4C)alkyl, (1-4C)haloalkyl, (1-4C)hydroxyalkyl, $(CH_2)_{q2}NR_{1F}R_{1G}$, $(CH_2)_{q2}OR_{1F}$, $(CH_2)_{q2}C(O)R_{1F}$, $(CH_2)_{q2}C(O)OR_{1F}$, $(CH_2)_{q2}OC(O)R_{1F}$, $(CH_2)_{q2}C(O)N(R_{1G})R_{1F}$, $(CH_2)_{q2}N(R_{1G})C(O)R_{1F}$, $(CH_2)_{q2}S(O)_pR_{1F}$ (where p is 0, 1 or 2), $(CH_2)_{q2}SO_2N(R_{1G})R_{1F}$, $(CH_2)_{q2}N(R_{1G})SO_2R_{1F}$;
wherein q2 is 0, 1, or 2; and

wherein R_{1F} and R_{1G} are each independently selected from hydrogen or (1-4C)alkyl optionally substituted by halo.

4. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein R_1 is selected from:

(i) $-NR_{1A}R_{1B}$;

wherein R_{1A} and R_{1B} are each independently selected from hydrogen, (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl,

or R_{1A} and R_{1B} are linked such that, together with the nitrogen atom to which they are attached, they form a heterocyclic ring;

and wherein any (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, aryl, aryl(1-2C)alkyl, heteroaryl, heteroaryl(1-2C)alkyl or heterocyclyl group formed by R_{1A} and R_{1B} is optionally substituted by one or more R_x;

(ii) a carbon-linked heterocyclyl optionally substituted by one or more R_x;

(iii) $-O-R_{1C}$;

wherein R_{1C} is selected from (1-6C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-2C)alkyl, phenyl, or phenyl(1-2C)alkyl, each of which is optionally substituted by one or more R_x;

(iv) (3-6C)cycloalkyl optionally substituted by one or two substituents independently selected from fluoro, (1-4C)alkyl, (1-4C)haloalkyl, (1-4C)alkoxy, (1-4C)haloalkoxy, hydroxy, (1-4C)hydroxyalkyl or phenyl;

wherein each R_x is independently selected from:

halo, cyano, (1-4C)alkyl, $(CH_2)_{q1}NR_{1D}R_{1E}$, $(CH_2)_{q1}OR_{1D}$, $(CH_2)_{q1}C(O)R_{1D}$, $O(CH_2)_{q1}C(O)R_{1D}$, $(CH_2)_{q1}C(O)OR_{1D}$, $(CH_2)_{q1}OC(O)R_{1D}$, $(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, $O(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, $(CH_2)_{q1}N(R_{1E})C(O)R_{1D}$, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, phenyl, phenyl(1-4C)alkyl, 5- or 6-membered heteroaryl, (5- or 6-membered)heteroaryl(1-4C)alkyl, 4- to 10-membered heterocyclyl, (4- to 10-membered)heterocyclyl(1-4C)alkyl, or a spiro-fused (3-6C)cycloalkyl or 4- to 6-membered heterocyclyl;

wherein q1 is 0, 1, or 2; and

wherein R_{1D} is selected from hydrogen, (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, phenyl, phenyl(1-4C)alkyl, heteroaryl, heteroaryl(1-4C)alkyl, heterocyclyl, or heterocyclyl(1-4C)alkyl;

and R_{1E} is selected from hydrogen or (1-4C)alkyl;

and wherein any (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, phenyl, phenyl(1-4C)alkyl, 5- or 6-membered heteroaryl, (5- or 6-membered)heteroaryl(1-4C)alkyl, 4- to 10-membered heterocyclyl, (4- to 10-membered)heterocyclyl(1-4C)alkyl group present in a R_x, R_{1D} and R_{1E} substituent, or a heterocyclyl groups formed when R_{1D} and R_{1E} are linked, is optionally further substituted by halo, cyano, hydroxy, oxo, (1-2C)alkyl, (1-2C)haloalkyl, (1-2C)hydroxyalkyl, $(CH_2)_{q2}NR_{1F}R_{1G}$, $(CH_2)_{q2}OR_{1F}$,

$(CH_2)_{q2}C(O)R_{1F}$, $(CH_2)_{q2}C(O)OR_{1F}$, $(CH_2)_{q2}OC(O)R_{1F}$, $(CH_2)_{q2}C(O)N(R_{1G})R_{1F}$, $(CH_2)_{q2}N(R_{1G})C(O)R_{1F}$, $(CH_2)_{q2}S(O)_pR_{1F}$ (where p is 0, 1 or 2), $(CH_2)_{q2}SO_2N(R_{1G})R_{1F}$, $(CH_2)_{q2}N(R_{1G})SO_2R_{1F}$;

wherein q2 is 0 or 1; and

wherein R_{1F} and R_{1G} are each independently selected from hydrogen or (1-2C)alkyl.

5. A compound according to any one of claims 1 to 3, or a pharmaceutically acceptable salt thereof, wherein R_1 is selected from:

(i) $-NR_{1A}R_{1B}$;
wherein one of R_{1A} and R_{1B} hydrogen, and the other is selected from (1-4C)alkyl, aryl(1-2C)alkyl or heteroaryl(1-2C)alkyl, each of which being optionally substituted by one or more R_x; or
R_{1A} and R_{1B} are linked such that, together with the nitrogen atom to which they are attached, they form a 4-, 5- or 6- membered monocyclic heterocyclic ring, a 5 to 10-membered fused heterocyclic ring, a 5 to 10-membered bridged heterocyclic ring or a 5 to 10-membered spirocyclic heterocyclic ring, each of which being optionally substituted by one or more R_x;

(ii) a carbon-linked 4 to 10-membered heterocyclyl (including 4-, 5- or 6-membered monocyclic heterocyclic rings, fused heterocyclic rings, bridged heterocyclic rings and spirocyclic heterocyclic rings) optionally substituted by one or more R_x;

(iii) (3C)cycloalkyl optionally substituted by one or two substituents independently selected from fluoro, (1-4C)alkyl, (1-4C)haloalkyl, (1-4C)alkoxy, (1-4C)haloalkoxy, hydroxy, (1-4C)hydroxyalkyl or phenyl;

wherein each R_x is independently selected from:

halo, cyano, (1-4C)alkyl, $(CH_2)_{q1}NR_{1D}R_{1E}$, $(CH_2)_{q1}OR_{1D}$, $(CH_2)_{q1}C(O)R_{1D}$, $O(CH_2)_{q1}C(O)R_{1D}$, $(CH_2)_{q1}C(O)OR_{1D}$, $(CH_2)_{q1}OC(O)R_{1D}$, $(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, $O(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, $(CH_2)_{q1}N(R_{1E})C(O)R_{1D}$, (3-6C)cycloalkyl(1-3C)alkyl, phenyl, phenyl(1-3C)alkyl, (5- or 6-membered)heteroaryl(1-3C)alkyl, (4- to 6-membered)heterocyclyl(1-3C)alkyl, or a spiro-fused (3-6C)cycloalkyl or 4- to 6-membered heterocyclyl;

wherein q1 is 0 or 1;

wherein R_{1D} is selected from hydrogen, (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, phenyl, phenyl(1-3C)alkyl, 5- or 6-membered

heteroaryl, (5- or 6-membered)heteroaryl(1-3C)alkyl, 4- to 9-membered heterocyclyl, or (4- to 9-membered)heterocyclyl(1-3C)alkyl;

and R_{1E} is selected from hydrogen or (1-2C)alkyl;

and wherein any (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, phenyl, phenyl(1-3C)alkyl, 5- or 6-membered heteroaryl, (5- or 6-membered)heteroaryl(1-3C)alkyl, 4- to 9-membered heterocyclyl, or (4- to 9-membered)heterocyclyl(1-3C)alkyl group present in a R_x, R_{1D} and R_{1E} substituent, or a heterocyclyl groups formed when R_{1D} and R_{1E} are linked, is optionally further substituted by halo, cyano, hydroxy, oxo, (1-4C)alkyl, (1-4C)haloalkyl, (1-4C)hydroxyalkyl, $NR_{1F}R_{1G}$, OR_{1F}, $C(O)R_{1F}$ and $C(O)OR_{1F}$ (e.g. halo, cyano, hydroxy or (1-4C)alkyl);

wherein R_{1F} and R_{1G} are each independently selected from hydrogen or (1-2C)alkyl.

6. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein R_1 is selected from:

(i) $-NR_{1A}R_{1B}$;
wherein one of R_{1A} and R_{1B} hydrogen, and the other is selected from (1-4C)alkyl, aryl(1-2C)alkyl or heteroaryl(1-2C)alkyl, each of which being optionally substituted by one or more R_x; or
R_{1A} and R_{1B} are linked such that, together with the nitrogen atom to which they are attached, they form a 4-, 5- or 6- membered monocyclic heterocyclic ring, a 5 to 10-membered fused heterocyclic ring, a 5 to 10-membered bridged heterocyclic ring or a 5 to 10-membered spirocyclic heterocyclic ring, each of which being optionally substituted by one or more R_x;

(ii) a carbon-linked 4 to 10-membered heterocyclyl (including 4-, 5- or 6-membered monocyclic heterocyclic rings, fused heterocyclic rings, bridged heterocyclic rings and spirocyclic heterocyclic rings) optionally substituted by one or more R_x;

