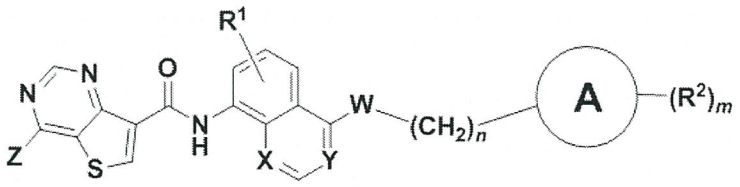
WHAT IS CLAIMED IS:

1. A thieno[3,2-d]pyrimidine derivative of formula (I) or a pharmaceutically acceptable salt thereof:



(I)

wherein,

A is hydrogen, C_{1-6} alkyl, C_{3-6} cycloalkyl, 3- to 6-membered heterocycloalkyl, C_{6-10} aryl or 5- to 10-membered heteroaryl, wherein said aryl or heteroaryl is optionally reduced or substituted with hydrogen;

W is O, S, S(O), $S(O)_2$, NH, -NHNH- or 3- to 6-membered heterocycloalkyl;

X and Y are each independently CH or N;

Z is hydrogen, C_{1-3} alkyl or NR^3R^4, wherein said R^3 and R^4 are each independently hydrogen, C_{1-6} alkyl or -(CH_2)q-B-, B representing NR^5R^6, C_{1-6} alkoxy, C_{3-6} cycloalkyl or 3- to 6-membered heterocycloalkyl;

R^1 is hydrogen, halogen, C_{1-3} alkyl or C_{1-3} alkoxy, wherein said alkyl or alkoxy is unsubstituted or substituted with one or more halogen atoms;

R^2 is hydrogen, halogen, $-CF_3$, $-NO_2$, -OH, -CN, C_{1-6} alkoxy, C_{1-6} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, $-NR^7R^8$, $-NHSO_2R^9$, $-SO_2R^{10}$, $-C(O)R^{11}$, $-NHC(O)R^{12}$, $-NHC(O)OR^{13}$, $-S(O)R^{14}$, C_{3-6} cycloalkyl, 5- to 10-membered heterocycloalkyl, C_{6-10} aryl, C_{6-10} aryloxy, 5- to 10-membered heteroaryl or 3- to 6-membered heteroaryloxy, wherein said R^2 is connected to A by -(CH_2)p- or substituted with C_{1-4} alkyl, C_{2-4}alkynyl, C_{1-4} alkylcarbonyl or one or more halogen atoms;

R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11}, R^{12}, R^{13} and R^{14} are each independently hydrogen, $-NH_2$, C_{1-6} alkyl, C_{1-6} alkoxy, C_{3-6} cycloalkyl or 3-to 6-membered heterocycloalkyl, said alkyl, alkoxy, cycloalkyl or heterocycloalkyl being unsubstituted or substituted with one or more

halogen atoms;

q is an integer ranging from 0 to 3;

p is an integer ranging from 0 to 3;

m is an integer ranging from 0 to 5;

n is an integer ranging from 0 to 2; and

when A is hydrogen, m is 0.

2. The thieno[3,2-d]pyrimidine derivative or its pharmaceutically acceptable salt of claim 1, wherein A is C_{6-10} aryl or 5- to 10-membered heteroaryl.

3. The thieno[3,2-d]pyrimidine derivative or its pharmaceutically acceptable salt of claim 1, wherein W is NH.

4. The thieno[3,2-d]pyrimidine derivative or its pharmaceutically acceptable salt of claim 1, wherein Z is NR^3R^4.

5. The thieno[3,2-d]pyrimidine derivative or its pharmaceutically acceptable salt of claim 1, wherein X is CH and Y is N.

