Statements of invention

1. A salt selected from:

(R)-3-(4-(7H-pyrrolo[2,3-d]pyrimidin-4-yl)-1H-pyrazol-1-yl)-3-cyclopentylpropanenitrile maleic acid salt;

(R)-3-(4-(7H-pyrrolo[2,3-d]pyrimidin-4-yl)-1H-pyrazol-1-yl)-3-cyclopentylpropanenitrile sulfuric acid salt; and

(R)-3-(4-(7H-pyrrolo[2,3-d]pyrimidin-4-yl)-1H-pyrazol-1-yl)-3-cyclopentylpropanenitrile phosphoric acid salt.

2. The salt of claim 1 that is (R)-3-(4-(7H-pyrrolo[2,3-d]pyrimidin-4-yl)-1H-pyrazol-1-yl)-3-cyclopentylpropanenitrile maleic acid salt.

3. The salt of claim 1 that is (R)-3-(4-(7H-pyrrolo[2,3-d]pyrimidin-4-yl)-1H-pyrazol-1-yl)-3-cyclopentylpropanenitrile sulfuric acid salt.

4. The salt of claim 1 that is (R)-3-(4-(7H-pyrrolo[2,3-d]pyrimidin-4-yl)-1H-pyrazol-1-yl)-3-cyclopentylpropanenitrile phosphoric acid salt.

5. The salt of claim 1 that is substantially isolated.

6. A method of preparing a salt of any one of claims 1 to 5 comprising combining (R)-3-(4-(7H-pyrrolo[2,3-d]pyrimidin-4-yl)-1H-pyrazol-1-yl)-3-cyclopentylpropanenitrile with maleic acid, sulfuric acid, or phorphoric acid.

7. A composition comprising at least one salt of any one of claims 1 to 5 and at least one pharmaceutically acceptable carrier.

8. The composition of claim 7 which is suitable for oral or topical administration.

9. The composition of claim 7 which is suitable for topical administration.

10. A method of modulating an activity of JAK comprising contacting JAK with a salt of any one of claims 1 to 5.

11. The method of claim 10 wherein said modulating is inhibiting.

12. A method of treating a disease in a patient wherein said disease is associated with JAK activity, comprising administering to said patient a therapeutically effective amount of a salt of any one of claims 1 to 5.

13. The method of claim 12 wherein said disease is allograft rejection or graft versus host disease.

14. The method of claim 12 wherein said disease is an autoimmune disease.

15. The method of claim 14 wherein said autoimmune disease is a skin disorder, multiple sclerosis, rheumatoid arthritis, juvenile arthritis, type I diabetes, lupus, inflammatory bowel disease, Crohn's disease, myasthenia gravis, immunoglobulin nephropathies, myocarditis, or autoimmune thyroid disorder.

16. The method of claim 12 wherein said autoimmune disease is bullous skin disorder.

17. The method of claim 16 wherein said bullous skin disorder is pemphigus vulgaris (PV) or bullous pemphigoid (BP).

18. The method of claim 12 wherein said disease is a skin disorder.

19. The method of claim 18 wherein said skin disorder is atopic dermatitis, psoriasis, skin sensitization, skin irritation, skin rash, contact dermatitis or allergic contact sensitization.

20. The method of claim 12 wherein said disease is a viral disease.

21. The method of claim 20 wherein said viral disease is Epstein Barr Virus (EBV), Hepatitis B, Hepatitis C, HIV, HTLV 1, Varicella-Zoster Virus (VZV) or Human Papilloma Virus (HPV).

22. The method of claim 12 wherein said disease is cancer.

23. The method of claim 22 wherein said cancer is a solid tumor

24. The method of claim 22 wherein said cancer is prostate cancer, renal cancer, hepatic cancer, breast cancer, lung cancer, thyroid cancer, Kaposi's sarcoma, Castleman's disease or pancreatic cancer.

25. The method of claim 24 wherein said cancer is prostate cancer.

26. The method of claim 22 wherein said cancer is hematological.

27. The method of claim 26 wherein said cancer is lymphoma, leukemia, or multiple myeloma.

28. The method of claim 22 wherein said cancer is a skin cancer.

29. The method of claim 28 wherein said skin cancer is cutaneous T-cell lymphoma or cutaneous B-cell lymphoma.

30. The method of claim 22 wherein said cancer is multiple myeloma.

31. The method of claim 12 wherein said disease is characterized by a mutant JAK2.

32. The method of claim 31 wherein at least one mutation of said mutant JAK2 resides in the pseudo-kinase domain of said JAK2.