(iii) (3C)cycloalkyl optionally substituted by one or two substituents independently selected from fluoro, (1-2C)alkyl, (1-2C)haloalkyl, (1-2C)alkoxy, (1-2C)haloalkoxy, hydroxy, (1-2C)hydroxyalkyl or phenyl;

wherein each R_x is independently selected from:

halo, cyano, (1-4C)alkyl, $(CH_2)_{q1}NR_{1D}R_{1E}$, $(CH_2)_{q1}OR_{1D}$, $(CH_2)_{q1}C(O)R_{1D}$, $O(CH_2)_{q1}C(O)R_{1D}$, $(CH_2)_{q1}C(O)OR_{1D}$, $(CH_2)_{q1}OC(O)R_{1D}$, $(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, $O(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, $(CH_2)_{q1}N(R_{1E})C(O)R_{1D}$, (3-6C)cycloalkyl(1-3C)alkyl, phenyl,

phenyl(1-3C)alkyl, (5- or 6-membered)heteroaryl(1-3C)alkyl, (4- to 6-membered)heterocyclyl(1-3C)alkyl, or a spiro-fused (3-6C)cycloalkyl or 4- to 6-membered heterocyclyl;

wherein q1 is 0 or 1;

wherein R_{1D} is selected from hydrogen, (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, phenyl, phenyl(1-3C)alkyl, 5- or 6-membered heteroaryl, (5- or 6-membered)heteroaryl(1-3C)alkyl, 4- to 9-membered heterocyclyl, or (4- to 9-membered)heterocyclyl(1-3C)alkyl;

and R_{1E} is selected from hydrogen or (1-2C)alkyl;

and wherein any (1-4C)alkyl, (3-6C)cycloalkyl, (3-6C)cycloalkyl(1-4C)alkyl, phenyl, phenyl(1-3C)alkyl, 5- or 6-membered heteroaryl, (5- or 6-membered)heteroaryl(1-3C)alkyl, 4- to 9-membered heterocyclyl, or (4- to 9-membered)heterocyclyl(1-3C)alkyl group present in a R_x, R_{1D} and R_{1E} substituent, or a heterocyclyl groups formed when R_{1D} and R_{1E} are linked, is optionally further substituted by halo, cyano, hydroxy, oxo, (1-4C)alkyl, (1-4C)haloalkyl, (1-4C)hydroxyalkyl, $NR_{1F}R_{1G}$, OR_{1F}, $C(O)R_{1F}$ and $C(O)OR_{1F}$ (e.g. halo, cyano, hydroxy or (1-4C)alkyl);

wherein R_{1F} and R_{1G} are each independently selected from hydrogen or (1-2C)alkyl.

7. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein R_1 is selected from:

(i) $-NR_{1A}R_{1B}$;

wherein one of R_{1A} and R_{1B} hydrogen, and the other is selected from (1-4C)alkyl or phenyl(1-2C)alkyl, each of which being optionally substituted by one or more R_x; or

R_{1A} and R_{1B} are linked such that, together with the nitrogen atom to which they are attached, they form a 4-, 5- or 6- membered monocyclic heterocyclic ring, a 6 to 10 membered fused heterocyclic ring, a 6 to 10 membered bridged heterocyclic ring or a 6 to 10 membered spirocyclic heterocyclic ring, each of which being optionally substituted by one or more R_x; or

(ii) a carbon-linked a 4-, 5- or 6- membered monocyclic heterocyclic ring, a 6 to 10 membered fused heterocyclic ring, a 6 to 10 membered bridged heterocyclic ring or a 6 to 10 membered spirocyclic heterocyclic ring, each of which being optionally substituted by one or more R_x;

(iii) (3C)cycloalkyl optionally substituted by one or two substituents independently selected from fluoro, (1-2C)alkyl, (1-2C)haloalkyl, (1-2C)alkoxy, (1-2C)haloalkoxy, hydroxy, (1-2C)hydroxyalkyl or phenyl;
wherein each R_x is independently selected from halo, cyano, (1-4C)alkyl, $(CH_2)_{q1}NR_{1D}R_{1E}$, $(CH_2)_{q1}OR_{1D}$, $(CH_2)_{q1}C(O)R_{1D}$, $O(CH_2)_{q1}C(O)R_{1D}$, $(CH_2)_{q1}C(O)OR_{1D}$, $(CH_2)_{q1}OC(O)R_{1D}$, $(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, $O(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$ or $(CH_2)_{q1}N(R_{1E})C(O)R_{1D}$;

wherein q1 is 0 or 1;
wherein R_{1D} is selected from (1-4C)alkyl, phenyl, phenyl(1-3C)alkyl, 5- or 6-membered heteroaryl, (5- or 6-membered)heteroaryl(1-3C)alkyl, 4- to 9-membered heterocyclyl, or (4- to 9-membered)heterocyclyl(1-3C)alkyl;

and R_{1E} is selected from hydrogen or (1-2C)alkyl;
and wherein any (1-4C)alkyl, phenyl, phenyl(1-3C)alkyl, 5- or 6-membered heteroaryl, (5- or 6-membered)heteroaryl(1-3C)alkyl, 4- to 9-membered heterocyclyl, or (4- to 9-membered)heterocyclyl(1-3C)alkyl group present in a R_x, R_{1D} and R_{1E} substituent, or a heterocyclyl groups formed when R_{1D} and R_{1E} are linked, is optionally further substituted by halo, cyano, hydroxy, oxo, (1-2C)alkyl, (1-2C)haloalkyl, (1-2C)hydroxyalkyl, $NR_{1F}R_{1G}$, OR_{1F}, $C(O)R_{1F}$ and $C(O)OR_{1F}$ (e.g. halo, cyano, hydroxy or (1-4C)alkyl);

wherein R_{1F} and R_{1G} are each independently selected from hydrogen or (1-2C)alkyl.

8. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein R_1 is selected from:

(i) $-NR_{1A}R_{1B}$;
wherein one of R_{1A} and R_{1B} hydrogen, and the other is selected from (1-4C)alkyl or phenyl(1-2C)alkyl, each of which being optionally substituted by one or more R_x; or
R_{1A} and R_{1B} are linked such that, together with the nitrogen atom to which they are attached, they form a 4-, 5- or 6- membered monocyclic heterocyclic ring, a 7 to 9 membered fused heterocyclic ring or a 7 to 9 membered spirocyclic heterocyclic ring, each of which being optionally substituted by one or more R_x; or

(ii) a carbon-linked 4-, 5- or 6- membered monocyclic heterocyclic ring, a 7 to 9 membered fused heterocyclic ring or a 7 to 9 membered spirocyclic

heterocyclic ring, each of which being optionally substituted by one or more R_x;

(iii) (3C)cycloalkyl optionally substituted by one or two substituents independently selected from fluoro, (1-2C)alkyl, (1-2C)haloalkyl, (1-2C)alkoxy, (1-2C)haloalkoxy, hydroxy, (1-2C)hydroxyalkyl or phenyl;

wherein each R_x is independently selected from halo, cyano, (1-4C)alkyl, $(CH_2)_{q1}OR_{1D}$, $O(CH_2)_{q1}C(O)R_{1D}$ or $O(CH_2)_{q1}C(O)N(R_{1E})R_{1D}$, wherein q1 is 0 or 1;

wherein R_{1D} is selected from (1-4C)alkyl, phenyl, phenyl(1-2C)alkyl, 5- or 6-membered heteroaryl, (5- or 6-membered)heteroaryl(1-2C)alkyl, 4- to 9-membered heterocyclyl, or (4- to 9-membered)heterocyclyl(1-2C)alkyl;

and R_{1E} is selected from hydrogen or methyl;

and wherein any (1-4C)alkyl, phenyl, phenyl(1-2C)alkyl, (5- or 6-membered)heteroaryl, (5- or 6-membered)heteroaryl(1-2C)alkyl, (4- to 9-membered)heterocyclyl or (4- to 9-membered)heterocyclyl(1-2C)alkyl group present in a R_x or R_{1D} substituent, or a heterocyclyl groups formed when R_{1D} and R_{1E} are linked, is optionally further substituted by halo, cyano or hydroxy (1-2C)alkyl or (1-2C)haloalkyl .

9. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein R_1 is $-NR_{1A}R_{1B}$;

wherein one of R_{1A} and R_{1B} hydrogen, and the other is other is selected from (1-4C)alkyl or phenyl(1-2C)alkyl, each of which being optionally substituted by one or more R_x; or

wherein R_{1A} and R_{1B} are linked such that, together with the nitrogen atom to which they are attached, they form a 4- or 5-membered heterocyclic ring system, a 7 to 9 membered fused heterocyclic ring or a 7 to 9 membered spirocyclic heterocyclic ring each of which being optionally substituted by one or more R_x;

wherein each R_x is independently selected from halo, cyano, (1-2C)alkyl, OR_{1D}, $OC(O)R_{1D}$ or $OC(O)N(R_{1E})R_{1D}$;

wherein R_{1D} is selected from (1-4C)alkyl, phenyl, phenyl(1-3C)alkyl, 5- or 6-membered heteroaryl, (5- or 6-membered)heteroaryl(1-3C)alkyl, 4- to 9-membered heterocyclyl, or (4- to 9-membered)heterocyclyl(1-3C)alkyl;

and R_{1E} is selected from hydrogen or methyl;

and wherein any (1-4C)alkyl, phenyl, phenyl(1-3C)alkyl, 5- or 6-membered heteroaryl, (5- or 6-membered)heteroaryl(1-3C)alkyl, 4- to 9-membered heterocyclyl, or (4- to 9-membered)heterocyclyl(1-3C)alkyl group present in a R_x or R_{1D} substituent, or a heterocyclyl groups formed when R_{1D} and R_{1E} are linked, is optionally further substituted by halo, cyano or hydroxy (1-2C)alkyl or (1-2C)haloalkyl.;

and optionally wherein R_{1A} and R_{1B} are linked such that, together with the nitrogen atom to which they are attached, they form a 4- or 5-membered nitrogen-linked heterocyclic ring, a 7 to 9 membered fused heterocyclic ring or a 7 to 9 membered spirocyclic heterocyclic ring, each of which being optionally substituted by one or more R_x;

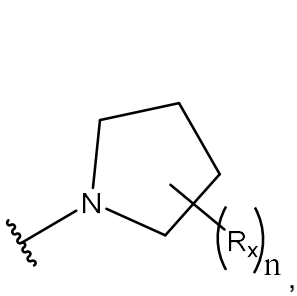
wherein each R_x is independently selected from halo, (1-2C)alkyl, OR_{1D}, $OC(O)R_{1D}$ or $OC(O)N(R_{1E})R_{1D}$;

wherein R_{1D} is selected from (1-4C)alkyl, phenyl(1-2C)alkyl, 6-membered heteroaryl, (5- or 6-membered)heteroaryl(1-2C)alkyl, 6- to 9-membered heterocyclyl, or (6- to 9-membered)heterocyclyl(1-2C)alkyl;

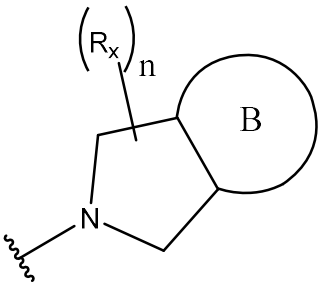
and R_{1E} is hydrogen,

and wherein any (1-4C)alkyl, phenyl(1-2C)alkyl, 5- or 6-membered heteroaryl, (5- or 6-membered)heteroaryl(1-2C)alkyl, 4- to 9-membered heterocyclyl, or (4- to 9-membered)heterocyclyl(1-2C)alkyl group present in a R_x or R_{1D} substituent, or a heterocyclyl groups formed when R_{1D} and R_{1E} are linked, is optionally further substituted by halo, cyano or hydroxy (1-2C)alkyl or (1-2C)haloalkyl.

