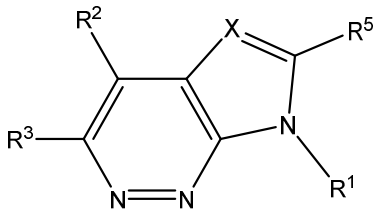
WHAT IS CLAIMED IS:

1. A compound of structural formula I:




I

or a pharmaceutically acceptable salt thereof, wherein

X is =N-;

$R^1$ is selected from the group:

(1) bicyclo[3.1.1]heptane,

(2) piperidine,

(3) 8-azabicyclo[3.2.1]octane, and

(4) octahydroindolizine,

wherein $R^1$ is unsubstituted or substituted with one to six substituents selected from $R^a$;

$R^2$ is $-CH_3$;

$R^3$ is phenyl, unsubstituted or substituted with one to five substituents selected from $R^c$;

$R^5$ is hydrogen or $-C_{1-6}$alkyl,

wherein each alkyl is unsubstituted or substituted with one to five substituents selected from $R^e$;

each $R^a$ is independently selected from the group:

(1) CN,

(2) oxo,

(3) -OH,

(4) halogen,

(5) -$C_{1-6}$alkyl,

(6) -$C_{1-6}$alkyl-OH,

(7) -O-$C_{1-6}$alkyl,

(8) -$C_{3-6}$cycloalkyl,

(9) –$C_{1-6}$alkyl-$C_{3-6}$cycloalkyl,

(10) –$(CH_2)_p$-$S(O)_r$$R^f$, and

(11) -$N(Rg)_2$,

wherein each $CH_2$, alkyl, and cycloalkyl is independently unsubstituted or substituted with one to six substituents selected from halogen, $CF_3$, OH, $C_{1-6}$alkyl, and -$OC_{1-6}$alkyl;

each $R^c$ is independently selected from the group:

(1) -OH,

(2) Cl,

(3) F,

(4) -$CH_3$,

(5) -$CF_3$,

(6) -$OCHF_2$,

(7) cyclopropyl, and

(8) $NH_2$;

each $R^e$ is independently selected from the group:

(1) hydrogen**,**

(2) OH,

(3) halogen, and

(4) -$C_{1-6}$alkyl;

each $R^f$ is independently selected from the group:

(1) hydrogen,

(2) -$C_{1-6}$alkyl,

(3) -$C_{3-6}$cycloalkyl, and

(4) -$C_{2-6}$cycloheteroalkyl;

each $R^g$ is independently selected from the group:

(1) hydrogen,

(2) -$C_{1-6}$alkyl,

(3) -$C_{3-6}$cycloalkyl,

(4) -$C_{2-6}$cycloheteroalkyl,

(5) aryl,

(6) heteroaryl,

(7) -C(O)$C_{1-6}$alkyl, and

(8) -$S(O)_rR^f$,

wherein alkyl can be unsubstituted or substituted with one to three substituents selected from: $CF_3$, halogen, OH and -$OC_{1-6}$alkyl;

p is 0, 1, 2, 3, 4, 5 or 6; and

r is 1 or 2.

2. The compound according to Claim 1 wherein

$R^5$ is hydrogen;

or a pharmaceutically acceptable salt thereof.

3. The compound according to Claim 1 wherein

$R^1$ is bicyclo[3.1.1]heptane, wherein bicyclo[3.1.1]heptane is unsubstituted or substituted with one to six substituents selected from $R^a$;
or a pharmaceutically acceptable salt thereof.

4. The compound according to Claim 1 wherein

$R^1$ is 8-azabicyclo[3.2.1]octane, wherein $R^1$ is unsubstituted or substituted with one to six substituents selected from $R^a$;
or a pharmaceutically acceptable salt thereof.

5. A compound selected from:

(1) (*R*)-2-(4-methyl-7-(piperidin-3-yl)-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;

(2) (3*S*,4*R*)-3-(3-(2-hydroxy-4-(trifluoromethyl)phenyl)-4-methyl-7*H*-imidazo[4,5-*c*]pyridazin-7-yl)piperidin-4-ol;

(3) (*R*)-2-(7-(1-ethylpiperidin-3-yl)-4-methyl-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;

(4) (*R*)-3-(2-(difluoromethoxy)-4-(trifluoromethyl)phenyl)-7-(1-ethylpiperidin-3-yl)-4-methyl-7*H*-imidazo[4,5-*c*]pyridazine;

(5) (3*S*,4*R*)-3-(3-(2-hydroxy-4-(trifluoro-methyl)phenyl)-4-methyl-7*H*-imidazo[4,5-*c*]pyridazin-7-yl)-1-methylpiperidin-4-ol; and

(6) (3*S*,4*R*)-1-ethyl-3-(3-(2-hydroxy-4-(trifluoro-methyl)phenyl)-4-methyl-7*H*-imidazo[4,5-*c*]pyridazin-7-yl)piperidin-4-ol;

(7) (*R*)-5-chloro-2-(4-methyl-7-(piperidin-3-yl)-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)phenol;

(8) (*R*)-2-(4,6-dimethyl-7-(1-methylpiperidin-3-yl)-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol; and

(9) (*R*)-5-chloro-2-(7-(1-ethylpiperidin-3-yl)-4-methyl-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)phenol;

or a pharmaceutically acceptable salt thereof.

