R^1 is H, CF_3, CH_3, OCH_3, F or Cl;

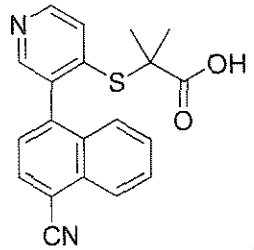
R^2 is H, methyl, ethyl, propyl, isopropyl, *tert*-butyl, cyclopropyl, cyclobutyl, CF_3, OH, OCH_3, ethoxy, SH, SCH_3, SCH_2CH_3, CH_2OH, $C(CH_3)_2OH$, Cl, F, CN, COOH, $COOR^{2'}$, $CONH_2$, $CONHR^{2'}$ or SO_2NH_2; wherein $R^{2'}$ is H or C_{1-3} alkyl;

R^3 is H, halogen, -CN, C_1 to C_6 alkyl, C_1 to C_6 alkoxy; and

R^4 is H, halogen, -CN, C_1 to C_6 alkyl, C_1 to C_6 alkoxy; or

R^3 and R^4 together with the carbon atoms to which they are attached form an optionally substituted 5- or 6-membered ring, optionally containing one or two heteroatoms selected from O, N and S, wherein said 5- or 6-membered ring maybe a saturated, an unsaturated or an aromatic ring;

[003a] Provided in some embodiments is a compound of formula:



, or a pharmaceutically acceptable salt thereof.

[003b] Provided in some embodiments is the use of a compound as described herein, or a pharmaceutically acceptable salt thereof, or as described herein, in the manufacture of a medicament.

[003c] Provided in some embodiments is the use of a compound as described herein, or a pharmaceutically acceptable salt thereof, or as described herein, in the manufacture of a medicament for reducing serum uric acid levels in a human.

[003d] Provided in some embodiments is the use of a compound as described herein, or a pharmaceutically acceptable salt thereof, or as described herein, in the manufacture of a medicament for treating hyperuricemia in a human.

[003e] Provided in some embodiments is the use of a compound as described herein, or a pharmaceutically acceptable salt thereof, or as described herein, in the manufacture of a medicament for treating hyperuricemia in a human with gout.

[003f] Provided in some embodiments is the use of a compound as described herein, or a pharmaceutically acceptable salt thereof, or as described herein, in the manufacture of a medicament for treating gout in a human.

[003g] Provided in some embodiments is a pharmaceutical composition comprising a compound as described herein, or a pharmaceutically acceptable salt thereof, or as described herein, and a pharmaceutically acceptable carrier.

[004] In specific instances:

(i) if X^2 and X^4 are both N, then X^1 cannot be C(halogen); or

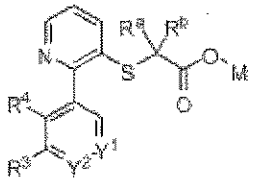
if X^2 and X^4 are both N, then R^4 cannot be Cl; or

if X^2 and X^4 are both N, then Y^2 cannot be C-Cl;

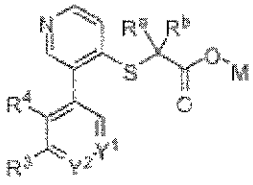
(ii) if X^1 and X^2 are both N, then X^3 cannot be C-Cl; and

(iii) the compound of formula (I) is not 1-(3-(4-cyanophenyl)pyridin-4-ylthio)cyclopropanecarboxylic acid.

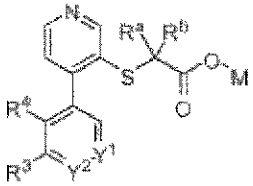
[005] Provided in certain embodiments, is a compound of formula (I), wherein one of X^1, X^2, X^3 or X^4 is N. Certain specific embodiments provided herein describe a compound of formula (I-A), (I-B), (I-C) or (I-D):



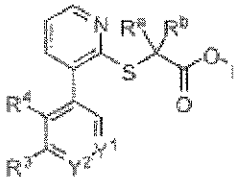
(I-A)



(I-B)

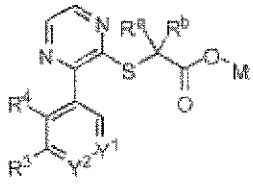


(I-C)

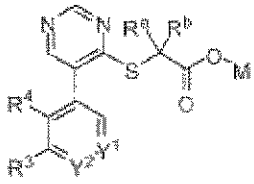


(I-D).

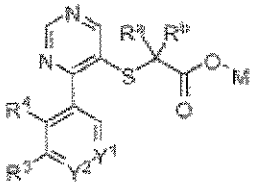
[006] Provided in some embodiments, is a compound of formula (I), wherein two of X^1, X^2, X^3 or X^4 are N. Certain specific embodiments provided herein describe a compound of formula (I-E), (I-F) or (I-G):



(I-E)



(I-F)



(I-G).

9. A pharmaceutical composition comprising a compound according to claim 1, or a pharmaceutically acceptable salt thereof, or claim 2, and a pharmaceutically acceptable carrier.

~~10. A pharmaceutical composition comprising a compound according to claim 1, or a pharmaceutically acceptable salt thereof, or claim 2, together with a xanthine oxidase inhibitor and a pharmaceutically acceptable carrier.~~

~~11. The pharmaceutical composition according to claim 10, wherein the xanthine oxidase inhibitor is allopurinol.~~

~~12. The pharmaceutical composition according to claim 10, wherein the xanthine oxidase inhibitor is febuxostat.~~