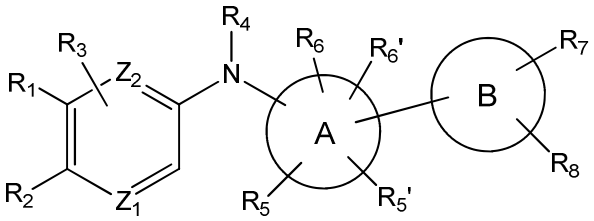
Claims

1. A compound of formula (I)



(I)

wherein

ring atoms Z_1 and Z_2 are C;

ring A is a non-aromatic 3-7 membered carbocyclic ring;

ring B is a 5-6 membered heterocyclic ring;

R_1 is halogen, CHF_2, CF_3, C_{1-7} alkyl or C_{1-7} alkoxy;

R_2 is cyano or nitro;

R_3 is H, halogen or C_{1-7} alkyl;

R_4 is C_{1-7} alkyl, C_{2-7} alkenyl, C_{3-7} cycloalkyl, C_{3-7} cycloalkyl C_{1-7} alkyl, hydroxy C_{1-7} alkyl, halo C_{1-7} alkyl, C_{1-7} alkoxy C_{1-7} alkyl, C_{1-7} alkylcarbonyl, or phenyl C_{1-7} alkyl, or when ring A is a non-aromatic 3-7 membered carbocyclic ring and ring B is an aromatic 5-6 membered heterocyclic ring, R_4 is C_{1-7} alkyl, C_{2-7} alkenyl, C_{3-7} cycloalkyl, C_{3-7} cycloalkyl C_{1-7} alkyl, hydroxy C_{1-7} alkyl, halo C_{1-7} alkyl, C_{1-7} alkoxy C_{1-7} alkyl, C_{1-7} alkylcarbonyl, phenyl C_{1-7} alkyl, or hydrogen;

R_5 is H, OH, C_{1-7} alkyl, C_{1-7} alkoxy, or hydroxy C_{1-7} alkyl;

R_5', R_6' and R_6 are, independently, H,OH, C_{1-7} alkyl or halogen;

or, when R_6' and R_6 are attached to the same carbon atom of ring A, R_6' and R_6 may, together with the carbon atom to which they are attached, form a C_{3-7} cycloalkyl ring;

R_7 is H, OH, cyano, halogen, C_{1-7} alkyl, C_{3-7} cycloalkyl, C_{1-7} alkoxy, hydroxy C_{1-7} alkyl, halo C_{1-7} alkyl, cyano C_{1-7} alkyl, halo C_{1-7} alkoxy, C_{1-7} alkoxy C_{1-7} alkyl, hydroxy C_{1-7} alkoxy C_{1-7} alkyl, C_{1-7} alkyl carbonyl C_{1-7} alkyl or -C_{1-7} alkyl-X-$(CH_2)_n$-R_9 or R_9;

R_8 is H or C_{1-7} alkyl;

R_9 is an optionally substituted 3-7 membered carbocyclic ring, an optionally substituted 4-6 membered heterocyclic ring, or $–NR_{10}R_{11}$;

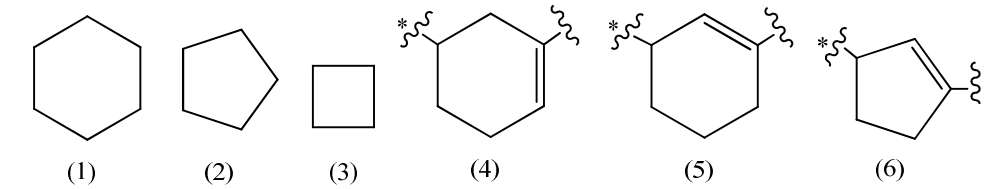
X is a bond, oxygen or -NH-;

n is 0,1,2 or 3;

R_{10} and R_{11} are, independently, H, C_{1-7} alkyl or C_{1-7} alkyl carbonyl;
or a pharmaceutically acceptable salt thereof.

2. The compound according to claim 1, wherein ring A is a cyclobutyl, cyclopentyl, cyclohexyl, cyclopentenyl, or cyclohexenyl.