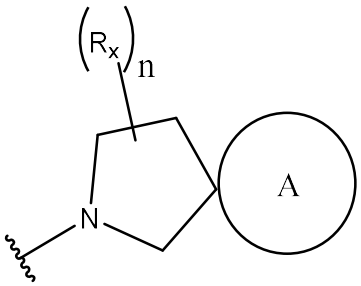
10. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein R_1 is a group of the formula:



,



or



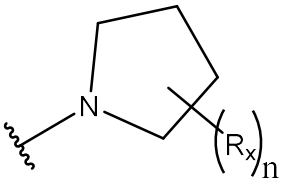
wherein n is 0, 1, 2, 3 or 4; and

each occurrence of R_x is independently as defined in any one of the preceding paragraphs;

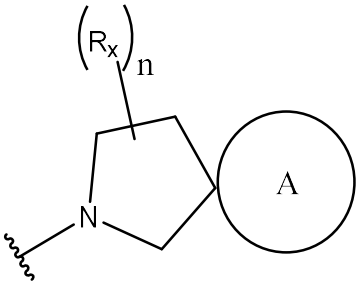
Ring A, together with the carbon atom to which it is attached, is a spiro-fused 3 to 6 membered cycloalkyl or heterocyclyl ring, optionally substituted by one or more R_x; and

Ring B, together with the carbon atoms to which it is attached, is a fused 3 to 6 membered cycloalkyl or heterocyclyl ring; , optionally substituted by one or more R_x;

optionally wherein R_1 is a group of the formula:

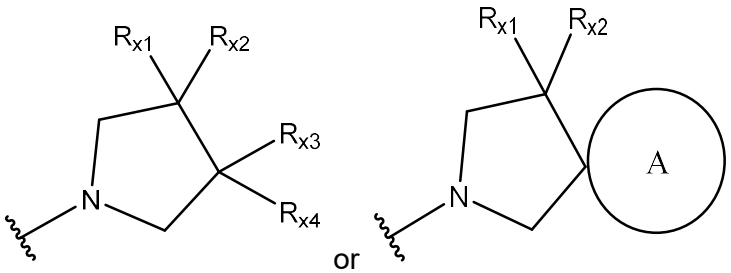


or



.

11. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein R_1 is a group of the formula:



wherein:

R_{x1} and R_{x2} are independently selected from hydrogen or halo;

R_{x3} and R_{x4} are independently selected from hydrogen, halo, methyl or methoxy;

or one of R_{x3} and R_{x4} is hydrogen, and the other is OR_{1D}, wherein R_{1D} is selected from phenyl(1-2C)alkyl, (5- or 6-membered)heteroaryl(1-2C)alkyl, or (4- to 6-membered)heterocyclyl(1-2C)alkyl; wherein the phenyl(1-2C)alkyl, (5- or 6-membered)heteroaryl(1-2C)alkyl, or (4- to 6-membered)heterocyclyl(1-2C)alkyl are each optionally substituted by one or more of halo, cyano, hydroxy or methyl; and

Ring A is a spiro-fused 3 to 6 membered cycloalkyl or heterocyclyl ring, each of which being optionally substituted with one or more substituents selected from halo, methyl or methoxy;

optionally wherein:

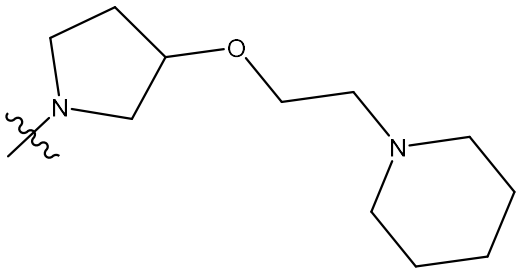
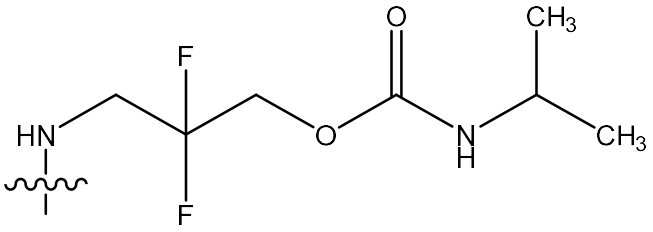
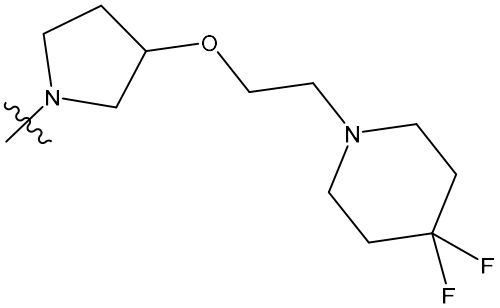
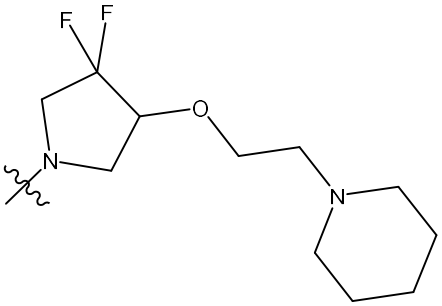
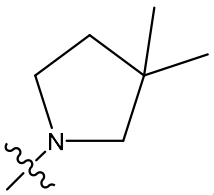
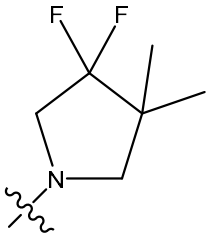
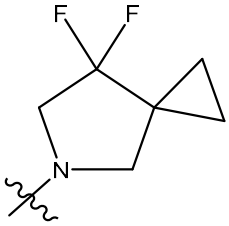
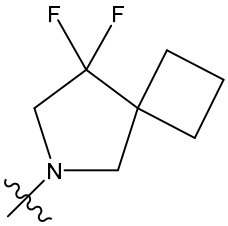
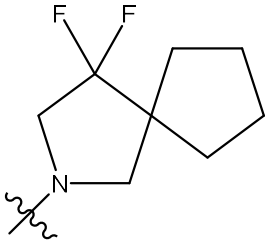
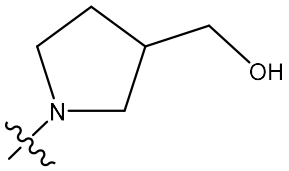
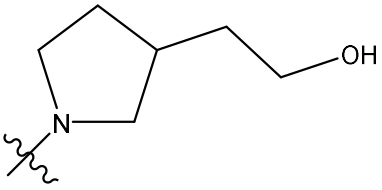
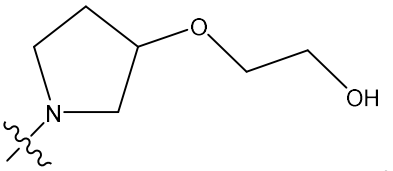
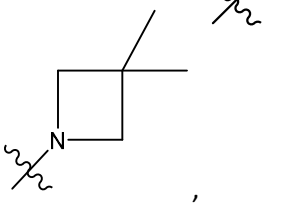
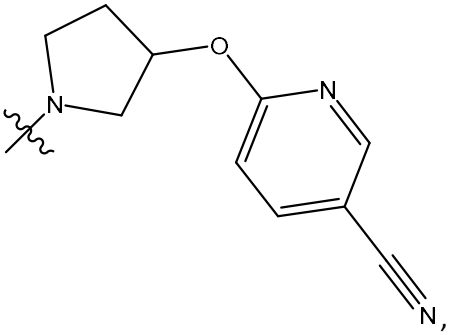
R_{x1} and R_{x2} are independently selected from hydrogen or fluoro;

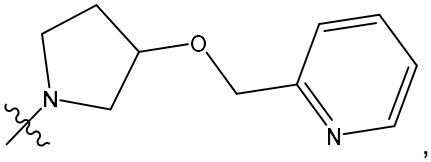
R_{x3} and R_{x4} are independently selected from hydrogen, halo or methyl;