33. The method of claim 12 wherein said disease is a myeloproliferative disorder.

34. The method of claim 33 wherein said myeloproliferative disorder (MPD) is polycythemia vera (PV), essential thrombocythemia (ET), myeloid metaplasia with myelofibrosis (MMM), chronic myelogenous leukemia (CML), chronic myelomonocytic leukemia (CMML), hypereosinophilic syndrome (HES), or systemic mast cell disease (SMCD).

35. The method of claim 12 wherein said disease is an inflammatory disease.

36. The method of claim 35 wherein said disease is an inflammatory disease of the eye.

37. The method of claim 36 wherein said disease is iritis, uveitis, scleritis, or conjunctivitis.

38. The method of claim 35 wherein said disease is an inflammatory disease of the respiratory tract.

39. The method of claim 35 wherein said inflammatory disease concerns the upper respiratory tract.

40. The method of claim 35 wherein said inflammatory disease concerns the lower respiratory tract.

41. The method of claim 35 wherein said inflammatory disease is an inflammatory myopathy.

42. The method of claim 35 wherein said inflammatory disease is myocarditis.

43. The method of claim 12 wherein said disease is ischemia reperfusion or related to an ischemic event.

44. The method of claim 12 wherein said disease is anorexia or cachexia resulting from or associated with cancer.

45. The method of claim 12 wherein said disease is fatigue resulting from or associated with cancer.

46. A method of treating cancer in a patient, comprising administering to said patient a therapeutically effective amount of a salt of any one of claims 1 to 5.

47. A method of treating a skin disorder in a patient comprising topically administering to said patient a therapeutically effective amount of a salt of any one of claims 1 to 5.

48. A method of treating inflammation in a patient comprising topically administering to said patient a therapeutically effective amount of a salt of any one of claims 1 to 5.

49. A method of treating rheumatoid arthritis in a patient comprising administering to said patient a therapeutically effective amount of a compound of any one of claims 1 to 5, or pharmaceutically acceptable salt thereof.

50. A method of treating prostate cancer in a patient comprising administering to said patient a therapeutically effective amount of a compound of any one of claims 1 to 5, or pharmaceutically acceptable salt thereof.

51. A method of treating psoriasis in a patient comprising administering to said patient a therapeutically effective amount of a compound of any one of claims 1 to 5, or pharmaceutically acceptable salt thereof.

52. A method of treating multiple myeloma in a patient comprising administering to said patient a therapeutically effective amount of a compound of any one of claims 1 to 5, or pharmaceutically acceptable salt thereof.

53. A method of treating myeloid metaplasia with myelofibrosis (MMM) in a patient comprising administering to said patient a therapeutically effective amount of a compound of any one of claims 1 to 5, or pharmaceutically acceptable salt thereof.

54. A method of treating polycythemia vera (PV) in a patient comprising administering to said patient a therapeutically effective amount of a compound of any one of claims 1 to 5, or pharmaceutically acceptable salt thereof.

55. A method of treating essential thrombocythemia (ET) in a patient comprising administering to said patient a therapeutically effective amount of a compound of any one of claims 1 to 5, or pharmaceutically acceptable salt thereof.

56. A method of treating mycosis fungoides in a patient comprising administering to said patient a therapeutically effective amount of a compound of any one of claims 1 to 5, or pharmaceutically acceptable salt thereof.

57. A method of treating a hematological cancer in a patient comprising administering to said patient a therapeutically effective amount of a compound of any one of claims 1 to 5, or pharmaceutically acceptable salt thereof.

58. A method of treating chronic myelogenous leukemia (CML) in a patient comprising administering to said patient a therapeutically effective amount of a compound of any one of claims 1 to 5, or pharmaceutically acceptable salt thereof.

59. A method of treating acute lymphoblastic leukemia (ALL) in a patient comprising administering to said patient a therapeutically effective amount of a compound of any one of claims 1 to 5, or pharmaceutically acceptable salt thereof.

60. A method of treating chronic myelomonocytic leukemia (CMML) in a patient comprising administering to said patient a therapeutically effective amount of a compound of any one of claims 1 to 5, or pharmaceutically acceptable salt thereof

CLAIMS:

1. An oncogenic protein kinase.