6. A compound selected from:

1) (*R*)-2-(7-(1-ethylpiperidin-3-yl)-7*H*-pyrrolo[2,3-*c*]pyridazin-3-yl)-3-methyl-5-(trifluoromethyl)phenol;

2) (*R*)-2-(7-(1-ethylpiperidin-3-yl)-4-methyl-7*H*-pyrrolo[2,3-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;

3) (*R*)-2-(7-(1-ethylpiperidin-3-yl)-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-3-methyl-5-(trifluoromethyl)phenol;

4) (*R*)-2-(7-(1-methylpiperidin-3-yl)-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;

5) (*S*)-2-(7-(1-methylpiperidin-3-yl)-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;

6) (*R*)-5-(4-methyl-7-(1-methylpiperidin-3-yl)-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)benzo[*b*]thiophen-4-ol;

7) (*R*)-5-(4-methyl-7-(1-methylpiperidin-3-yl)-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-2,3-dihydro-1*H*-inden-4-ol;

8) (*R*)-5-(4-methyl-7-(piperidin-3-yl)-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-2,3-dihydro-1*H*-inden-4-ol; and

9) (*R*)-2,2-difluoro-5-(4-methyl-7-(1-methylpiperidin-3-yl)-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-2,3-dihydro-1*H*-inden-4-ol;

or a pharmaceutically acceptable salt thereof.

7. A compound selected from:

1) (*R*)-2-fluoro-3-methyl-6-(4-methyl-7-(1-methylpiperidin-3-yl)-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)phenol;

2) (*R*)-2-(7-(1-isopropylpiperidin-3-yl)-4-methyl-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;

3) (*R*)-2-(7-(1-cyclobutylpiperidin-3-yl)-4-methyl-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;

4) 2-(7-((1*R*,2*R*,5*S*)-8-azabicyclo[3.2.1]octan-2-yl)-4-methyl-7*H*-imidazo-[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;

5) 2-(7-((1*S*,2*S*,5*R*)-8-azabicyclo[3.2.1]octan-2-yl)-4-methyl-7*H*-imidazo-[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;

6) (*R*)-3-cyclopropyl-2-fluoro-6-(4-methyl-7-(1-methylpiperidin-3-yl)-7*H*-imidazo-[4,5-*c*]pyridazin-3-yl)phenol;

7) 2-(4-methyl-7-((1*S*,2*S*,5*R*)-8-methyl-8-azabicyclo[3.2.1]octan-2-yl)-7*H*-imidazo-[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;

8) 2-(4-methyl-7-((1*R*,2*R*,5*S*)-8-methyl-8-azabicyclo[3.2.1]octan-2-yl)-7*H*-imidazo-

[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;

9) 2-(7-((1*R*,2R,5*S*)-8-ethyl-8-aza-bicyclo[3.2.1]octan-2-yl)-4-methyl-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-5-(trifluoro-methyl)phenol;

10) 2-(7-((1*S*,2*S*,5*R*)-8-ethyl-8-aza-bicyclo[3.2.1]octan-2-yl)-4-methyl-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-5-(trifluoro-methyl)phenol;

11) 2-(7-(5-aminobicyclo[3.1.1]heptan-1-yl)-4-methyl-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;

12) 2-(4-methyl-7-((8*S*,8a*R*)-octa-hydroindolizin-8-yl)-7*H*-imidazo-[4,5-*c*]pyridazin-3-yl)-5-(trifluoro-methyl)phenol; and

13) 2-(4-meth`yl-7-((8*R*,8a*S*)-octahydroindolizin-8-yl)-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;

or a pharmaceutically acceptable salt thereof.

8. A compound which is:
(*R*)-2-(4-methyl-7-(piperidin-3-yl)-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;
or a pharmaceutically acceptable salt thereof.

9. A compound which is:
2-(7-((1*R*,2*R*,5*S*)-8-azabicyclo[3.2.1]octan-2-yl)-4-methyl-7*H*-imidazo-[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;
or a pharmaceutically acceptable salt thereof.

10. A compound which is:
2-(7-((1*S*,2*S*,5*R*)-8-azabicyclo[3.2.1]octan-2-yl)-4-methyl-7*H*-imidazo-[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;
or a pharmaceutically acceptable salt thereof.

11. A compound which is:
2-(4-methyl-7-((1*S*,2*S*,5*R*)-8-methyl-8-azabicyclo[3.2.1]octan-2-yl)-7*H*-imidazo-[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;
or a pharmaceutically acceptable salt thereof.

12. A compound which is:

2-(4-methyl-7-((1*R*,2*R*,5*S*)-8-methyl-8-azabicyclo[3.2.1]octan-2-yl)-7*H*-imidazo-[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;
or a pharmaceutically acceptable salt thereof.

13. A compound which is:
2-(7-(5-aminobicyclo[3.1.1]heptan-1-yl)-4-methyl-7*H*-imidazo[4,5-*c*]pyridazin-3-yl)-5-(trifluoromethyl)phenol;
or a pharmaceutically acceptable salt thereof.

14. A pharmaceutical composition comprising a compound of any one of Claims 1 to 13, or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier.

15. The use of a compound according to any one of Claims 1 to 13, or a pharmaceutically acceptable salt thereof, in the preparation of a medicament useful for the treatment of a disorder, condition, or disease that is responsive to the inhibition of NLRP3 in a mammal in need thereof.

16. The use of a compound of any one of Claims 1 to 13, or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for the treatment, prevention or control of an inflammatory disorder, a fibrotic disorder, a cardiovascular disorder, a metabolic disorder or a neurodegenerative disorder.

17. The use of Claim 16 wherein the disorder is an inflammatory disorder.

18. The use of Claim 17 wherein the inflammatory disorder is selected from: an auto-immune disorder, an auto-inflammatory disorder, an inflammatory joint disorder, an inflammatory skin disorder, and a neuroinflammatory disorder.

19. The use of Claim 15 wherein the disorder is selected from: atherosclerosis, non-alcoholic steatohepatitis, Alzheimer‘s disease and Parkinson’s disease.

20. A compound according to any one of Claims 1 to 13, or a pharmaceutically acceptable salt thereof, for use in therapy.