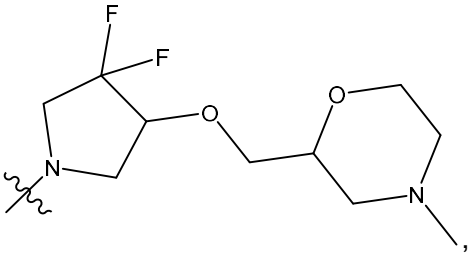
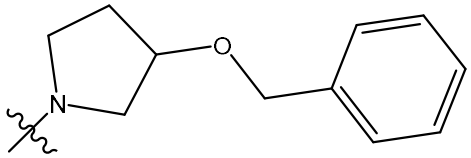
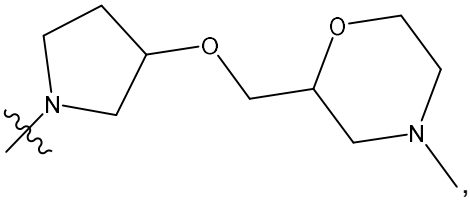
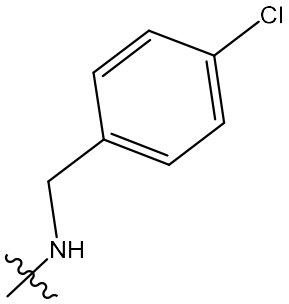
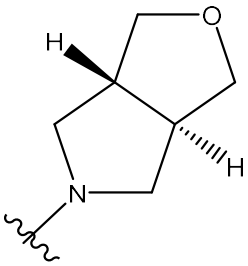
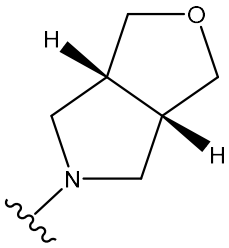
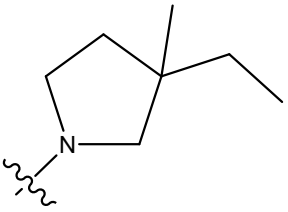
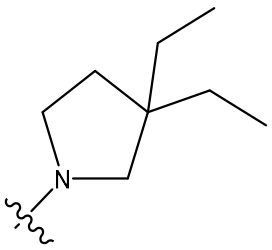
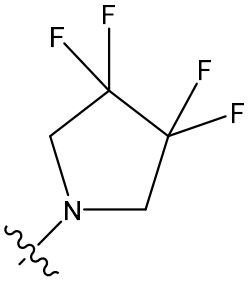
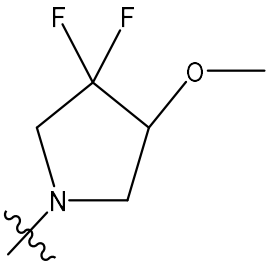
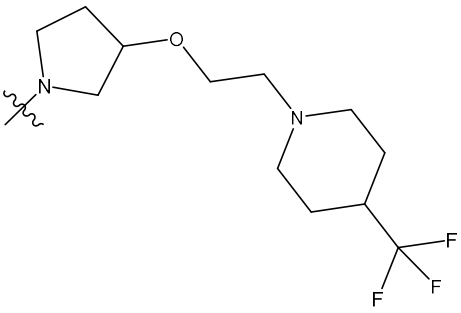
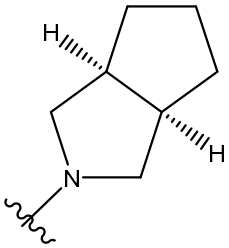
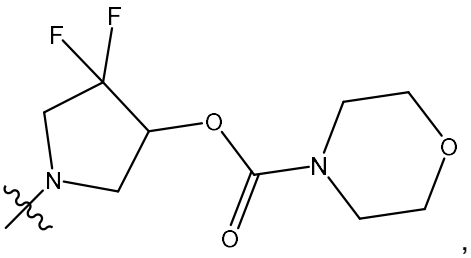
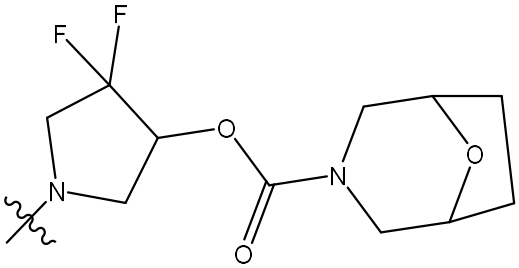
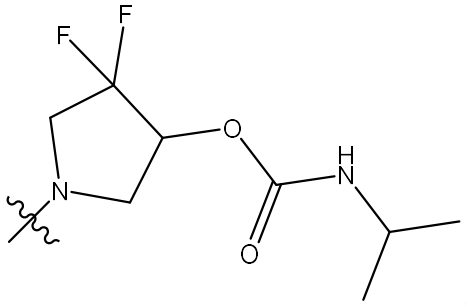
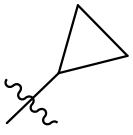
or one of R_{x3} and R_{x4} is hydrogen, and the other is OR_{1D}, wherein R_{1D} is (6-membered)heterocyclyl(1-2C)alkyl; wherein the (6-membered)heterocyclyl(1-2C)alkyl is optionally substituted by one or more of halo, cyano or methyl; and

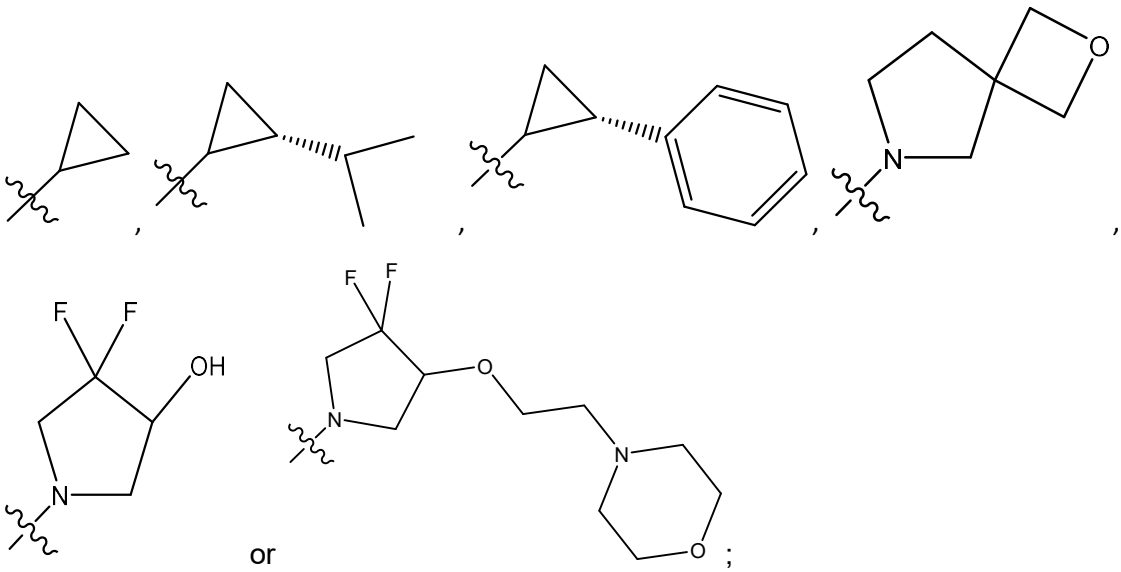
Ring A is a spiro-fused 3 to 5 membered cycloalkyl or heterocyclyl ring; each of which being optionally substituted with one or more substituents selected from halo, methyl or methoxy.

12. A compound according to any one of claims 1 to 6, or a pharmaceutically acceptable salt thereof, wherein R_1 is selected from:

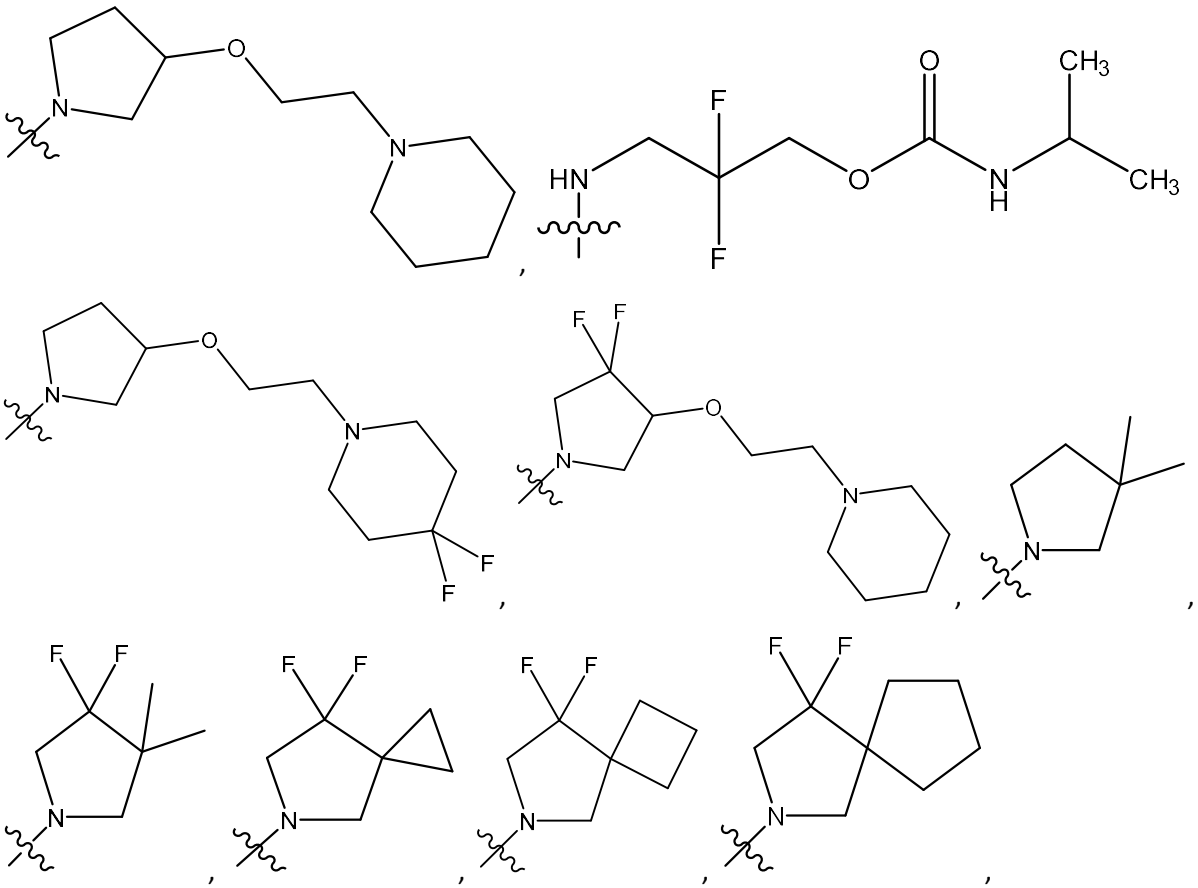















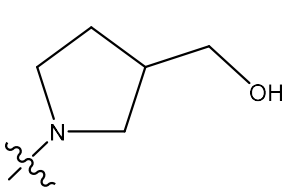
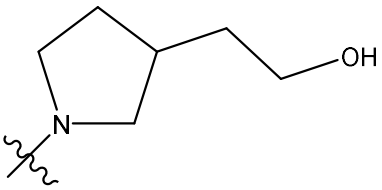
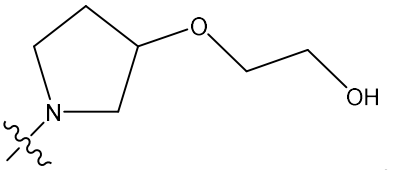
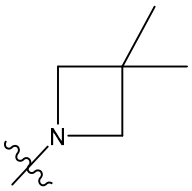
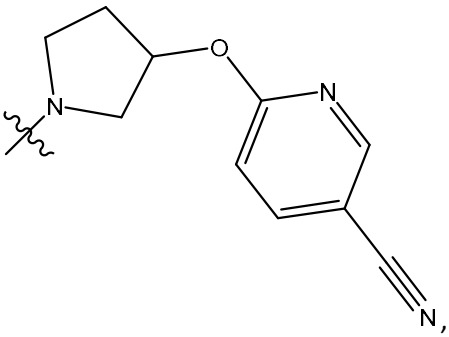
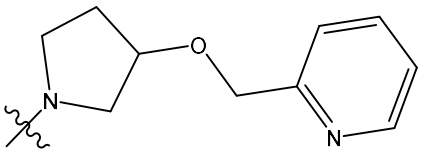
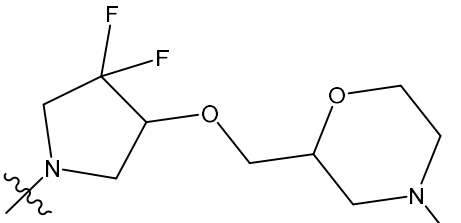
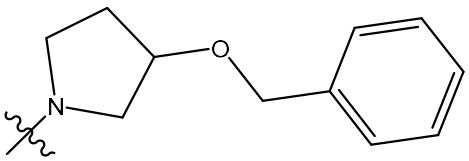
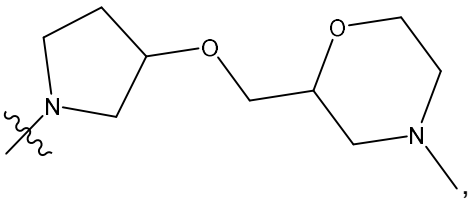
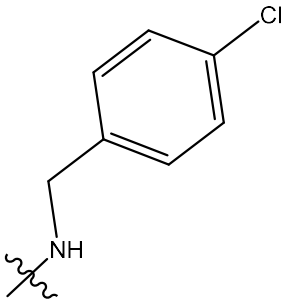
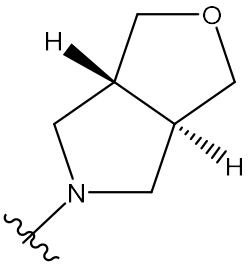
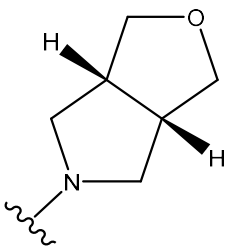
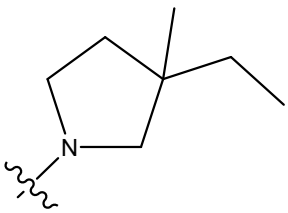
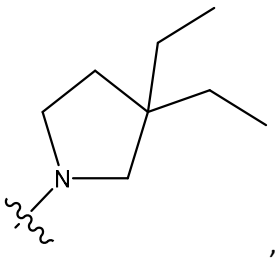
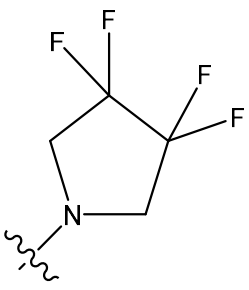
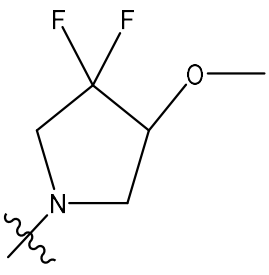


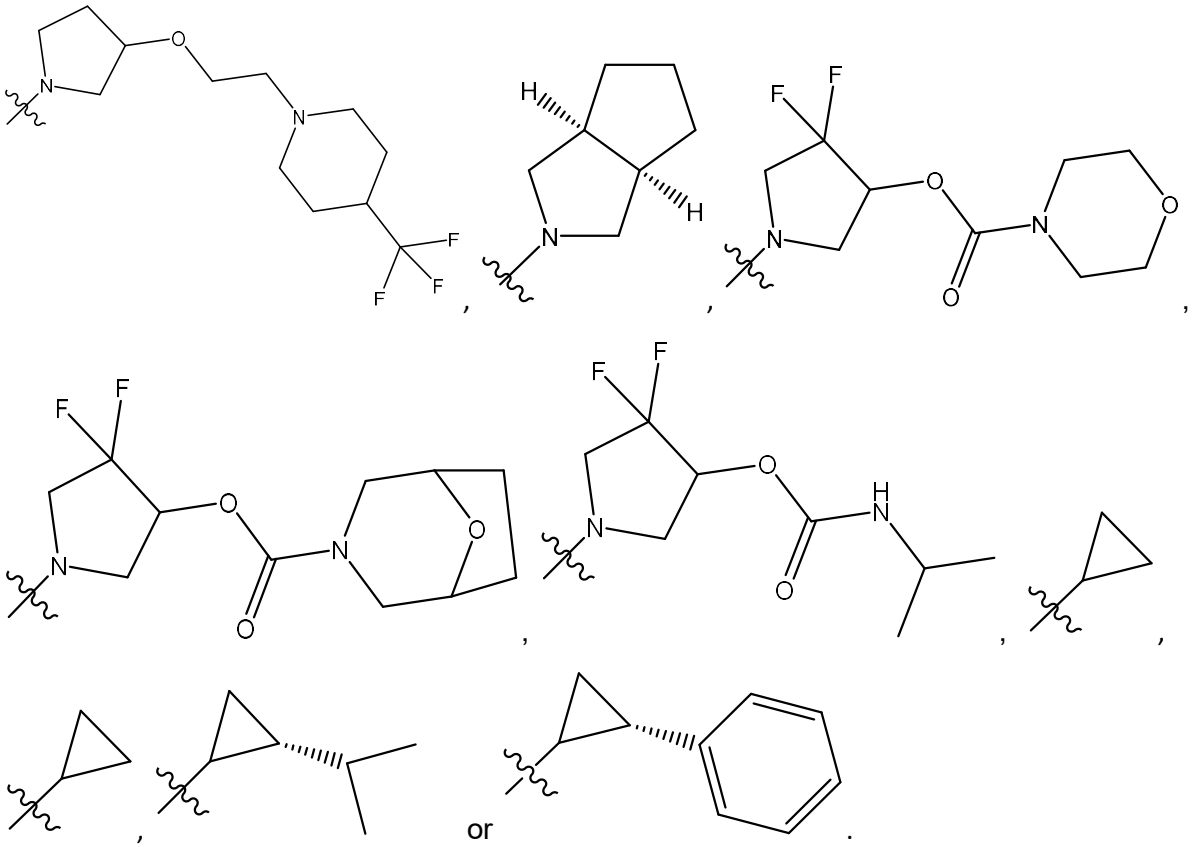

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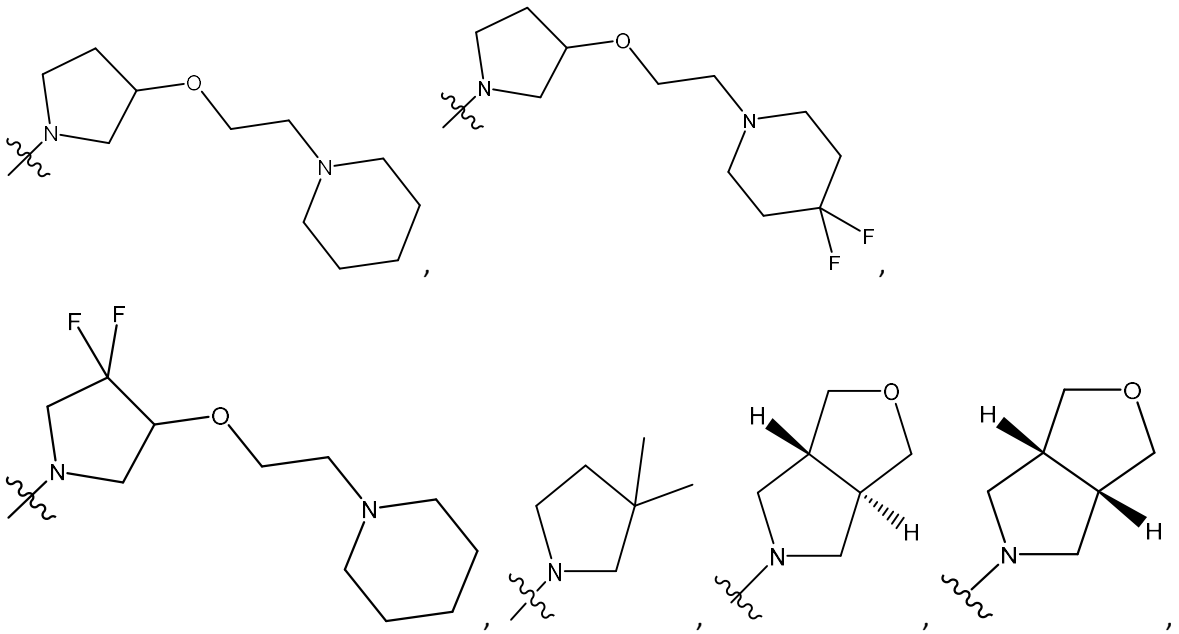
optionally wherein R_1 is selected from:

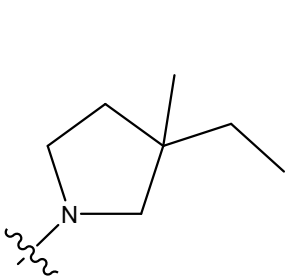
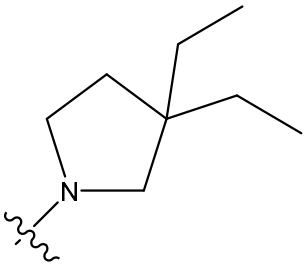
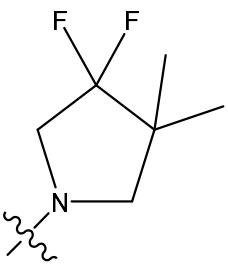
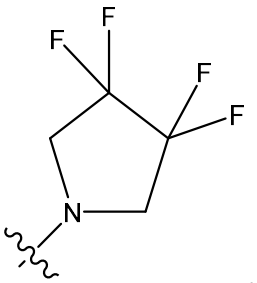
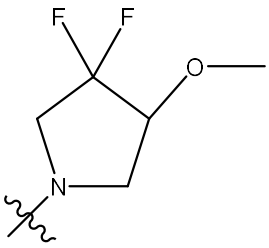
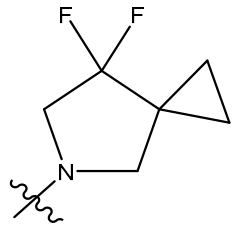
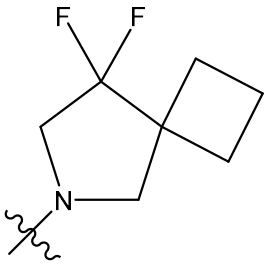
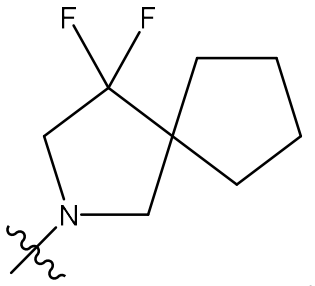
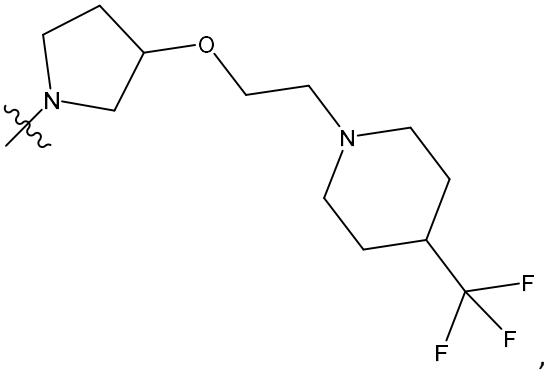
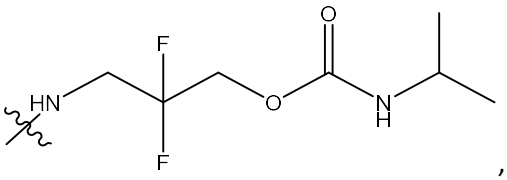
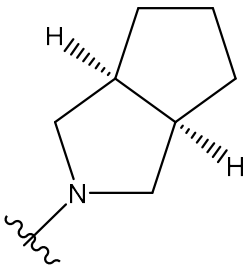
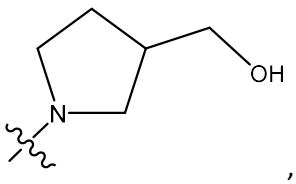
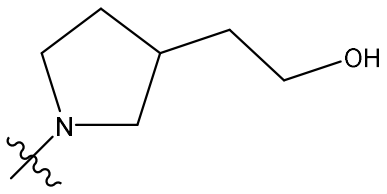
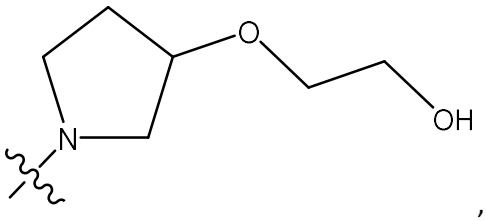
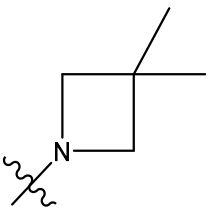
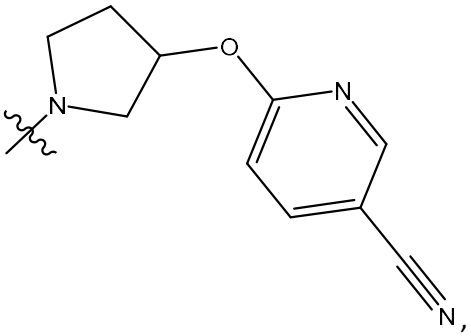
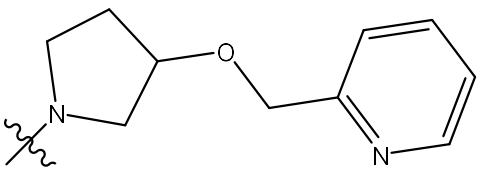


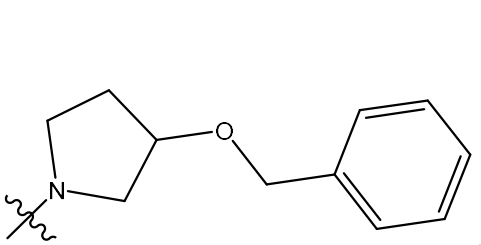
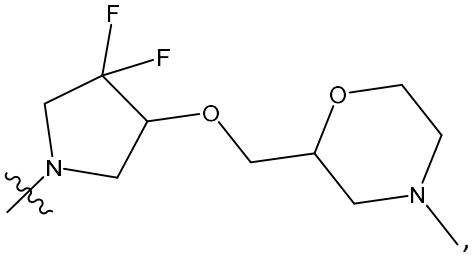
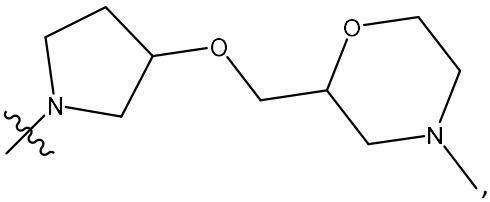
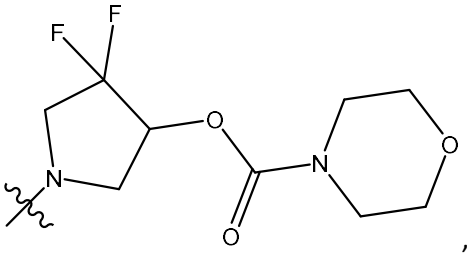
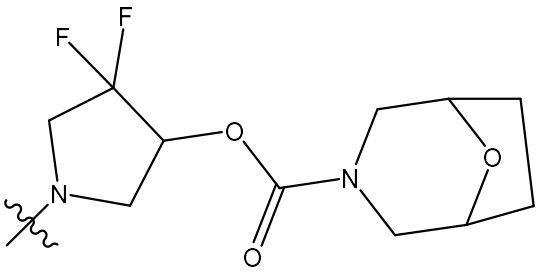
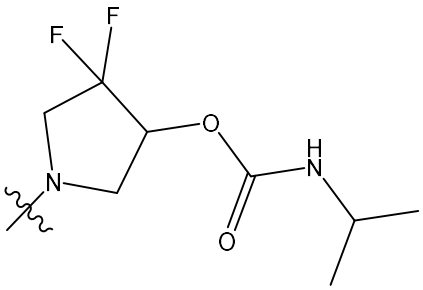
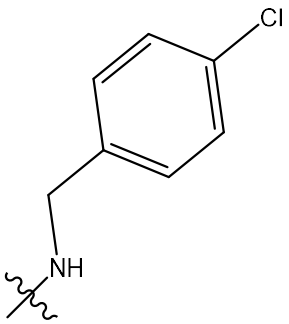



















13. A compound according to any one of claims 1 to 6, or a pharmaceutically acceptable salt thereof, wherein R_1 is selected from:




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14. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein:

X_2 is selected from N or CR_2; wherein R_2 is selected from hydrogen, halo, methyl, methoxy, halomethyl, halomethoxy or cyano;

X_3 is selected from N or CR_3; wherein R_3 is selected from hydrogen, halo methyl, methoxy, halomethyl, halomethoxy or cyano,

X_4 is selected from N or CR_4; wherein R_4 is selected from hydrogen, halo, (1-2C)alkyl, (1-2C)alkoxy, (1-2C)haloalkyl, (1-2C)haloalkoxy or cyano;

X_5 is selected from N or C;

X_6 is selected from N or C;

X_7 is selected from N, NR_{7N}, CR_7, O or S; wherein:

R_7 is selected from hydrogen, halo, methyl or methoxy;

R_{7N} is selected from hydrogen or methyl;

X_8 is selected from N, NR_{8N}, CR_8, O or S, wherein:

R_8 is selected from hydrogen or halo;

R_{8N} is selected from hydrogen or methyl;

X_9 is selected from N or C;

with the proviso that:

(i) X_5 and X_6 cannot both be N;

(ii) only one of X_7 and X_8 can be O or S; and

(iii) no more than four of the atoms in groups X_2, X_3, X_4, X_5, X_6, X_7, X_8 and X_9 which together with the carbon atom attached to R_1, make up the bicyclic ring, may be a heteroatom;

optionally wherein:

X_2 is selected from N or CR_2; wherein R_2 is selected from hydrogen or cyano;

X_3 is selected from N or CR_3; wherein R_3 is selected from hydrogen, halo or cyano,

X_4 is selected from N or CR_4; wherein R_4 is selected from hydrogen, fluoro, chloro, methyl, methoxy, fluoromethyl (e.g. CH_2F, CHF_2 or CF_3) or cyano;

X_5 is C;

X_6 is selected from N or C;

X_7 is selected from N, CR_7, or S, wherein R_7 is selected from hydrogen, halo or methyl;

X_8 is selected from N, NR_{8N}, CR_8, O or S; wherein:

R_8 is selected from hydrogen or halo;

R_{8N} is hydrogen or methyl; and

X_9 is selected from N or C.

15. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein:

X_2 is N;

X_3 is CR_3, wherein R_3 is selected from hydrogen, halo or cyano,

X_4 is selected from N or CR_4; wherein R_4 is selected from hydrogen, chloro or fluoro (e.g. hydrogen or fluoro);

X_5 is C;

X_6 is C or N;

X_7 is CR_7; wherein R_7 is hydrogen:

X_8 is selected from N, CR_8 or S, wherein R_8 is hydrogen

X_9 is selected from N or C;

optionally wherein:

X_2 is N;

X_3 is CR_3, wherein R_3 is selected from hydrogen, halo or cyano,

X_4 is N or CR_4; wherein R_4 is selected from hydrogen, chloro or fluoro (e.g. hydrogen or fluoro);

X_5 is C;

X_6 is C or N;

X_7 is CR_7; wherein R_7 is hydrogen:

X_8 is N;

X_9 is selected from N or C;

further optionally wherein:

X_2 is N;

X_3 is CR_3, wherein R_3 is hydrogen,

X_4 is CR_4; wherein R_4 is selected from hydrogen, chloro or fluoro;

X_5 is C;

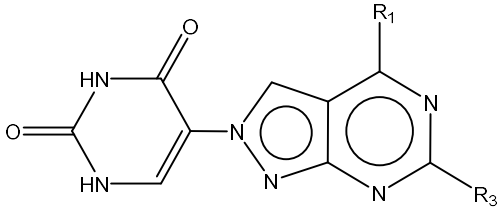
X_6 is N;

X_7 is CR_7; wherein R_7 is hydrogen:

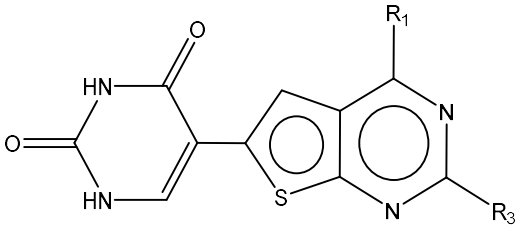
X_8 is N;

X_9 is C.