3. The compound according to claim 1, wherein ring A is selected from the following groups wherein an asterisk denotes the point of attachment to the non-cyclic nitrogen atom of formula (I)



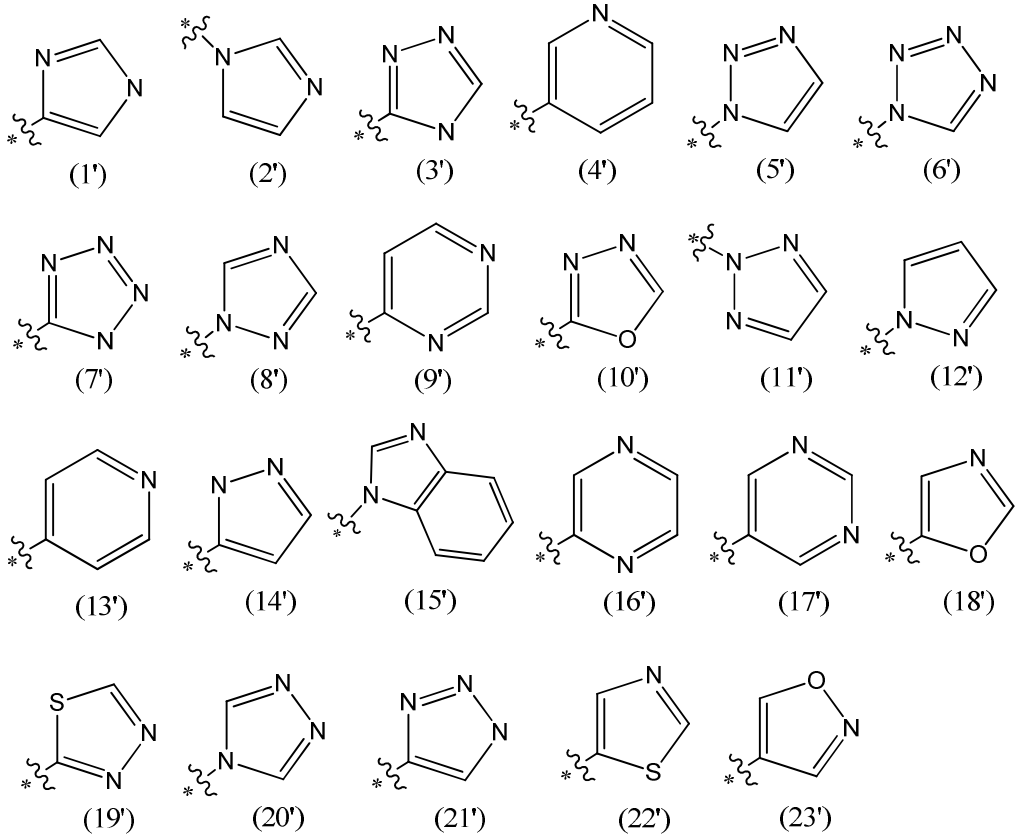
and wherein the ring is substituted by R_5, R_5', R_6 and R'_6.

4. The compound according to claim 1 wherein ring A is a cyclopentyl, cyclohexyl, cyclopentenyl or cyclohexenyl ring.

5. The compound according to claim 1, wherein ring B is a imidazolyl, 1,2,4-triazolyl, 1,2,3-triazolyl, pyridinyl, tetrazolyl, pyrimidinyl, 1,3,4-oxadiazolyl, pyrazolyl, pyrazinyl, 1,3,4-thiadiazolyl, oxazolyl, thiazolyl, or isoxazolyl ring.

6. The compound according to claim 1, wherein ring B is selected from the following groups or tautomers thereof wherein an asterisk denotes the point of

attachment to ring A



and wherein the ring is substituted by R_7 and R_8.

7. The compound according to claim 1, wherein ring B is a imidazolyl, pyridinyl, 1,2,4-triazolyl, 1,2,3-triazolyl, thiazolyl or oxazolyl ring.

8. The compound according to claim 1, wherein R_1 is CF_3 or chloro; R_2 is cyano; and R_3 is H, methyl or fluoro.

9. The compound according to claim 1, wherein R_4 is C_{1-7} alkyl, C_{2-7} alkenyl, C_{3-7} cycloalkyl or C_{3-7} cycloalkyl C_{1-7} alkyl.

10. The compound according to claim 9, wherein R_4 is C_{1-7} alkyl.

11. The compound according to claim 10, wherein R_4 is methyl or ethyl.

12. The compound according to claim 1, wherein R_5 and R_5' are, independently, H or C_{1-7} alkyl, and R_6 and R_6' are, independently, H or OH.

13. The compound according to claim 12, wherein R_5 and R_5' are, independently, H or methyl, and R_6 and R_6' are, independently, H or OH.

14. The compound according to claim 13, wherein R_5 and R_5' are methyl, and R_6 and R_6' are, independently, H or OH.

15. The compound according to claim 14, wherein R_5 and R_5' are attached to a same carbon atom of ring A.

16. The compound according to claim 1, wherein R_7 is H, halogen, C_{1-7} alkyl, C_{1-7} alkoxy, hydroxy C_{1-7} alkyl or C_{1-7} alkoxy C_{1-7} alkyl.