6. The thieno[3,2-d]pyrimidine derivative or its pharmaceutically acceptable salt of claim 1, which is selected from the group consisting of:

1) 4-amino-N-(1-((4-chlorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

2) 4-amino-N-(6-methyl-1-((3-(trifluoromethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

3) N-(1-((4-chlorophenyl)amino)-6-methylisoquinolin-5-yl)-4-(cyclopropylamino)thieno[3,2-d]pyrimidine-7-carboxamide;

4) 4-(cyclopropylamino)-N-(6-methyl-1-((3-(trifluoromethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

5) 4-amino-N-(6-methyl-1-((3-(4-methyl-1H-imidazol-1-yl)-5-

(trifluoromethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

6) 4-(cyclopropylamino)-N-(6-methyl-1-((3-(4-methyl-1H-imidazol-1-yl)-5-(trifluoromethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

7) 4-amino-N-(1-((4-((4-ethylpiperazin-1-yl)methyl)-3-(trifluoromethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

8) 4-(cyclopropylamino)-N-(1-((4-((4-ethylpiperazin-1-yl)methyl)-3-(trifluoromethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

9) N-(1-((4-((4-ethylpiperazin-1-yl)methyl)-3-(trifluoromethyl)phenyl)amino)-6-methylisoquinolin-5-yl)-4-(methylamino)thieno[3,2-d]pyrimidine-7-carboxamide;

10) 4-amino-N-(1-((4-(4-ethylpiperazin-1-yl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

11) 4-amino-N-(1-((4-((4-ethylpiperazin-1-yl)methyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

12) 4-amino-N-(6-methyl-1-((3-(trifluoromethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

13) 4-amino-N-(1-((4-chloro-3-(trifluoromethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

14) 4-amino-N-(1-((2-methoxy-5-(trifluoromethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

15) 4-amino-N-(6-methyl-1-((4-(trifluoromethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

16) 4-amino-N-(1-((4-methoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

17) 4-amino-N-(6-methyl-1-(p-tolylamino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

18) 4-amino-N-(1-((4-isopropylphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

19) 4-amino-N-(1-((5-(t-butyl)isoxazol-3-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

20) 4-amino-N-(1-((4-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

21) 4-amino-N-(6-methyl-1-(thiazol-2-ylamino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

22) 4-amino-N-(1-((4-cyanophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

23) 4-amino-N-(6-methyl-1-(quinolin-5-ylamino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

24) 4-amino-N-(1-((4-ethoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

25) 4-amino-N-(6-methyl-1-((4-phenoxyphenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

26) 4-amino-N-(1-((4-hydroxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

27) 4-amino-N-(1-((4-isopropoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

28) 4-amino-N-(1-((4-(dimethylamino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

29) 4-amino-N-(1-((2,3-dihydrobenzo[b][1,4]dioxin-6-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

30) 4-amino-N-(1-((3,4-dimethoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

31) 4-amino-N-(1-((3-fluoro-4-methoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

32) 4-amino-N-(6-methyl-1-((3,4,5-trimethoxyphenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

33) 4-amino-N-(6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

34) 4-amino-N-(1-(benzo[d][1,3]dioxol-5-ylamino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

35) 4-amino-N-(6-methyl-1-((5,6,7,8-tetrahydronaphthalen-2-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

36) 4-amino-N-(4-((4-chlorophenyl)amino)-7-methylquinazolin-8-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

37) 4-(cyclopropylamino)-N-(1-((4-methoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

38) 4-amino-N-(1-((3-chlorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

39) 4-amino-N-(1-((3-bromophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

40) 4-amino-N-(1-((2,4-dichlorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

41) 4-amino-N-(1-((3,4-dichlorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

42) 4-amino-N-(1-((3,5-dichlorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

43) 4-amino-N-(6-methyl-1-((3,4,5-trichlorophenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

44) 4-amino-N-(1-((4-chloro-3-methoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

45) 4-amino-N-(1-benzylamino-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

46) 4-amino-N-(6-methyl-1-phenoxyisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

47) 4-amino-N-(6-methyl-1-((4-morpholinophenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

48) N-(1-((4-(1H-pyrrol-1-yl)phenyl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide;

49) 4-amino-N-(6-methyl-1-(pyrimidin-4-ylamino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

50) 4-amino-N-(1-((4-(difluoromethoxy)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

51) 4-amino-N-(6-methyl-1-((4-(trifluoromethoxy)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