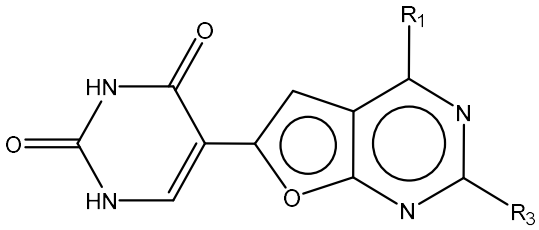
16. A compound of the formula Ia, Ib, Ic, Id, Ie, If, Ig, Ih, Ii, Ij, Ik, Im, In, Io or Ip:



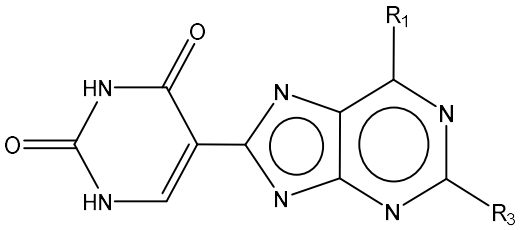
(Ia)



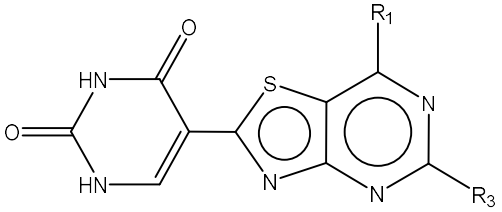
(Ib)



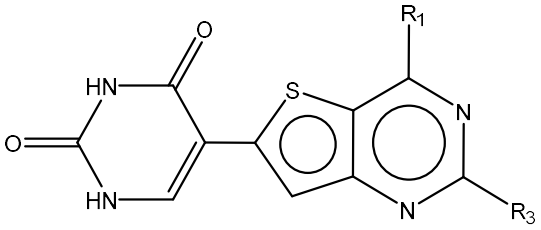
(Ic)



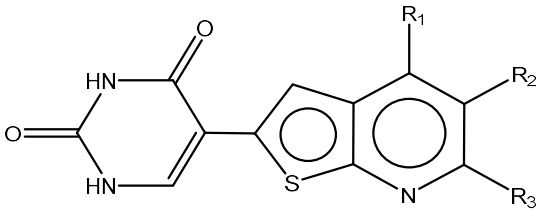
(Id)



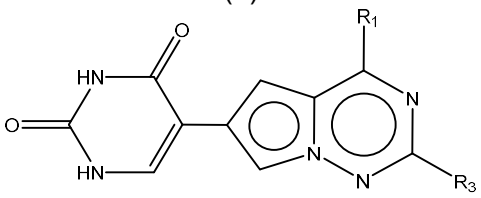
(Ie)



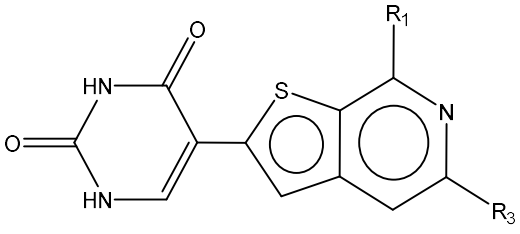
(If)



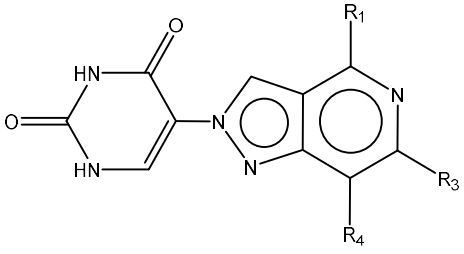
(Ig)



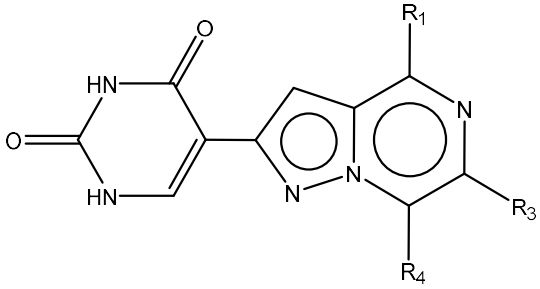
(Ih)



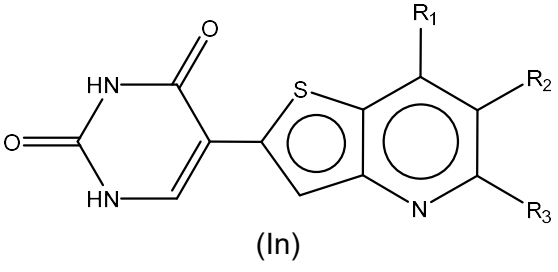
(Ij)



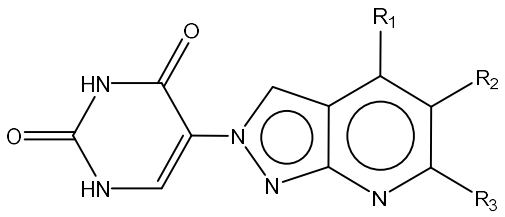
(Ik)



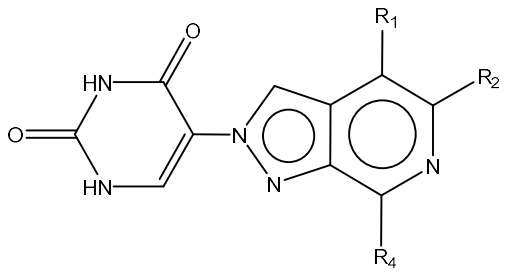
(Im)



(In)



(Io)



(Ip)

wherein R_1, R_2, R_3 and R_4 are as defined in any one of of the preceding claims; or a pharmaceutically acceptable salt thereof.

17. A compound, or a pharmaceutically acceptable salt thereof, selected from any one of the following:

5-[4-[3-(Hydroxymethyl)pyrrolidin-1-yl]thieno[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3-(2-Hydroxyethyl)pyrrolidin-1-yl]thieno[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-Dimethylazetidin-1-yl)thieno[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione

5-[4-[3-(2-Hydroxyethoxy)pyrrolidin-1-yl]thieno[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3-[2-(1-Piperidyl)ethoxy]pyrrolidin-1-yl]thieno[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-Dimethylpyrrolidin-1-yl)thieno[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

6-[1-[6-(2,4-Dioxo-1H-pyrimidin-5-yl)thieno[2,3-d]pyrimidin-4-yl]pyrrolidin-3-yl]oxypyridine-3-carbonitrile;

5-[4-(3,3-Difluoro-4,4-dimethyl-pyrrolidin-1-yl)thieno[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3-(2-pyridylmethoxy)pyrrolidine-1-yl]thieno[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3-Benzyloxypyrrolidin-1-yl)thieno[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3,3-Difluoro-4-[(4-methylmorpholin-2-yl)methoxy]pyrrolidine-1-yl]thieno[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3-[(4-Methylmorpholin-2-yl)methoxy]pyrrolidine-1-yl]thieno[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3,3-Difluoro-4-[2-(1-piperidyl)ethoxy]pyrrolidine-1-yl]thieno[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[7-[3-[2-(1-Piperidyl)ethoxy]pyrrolidin-1-yl]thiazolo[4,5-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[7-(3,3-difluoro-4,4-dimethyl-pyrrolidin-1-yl)thiazolo[4,5-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3-[2-(1-Piperidyl)ethoxy]pyrrolidin-1-yl]furo[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-Difluoro-4,4-dimethyl-pyrrolidin-1-yl)furo[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3-[2-(1-Piperidyl)ethoxy]pyrrolidin-1-yl]thieno[3,2-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3-[2-(1-Piperidyl)ethoxy]pyrrolidin-1-yl]thieno[3,2-c]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3-[2-(1-Piperidyl)ethoxy]pyrrolidin-1-yl]pyrrolo[2,1-f][1,2,4]triazin-6-yl]pyrimidine-2,4-diol;

5-[4-[3-[2-(4,4-Difluoro-1-piperidyl)ethoxy]pyrrolidin-1-yl]pyrrolo[2,1-f][1,2,4]triazin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-Difluoro-4,4-dimethyl-pyrrolidin-1-yl)pyrrolo[2,1-f][1,2,4]triazin-6-yl]-1H-pyrimidine-2,4-dione;

2-(2,4-Dioxo-1H-pyrimidin-5-yl)-4-[3-[2-(1-piperidyl)ethoxy]pyrrolidin-1-yl]thieno[2,3-b]pyridine-5-carbonitrile;

5-[4-[3-[2-(1-Piperidyl)ethoxy]pyrrolidin-1-yl]pyrazolo[3,4-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-Difluoro-4,4-dimethyl-pyrrolidin-1-yl)pyrazolo[3,4-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(7,7-Difluoro-5-azaspiro[2.4]heptan-5-yl)pyrazolo[3,4-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(8,8-Difluoro-6-azaspiro[3.4]octan-6-yl)pyrazolo[3,4-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(4,4-Difluoro-2-azaspiro[4.4]nonan-2-yl)pyrazolo[3,4-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-[(3aR,6aS)-3,3a,4,5,6,6a-Hexahydro-1H-cyclopenta[c]pyrrol-2-yl]pyrazolo[3,4-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3-Ethyl-3-methyl-pyrrolidin-1-yl)pyrazolo[3,4-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-Dimethylpyrrolidin-1-yl)pyrazolo[3,4-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-Diethylpyrrolidin-1-yl)pyrazolo[3,4-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3,4,4-Tetrafluoropyrrolidin-1-yl)pyrazolo[3,4-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-[(3aR,6aS)-1,3,3a,4,6,6a-Hexahydrofuro[3,4-c]pyrrol-5-yl]pyrazolo[3,4-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-[(3aR,6aR)-1,3,3a,4,6,6a-Hexahydrofuro[3,4-c]pyrrol-5-yl]pyrazolo[3,4-d]pyrimidin-2-yl]-5H-pyrimidine-2,4-dione;