17. The compound according to claim 1, wherein R_9 is a imidazolyl, pyrazolyl, oxetanyl, thiazolyl, pyridinyl, phenyl or morpholinyl ring which may be substituted with one C_{1-7} alkyl or one C_{1-7} alkoxy group.

18. The compound according to claim 1, wherein the compound is

4-(Ethyl(3-(2-methyl-2*H*-tetrazol-5-yl)cyclohexyl)amino)-2-(trifluoromethyl)-benzonitrile;

4-((3-(1*H*-imidazol-1-yl)-6,6-dimethylcyclohex-2-en-1-yl)(ethyl)amino)-2-(trifluoromethyl)benzonitrile;

4-((3-(1*H*-imidazol-1-yl)cyclohexyl)(ethyl)amino)-2-chloro-3-methylbenzo-nitrile;

4-((3-(1,3,4-Oxadiazol-2-yl)cyclohexyl)(ethyl)amino)-2-(trifluoromethyl)-benzonitrile;

4-((3-(1*H*-imidazol-1-yl)-6,6-dimethylcyclohex-2-enyl)(ethyl)amino)-2-chlorobenzonitrile;

4-((3-(1*H*-imidazol-1-yl)-6,6-dimethylcyclohex-2-enyl)(ethyl)amino)-2-(di-fluoromethyl)benzonitrile;

4-((5-(1H-Imidazol-1-yl)-2,2-dimethylcyclohexyl)(ethyl)amino)-2-(trifluoro-methyl)benzonitrile;

4-((-3-(1H-Pyrazol-1-yl)cyclohexyl)(ethyl)amino)-2-(trifluoromethyl)benzo-nitrile;

4-(Ethyl(3-(1-isopropyl-1H-imidazol-5-yl)cyclopent-3-enyl)amino)-2-(tri-fluoromethyl)benzonitrile;

4-((3-(1-Cyclopropyl-1H-imidazol-5-yl)cyclopent-3-enyl)(ethyl)amino)-2-(trifluoromethyl)benzonitrile;

4-(Ethyl(3-(pyridin-4-yl)cyclohexyl)amino)-2-(trifluoromethyl)benzonitrile;

4-((3-(1H-imidazol-1-yl)cyclohex-2-en-1-yl)(ethyl)amino)-2-(trifluoromethyl)benzonitrile;

4-((3-(1*H*-imidazol-1-yl)cyclohexyl)(ethyl)amino)-2-(trifluoromethyl)benzonitrile;

2-Chloro-4-(ethyl(3-(pyridin-3-yl)cyclohexyl)amino)benzonitrile;

4-(Ethyl(3-(pyridin-4-yl)cyclohex-3-en-1-yl)amino)-2-(trifluoromethyl)benzonitrile;

2-Chloro-4-(ethyl(3-(5-methoxypyridin-3-yl)cyclohexyl)amino)benzonitrile;

4-(Ethyl(3-(3-methoxypyridin-4-yl)cyclohex-3-en-1-yl)amino)-2-(trifluoromethyl)benzonitrile;

4-((-3-(1*H*-imidazol-1-yl)cyclopentyl)(ethyl)amino)-2-(trifluoromethyl)benzonitrile;

4-((3-(1*H*-imidazol-1-yl)cyclohexyl)(ethyl)amino)-2-chlorobenzonitrile;

4-(Ethyl(3-(1-propyl-1*H*-imidazol-5-yl)cyclopent-3-en-1-yl)amino)-2-(trifluoromethyl)benzonitrile;

4-((4-(1*H*-imidazol-1-yl)spiro[2.5]oct-4-en-6-yl)(ethyl)amino)-2-(trifluoromethyl)benzonitrile;

4-{[3-(1H-Imidazol-1-yl)-6,6-dimethylcyclohex-2-enyl](methyl)amino}-2-(trifluoromethyl)benzonitrile;

2-Chloro-4-(ethyl(3-(pyridin-3-yl)cyclohex-3-en-1-yl)amino)-6-fluorobenzonitrile;

4-(ethyl(3-(1-ethyl-1H-imidazol-5-yl)cyclohex-3-en-1-yl)amino)-2-(trifluoromethyl)benzonitrile;

4-((3-(1H-1,2,4-triazol-1-yl)cyclohexyl)(ethyl)amino)-2-(trifluoromethyl)-benzonitrile;

4-((3-(1H-1,2,4-triazol-1-yl)cyclohex-2-en-1-yl)(ethyl)amino)-2-(trifluoromethyl)benzonitrile;

