NOVEL COMPOUNDS AND COMPOSITIONS AND METHODS OF USE

RELATED APPLICATIONS

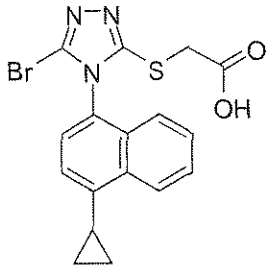
[0001] This application claims benefit of U.S. Provisional Application No. 60/990,574, entitled "NOVEL COMPOSITIONS AND METHODS OF USING THEM" filed on November 27, 2007, and U.S. Provisional Application No. 61/094,388, entitled "COMPOUNDS, COMPOSITIONS, AND METHODS OF USING SAME" filed on September 04, 2008, which are herein incorporated by reference in their entirety.

BACKGROUND OF THE INVENTION

[0002] Uric acid is the result of the oxidation of xanthine. Disorders of uric acid metabolism include, but are not limited to, polycythemia, myeloid metaplasia, gout, a recurrent gout attack, gouty arthritis, hyperuricaemia, hypertension, a cardiovascular disease, coronary heart disease, Lesch-Nyhan syndrome, Kelley-Seegmiller syndrome, kidney disease, kidney stones, kidney failure, joint inflammation, arthritis, urolithiasis, plumbism, hyperparathyroidism, psoriasis or sarcoidosis.

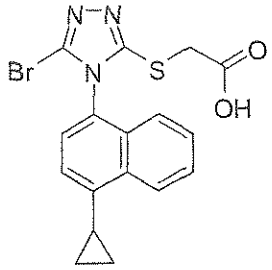
SUMMARY OF THE INVENTION

[0002a] The invention provides the use of a compound in the manufacture of a medicament for the treatment of hyperuricemia, wherein the compound has the structure:



or a pharmaceutically acceptable salt, or tautomer thereof.

[0002b] The invention provides the use of a compound in the manufacture of a medicament for reducing serum uric acid levels, wherein the compound has the structure:



or a pharmaceutically acceptable salt, or tautomer thereof.

[0003] This invention provides for methods of decreasing uric acid levels in one or more tissues or organs, blood, serum, urine, or combinations thereof, of an individual in need of decreased uric acid levels, comprising administering to the individual a uric acid level decreasing amount of a compound of formula (I), formula (II), or formula (III) or a metabolite, pharmaceutically acceptable salt, solvate, polymorph, ester, tautomer or prodrug thereof.

[0004] This invention also provides for methods of reducing uric acid production, increasing uric acid excretion or both in an individual, comprising administering to the individual a compound of formula (I), formula (II), or formula (III) or a metabolite, pharmaceutically acceptable salt, solvate, polymorph, ester, tautomer or prodrug thereof.

[0005] This invention also provides for methods of treating an individual suffering from a condition characterized by abnormal tissue levels of uric acid comprising administering to the individual an effective amount of a compound of formula (I), formula (II), or formula (III) or a metabolite, pharmaceutically acceptable salt, solvate, polymorph, ester, tautomer or prodrug thereof. In some embodiments, the condition is characterized by low tissue levels of uric acid. In further or additional embodiments, the condition is characterized by high tissue levels of uric acid. In further or additional embodiments, the disorder is characterized by overproduction of uric acid, low excretion of uric acid, tumor lysis, a blood disorder or a combination thereof. In further or additional embodiments, the blood disorder is polycythemia or myeloid metaplasia. In further or additional embodiments, the individual in need of decreased serum uric acid levels is suffering from gout, a recurrent gout attack, gouty arthritis, hyperuricaemia, hypertension, a cardiovascular disease, coronary heart disease, Lesch-Nyhan syndrome, Kelley-Seegmiller syndrome, kidney disease, kidney stones, kidney failure, joint inflammation, arthritis, urolithiasis, plumbism,