52) 4-amino-N-(1-((4-chlorophenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

53) 4-amino-N-(5-((4-chlorophenyl)amino)naphthalen-1-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

54) 4-amino-N-(1-((4-ethynylphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

55) 4-amino-N-(1-(isopropylamino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

56) 4-amino-N-(1-(indolin-6-ylamino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

57) 4-amino-N-(1-((4-(fluoromethoxy)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

58) N-(1-(4-chlorophenylamino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

59) 4-amino-N-(1-((4-chloro-3-((dimethylamino)methyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

60) 4-amino-N-(1-((4-chloro-3-(pyrrolidin-1-ylmethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

61) 4-amino-N-(1-((4-chloro-3-((diethylamino)methyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

62) 4-amino-N-(1-((1,4-diethyl-1,2,3,4-tetrahydroquinoxalin-6-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

63) 4-amino-N-(1-((4-chloro-3-(piperidin-1-ylmethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

64) 4-amino-N-(1-((4-chloro-3-(morpholinomethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

65) 4-amino-N-(1-((4-chloro-3-((4-methylpiperazin-1-yl)methyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

66) 4-amino-N-(1-((4-chloro-3-((diisopropylamino)methyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

67) 4-amino-N-(6-methyl-1-((3-(methylsulfonamido)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

68) tert-butyl 4-(5-((5-(4-aminothieno[3,2-d]pyrimidine-7-carboxamido)-6-methylisoquinolin-1-yl)amino)-2-chlorobenzyl)piperazine-1-carboxylate;

69) 4-amino-N-(1-((4-chloro-3-(piperazin-1-ylmethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

70) 4-amino-N-(1-((3-chloro-4-methoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

71) 4-amino-N-(1-((3-(dimethylcarbamoyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

72) 4-amino-N-(6-methyl-1-((3-(methylcarbamoyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

73) 4-amino-N-(1-((4-chloro-2-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

74) 4-amino-N-(1-((4-bromo-2-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

75) 4-amino-N-(1-((4-methoxybenzyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

76) 4-amino-N-(1-((4-chlorobenzyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

77) 4-amino-N-(1-(2-(4-chlorophenyl)hydrazinyl)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

78) 4-amino-N-(1-((3-((dimethylamino)methyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

79) 4-amino-N-(6-methyl-1-((4-oxo-4H-chromen-6-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

80) N-(1-((3-acetylphenyl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide;

81) 4-amino-N-(1-((4-(2-methoxyethoxy)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

82) 4-amino-N-(6-methyl-1-((3-(trifluoromethoxy)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

83) N-(1-((4-acetylphenyl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide;

84) 4-amino-N-(6-methyl-1-((4-(methylsulfonamido)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

85) 4-amino-N-(6-methyl-1-((3-(methylsulfonyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

86) 4-amino-N-(1-((4-chloro-3-(methoxymethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

87) 4-amino-N-(1-((4-methoxy-3-(methylsulfonamido)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

88) 4-amino-N-(1-((4-chloro-3-(methylsulfonamido)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

89) 4-amino-N-(1-((6-chloropyridin-3-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

90) 4-amino-N-(1-((2-chloropyridin-4-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

91) 4-amino-N-(6-methyl(4-(methylsulfonamidomethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

92) 4-amino-N-(6-methyl-1-((3-(methylsulfonamidomethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

93) 4-amino-N-(1-((4-chloro-3-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

94) 4-amino-N-(1-((3-bromo-4-chlorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

95) 4-amino-N-(1-((4-(dimethylcarbamoyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

96) N-(1-((3-acetamidophenyl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide;

97) 4-amino-N-(6-methyl-1-((1-methyl-1H-indazol-6-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

98) 4-amino-N-(6-methyl-1-((4-(methylsulfinyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

99) 4-amino-N-(6-methyl-1-((2-methyl-1,3-dioxoisoindolin-5-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

100) 4-amino-N-(1-((6-methoxypyridin-3-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

101) 4-amino-N-(6-methyl-1-((3-(2,2,2-trifluoroacetyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