5-[4-(3,3-Difluoro-4-methoxy-pyrrolidin-1-yl)pyrazolo[3,4-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3-[2-(1-Piperidyl)ethoxy]pyrrolidin-1-yl]thieno[2,3-b]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-Difluoro-4,4-dimethyl-pyrrolidin-1-yl)thieno[2,3-b]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[6-[3-[2-(1-Piperidyl)ethoxy]pyrrolidin-1-yl]-9H-purin-8-yl]-1H-pyrimidine-2,4-dione;

5-[7-[3-[2-(1-Piperidyl)ethoxy]pyrrolidin-1-yl]thieno[3,2-b]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3,3-Difluoro-4-[2-(1-piperidyl)ethoxy]pyrrolidin-1-yl]pyrrolo[2,1-f][1,2,4]triazin-6-yl]-1H-pyrimidine-2,4-dione;

5-[2-Chloro-4-[3-[2-(1-piperidyl)ethoxy]pyrrolidin-1-yl]pyrrolo[2,1-f][1,2,4]triazin-6-yl]-5H-pyrimidine-2,4-dione;

5-[4-(8,8-Difluoro-6-azaspiro[3.4]octan-6-yl)furo[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-(4,4-Difluoro-2-azaspiro[4.4]nonan-2-yl)furo[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-[(4-Chlorophenyl)methylamino]furo[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

5-[4-(7,7-Difluoro-5-azaspiro[2.4]heptan-5-yl)furo[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

[3-[[6-(2,4-Dioxo-1H-pyrimidin-5-yl)furo[2,3-d]pyrimidin-4-yl]amino]-2,2-difluoro-propyl] N-isopropylcarbamate;

5-[4-[3-[2-[4-(Trifluoromethyl)-1-piperidyl]ethoxy]290yrrolidine-1-yl]furo[2,3-d]pyrimidin-6-yl]-1H-pyrimidine-2,4-dione;

[1-[6-(2,4-Dioxo-1H-pyrimidin-5-yl)furo[2,3-d]pyrimidin-4-yl]-4,4-difluoro-pyrrolidin-3-yl] morpholine-4-carboxylate;

[1-[6-(2,4-Dioxo-1H-pyrimidin-5-yl)furo[2,3-d]pyrimidin-4-yl]-4,4-difluoro-pyrrolidin-3-yl] 8-oxa-3-azabicyclo[3.2.1]octane-3-carboxylate;

[1-[6-(2,4-Dioxo-1H-pyrimidin-5-yl)furo[2,3-d]pyrimidin-4-yl]-4,4-difluoro-pyrrolidin-3-yl] N-isopropylcarbamate;

5-[4-(3,3-Difluoro-4,4-dimethyl-pyrrolidin-1-yl)-6-methyl-pyrazolo[3,4-d]pyrimidin-2-yl]-1H-pyrimidine-2,4-dione;

6-[1-[2-(2,4-Dioxo-1H-pyrimidin-5-yl)pyrazolo[3,4-d]pyrimidin-4-yl]290yrrolidine-3-yl]oxypyridine-3-carbonitrile;

5-[4-(3,3-Difluoro-4,4-dimethyl-pyrrolidin-1-yl)pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(8,8-Difluoro-6-azaspiro[3.4]octan-6-yl)pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(7,7-Difluoro-5-azaspiro[2.4]heptan-5-yl)pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-difluoro-4-methoxy-pyrrolidin-1-yl)pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(2-oxa-7-azaspiro[3.4]octan-7-yl)pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-difluoro-4-hydroxy-pyrrolidin-1-yl)pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3,3-difluoro-4-[(4-methylmorpholin-2-yl)methoxy]pyrrolidin-1-yl]pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3,3-difluoro-4-(2-morpholinoethoxy)pyrrolidin-1-yl]pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[7-chloro-4-(3,3-difluoro-4,4-dimethyl-pyrrolidin-1-yl)pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-difluoro-4,4-dimethyl-pyrrolidin-1-yl)-7-(trifluoromethyl)pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-difluoro-4,4-dimethyl-pyrrolidin-1-yl)-7-fluoro-pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-difluoro-4,4-dimethyl-pyrrolidin-1-yl)-7-methyl-pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-Difluoro-4,4-dimethyl-pyrrolidin-1-yl)-7-fluoro-pyrazolo[4,3-c]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(8,8-difluoro-6-azaspiro[3.4]octan-6-yl)-7-fluoro-pyrazolo[4,3-c]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-difluoro-4-methoxy-pyrrolidin-1-yl)-7-fluoro-pyrazolo[4,3-c]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-difluoro-4-hydroxy-pyrrolidin-1-yl)-7-fluoro-pyrazolo[4,3-c]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[7-fluoro-4-(2-oxa-7-azaspiro[3.4]octan-7-yl)pyrazolo[4,3-c]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(7,7-difluoro-5-azaspiro[2.4]heptan-5-yl)-7-fluoro-pyrazolo[4,3-c]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-[3,3-difluoro-4-[(4-methylmorpholin-2-yl)methoxy]pyrrolidin-1-yl]-7-fluoro-pyrazolo[4,3-c]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-Difluoro-4,4-dimethyl-pyrrolidin-1-yl)pyrazolo[4,3-c]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[7-chloro-4-(3,3-difluoro-4,4-dimethyl-pyrrolidin-1-yl)pyrazolo[4,3-c]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[7-chloro-4-(7,7-difluoro-5-azaspiro[2.4]heptan-5-yl)pyrazolo[4,3-c]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

5-[7-chloro-4-(8,8-difluoro-6-azaspiro[3.4]octan-6-yl)pyrazolo[4,3-c]pyridin-2-yl]-1H-pyrimidine-2,4-dione;

4-(3,3-difluoro-4,4-dimethyl-pyrrolidin-1-yl)-2-(2,4-dioxo-1H-pyrimidin-5-yl)pyrazolo[4,3-c]pyridine-7-carbonitrile;

5-[4-(3,3-difluoro-4,4-dimethyl-pyrrolidin-1-yl)pyrazolo[3,4-b]pyridine-2-yl]-1H-pyrimidine-2,4-dione;

5-[4-(3,3-difluoro-4,4-dimethyl-pyrrolidin-1-yl)pyrazolo[3,4-c]pyridine-2-yl]-1H-pyrimidine-2,4-dione;

5-4-(3,3-difluoro-4,4-dimethyl-pyrrolidin-1-yl)-7-iodo-pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[7-Chloro-4-(3,3-difluoro-4-hydroxy-pyrrolidin-1-yl)pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[7-Chloro-4-(3,3-difluoro-4-methoxy-pyrrolidin-1-yl)pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[7-Chloro-4-(3,3-difluoro-4,4-dimethyl-pyrrolidin-1-yl)-6-methyl-pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione;

5-[7-chloro-4-(3,3-dimethylpyrrolidin-1-yl)pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione; and

5-[4-(3,3-dimethylpyrrolidin-1-yl)-7-fluoro-pyrazolo[1,5-a]pyrazin-2-yl]-1H-pyrimidine-2,4-dione.

18. A pharmaceutical composition comprising a compound according to any one of claims 1 to 17, or a pharmaceutically acceptable salt thereof, in admixture with a pharmaceutically acceptable diluent or carrier.

19. A compound according to any one of claims 1 to 17, or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition according to claim 18, for use in therapy.

20. A compound according to any one of claims 1 to 17, or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition according to claim 18, for use:
(i) in the treatment of a proliferative condition;
(ii) in the treatment of cancer;
(iii) in the treatment of cancer, wherein the compound or pharmaceutical composition is to be administered in combination with one or more additional anticancer agents;
(iv) in the treatment of cancer, wherein the compound or pharmaceutical composition is to be administered in combination with one or more additional anticancer agents selected from the group consisting of:

1) other forms of cancer immunotherapy and anti-cancer chemotherapeutic agents;
2) A2b antagonists;
3) anti-PD-1 and PDL-1 antibodies (e.g. pembrolizumab, nivolumab, durvalumab, avelumab and atezolizumab); and
4) anti-CTLA4 antibodies (e.g ipilimumab).

21. Use of a compound according to any one of claims 1 to 17, or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition according to claim 18 in the manufacture of a medicament for treating a proliferative disorder in a patient in need of such treatment, wherein a therapeutically effective amount of the compound, or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition is to be administered.

22. Use of a compound according to any one of claims 1 to 17, or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition according to claim 18 in the manufacture of a medicament for treating cancer in a patient in need of such treatment, wherein a therapeutically effective amount of the compound, or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition is to be administered.

23. Use of a compound according to any one of claims 1 to 17, or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition according to claim 18 in the manufacture of a medicament for treating a proliferative disorder in a patient in need of such treatment, wherein a therapeutically effective amount of the compound, or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition is to be administered in combination with one or more additional anticancer agents.

24. The use according to claim 23, wherein the one or more additional anticancer agents is selected from:

1) other forms of cancer immunotherapy and anti-cancer chemotherapeutic agents;
2) A2b antagonists;
3) anti-PD-1 and PDL-1 antibodies (e.g. pembrolizumab, nivolumab, durvalumab, avelumab and atezolizumab); and
4) anti-CTLA4 antibodies (e.g ipilimumab).

25. Use of a compound according to any one of claims 1 to 17, or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition according to claim 18, in the manufacture of a medicament for

(i) the treatment of a proliferative condition;

(ii) the treatment of cancer;

(iii) the treatment of cancer, wherein the compound or pharmaceutical composition is to be administered in combination with one or more additional anticancer agents;

(iv) the treatment of cancer, wherein the compound or pharmaceutical composition is to be administered in combination with one or more additional anticancer agents selected from the

group consisting of:

1) other forms of cancer immunotherapy and anti-cancer chemotherapeutic agents;
2) A2b antagonists;
3) anti-PD-1 and PDL-1 antibodies (e.g. pembrolizumab, nivolumab, durvalumab, avelumab and atezolizumab); and
4) anti-CTLA4 antibodies (e.g ipilimumab).