4-(Ethyl(3-hydroxy-3-(pyridin-3-yl)cyclohexyl)amino)-2-(trifluoromethyl)-benzonitrile;

4-((3-(1H-1,2,3-triazol-1-yl)cyclohexyl)(ethyl)amino)-2-(trifluoromethyl)-benzonitrile;

4-((Cyclopropylmethyl)(3-(1-ethyl-1*H*-imidazol-5-yl)cyclopent-3-en-1-yl)-amino)-2-(trifluoromethyl)benzonitrile;

2-Chloro-4-(ethyl(3-(1-ethyl-1H-imidazol-5-yl)cyclopent-3-en-1-yl)amino)-benzonitrile;

4-((3-(1*H*-imidazol-4-yl)-6,6-dimethylcyclohex-3-enyl)(methyl)amino)-2-chlorobenzonitrile;

4-((3-(1*H*-imidazol-1-yl)cyclohex-2-enyl)(methyl)amino)-2-(trifluoromethyl)-benzonitrile;

4-(-3-(1*H*-imidazol-1-yl)cyclohexyl)(ethyl)amino)-2,6-difluorobenzonitrile;

4-((5-(1H-Imidazol-1-yl)-2,2-dimethylcyclohexyl)(methyl)amino)-2-(trifluoromethyl)benzonitrile;

4-((2,2-dimethyl-3-(pyridin-3-yl)cyclohex-3-en-1-yl)(ethyl)amino)-2-(trifluoromethyl)benzonitrile;

4-((3-(1*H*-imidazol-4-yl)-2,2-dimethylcyclohex-3-en-1-yl)(ethyl)amino)-2-(trifluoromethyl)benzonitrile;

4-((3-(1*H*-Imidazol-4-yl)cyclopent-3-en-1-yl)(ethyl)amino)-2-chlorobenzonitrile;

4-((3-(1*H*-imidazol-4-yl)cyclopent-3-en-1-yl)(ethyl)amino)-2-(trifluoromethyl)benzonitrile;

4-((3-(1*H*-imidazol-5-yl)cyclopentyl)(ethyl)amino)-2-(trifluoromethyl)-benzonitrile;

4-((3-(1-(2-(benzyloxy)ethyl)-1*H*-imidazol-5-yl)-6,6-dimethylcyclohex-2-en-1-yl)(methyl)amino)-2-(trifluoromethyl)benzonitrile;

4-((3-(1H-imidazol-5-yl)cyclohexyl)(ethyl)amino)-2-(trifluoromethyl)benzonitrile;

4-((6,6-Dimethyl-3-(oxazol-5-yl)cyclohex-2-en-1-yl)(methyl)amino)-2-(trifluoromethyl)benzonitrile;

2-Chloro-4-((6,6-dimethyl-3-(oxazol-5-yl)cyclohex-2-en-1-yl)amino)-benzonitrile;

2-Chloro-4-{[4-hydroxy-3-(1H-imidazol-1-yl)-6,6-dimethylcyclohex-2-enyl]-(methyl)amino}benzonitrile;

4-((3-(1*H*-imidazol-1-yl)-6,6-dimethylcyclohex-2-en-1-yl)(methyl)amino)-2-bromobenzonitrile;

4-((3-(1-ethyl-1*H*-imidazol-5-yl)cyclopent-3-en-1-yl)(2-methoxyethyl)-amino)-2-(trifluoromethyl)benzonitrile;

Cis-4-((4-hydroxy-3-(1H-imidazol-1-yl)-6,6-dimethylcyclohex-2-enyl)-(methyl)amino)-2-(trifluoromethyl)benzonitrile;

4-{[3-(1H-Imidazol-1-yl)-6,6-dimethylcyclohex-2-enyl](methyl)amino}-2-methoxybenzonitrile;

4-(((*1R,4S*)-4-hydroxy-3-(1*H*-imidazol-1-yl)-6,6-dimethylcyclohex-2-en-1-yl)(methyl)-amino)-2-(trifluoromethyl)benzonitrile;

4-((3-(1*H*-imidazol-1-yl)-2,2-dimethylcyclopent-3-en-1-yl)(ethyl)amino)-2-(trifluoromethyl)benzonitrile;

4-{[2-Hydroxy-3-(1H-imidazol-4-yl)-6,6-dimethylcyclohex-3-enyl](methyl)-amino}-2-(trifluoromethyl)benzonitrile;

or a tautomer thereof or a pharmaceutically acceptable salt thereof.

19. A pharmaceutical composition comprising a compound according to claim 1 and a pharmaceutically acceptable carrier.