102) 4-amino-N-(6-methyl-1-((4-propionylphenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

103) 4-amino-N-(1-((4-hexanoylphenyl)amino)-6-methylisoquinolin-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

104) N-(1-((1-acetyl-1H-indazol-6-yl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide;

105) 4-amino-N-(1-((3-chloro-4-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

106) 4-amino-N-(6-methyl-1-((5-oxo-5,6,7,8-tetrahydronaphthalen-2-

yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

107) 4-amino-N-(6-methyl-1-((2-methyl-2H-indazol-6-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

108) methyl 4-((5-(4-aminothieno[3,2-d]pyrimidine-7-carboxamido)-6-methylisoquinolin-1-yl)amino)benzoate;

109) 4-amino-N-(6-methyl-1-((1-methyl-1H-indazol-5-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

110) 4-amino-N-(6-methyl-1-((2-methyl-2H-indazol-5-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

111) 4-amino-N-(6-methyl-1-((6-methylpyridin-3-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

112) 4-amino-N-(6-methyl-1-((1-methyl-1H-indol-6-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

113) tert-butyl 6-((5-(4-aminothieno[3,2-d]pyrimidine-7-carboxamido)-6-methylisoquinolin-1-yl)amino)-1H-indazol-1-carboxylate;

114) N-(1-((1H-indazol-6-yl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide hydrochloride;

115) 4-amino-N-(1-((5-chloro-2-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

116) 4-amino-N-(1-((3-chloro-2-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

117) 4-amino-N-(1-((3-fluoro-4-(4-methylpiperazin-1-yl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

118) 4-amino-N-(1-((3-chloro-1-methyl-1H-indazol-6-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

119) 4-amino-N-(6-methyl-1-((4-(prop-2-yn-1-yloxy)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

120) 4-amino-N-(1-((2-methoxy-4-morpholinophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

121) 4-amino-N-(1-(benzo[d]thiazol-6-ylamino)-6-methylisoquinolin-5-

yl)thieno[3,2-d]pyrimidine-7-carboxamide;

122) N-(1-((1H-indazol-5-yl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide;

123) 4-amino-N-(1-((3-chloro-2,4-difluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

124) 4-amino-N-(1-((3-(dimethylamino)propyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide; and

125) 4-amino-N-(6-methyl-1-(piperidin-1-yl)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide.

7. A pharmaceutical composition comprising the compound of any one of claims 1 to 6 as an active ingredient.

~~8. The pharmaceutical composition of claim 7, wherein the pharmaceutical composition is used for preventing or treating a disease caused by abnormal activation of a protein kinase.~~

~~9. The pharmaceutical composition of claim 8, wherein said protein kinase is selected from the group consisting of: ALK, AMPK, Aurora A, Aurora B, Aurora C, Axl, Blk, Bmx, BTK, CaMK, CDK2/cyclinE, CDK5/p25, CHK1, CK2, c-RAF, DDR1, DDR2, DMPK, EGFR1, Her2, Her4, EphA1, EphB1, FAK, FGFR2, FGFR3, FGFR4, Flt-1, Flt-3, Flt-4, Fms (CSF-1), Fyn, GSK3beta, HIPK1, IKKbeta, IGFR-1R, IR, Itk, JAK2, JAK3, KDR, Kit, Lck, Lyn, MAPK1, MAPKAP-K2, MEK1, Met, MKK6, MLCK, NEK2, p70S6K, PAK2, PDGFR alpha, PDGFR beta, PDK1, Pim-1, PKA, PKBalpha, PKCalpha, Plk1, Ret, ROCK-I, Rsk1, SAPK2a, SGK, Src, Syk, Tie-2, Tec, Trk and ZAP-70.~~

~~10. The pharmaceutical composition of claim 8, wherein said disease is selected from the group consisting of: gastric cancer, lung cancer, liver cancer, colorectal cancer, small intestine cancer, pancreatic cancer, brain cancer, bone cancer, melanoma, breast~~

~~cancer, sclerosing adenosis, uterine cancer, cervical cancer, head and neck cancer, esophagus cancer, thyroid cancer, parathyroid cancer, renal cancer, sarcoma, prostate cancer, urethral cancer, bladder cancer, blood cancer, lymphoma, fibroadenoma, inflammation, diabetes, obesity, psoriasis, rheumatoid arthritis, hemangioma, acute or chronic kidney disease, coronary restenosis, autoimmune diseases, asthma, neurodegenerative diseases, acute infection or ocular diseases caused by angiogenesis.~~

~~11~~8. The pharmaceutical composition of claim 7, wherein the pharmaceutical composition further comprises a drug selected from the group consisting of cell signal transduction inhibitors, mitosis inhibitors, alkylating agents, antimetabolites, antibiotics, growth factor inhibitors, cell cycle inhibitors, topoisomerase inhibitors, biological reaction modifiers, antihormonal agents, antiandrogen, cell differentiation/proliferation/survival inhibitors, apoptosis inhibitors, inflammation inhibitors and P-glycoprotein inhibitors.

~~12~~9. A pharmaceutical formulation comprising the pharmaceutical composition of claim 7.

~~13~~10. The pharmaceutical formulation of claim ~~12~~9, wherein said formulation is an oral formulation.

~~14~~11. The pharmaceutical formulation of claim ~~12~~9, wherein said formulation is in the form of a tablet, a pill, powder, a capsule, syrup, an emulsion or a microemulsion.

~~15~~12. The pharmaceutical formulation of claim ~~12~~9, which is used in combination or developed into a combined formulation with a drug selected from the group consisting of cell signal transduction inhibitors, mitosis inhibitors, alkylating agents, antimetabolites, antibiotics, growth factor inhibitors, cell cycle inhibitors, topoisomerase inhibitors, biological reaction modifiers, antihormonal agents, antiandrogen, cell differentiation/proliferation/survival inhibitors, apoptosis inhibitors, inflammation inhibitors and P-glycoprotein inhibitors.

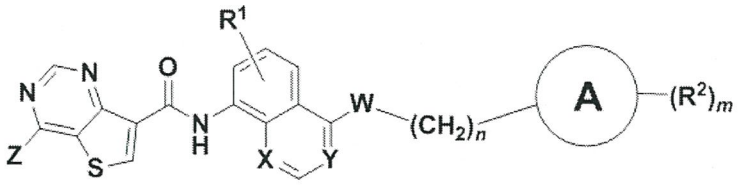
~~16~~13. A use of the compound of claim 1 for the manufacture of a medicament for preventing or treating a disease caused by abnormal activation of a protein kinase.

14. The use of claim 13, wherein said protein kinase is selected from the group consisting of: ALK, AMPK, Aurora A, Aurora B, Aurora C, Axl, Blk, Bmx, BTK, CaM , CD 2/cyclinE, CDK5/p25, CHK1 , CK2, c-RAF, DDR1, DDR2, DMPK, EGFR1, Her2, Her4, EphA1, EphB1, FA , FGFR2, FGFR3, FGFR4, Flt-1 , Flt-3, Flt-4, Fms (CSF-1), Fyn, GSK3beta, HIPK1 , IKKbeta, IGFR-1R, IR, Itk, JA 2, JAK3, KDR, Kit, Lck, Lyn, MAPK1, MAPKAP-K2, MEK1, Met, MKK6, MLCK, NEK2, p70S6K, PAK2, PDGFR alpha, PDGFR beta, PDK1, Pim-1, PKA, PKBalpha, PKCalpha, Plk1, Ret, ROCK-I, Rsk1, SAPK2a, SGK, Src, Syk, Tie-2, Tec, Trk and ZAP-70.

15. The use of claim 13, wherein said disease is selected from the group consisting of: gastric cancer, lung cancer, liver cancer, colorectal cancer, small intestine cancer, pancreatic cancer, brain cancer, bone cancer, melanoma, breast cancer, sclerosing adenosis, uterine cancer, cervical cancer, head and neck cancer, esophagus cancer, thyroid cancer, parathyroid cancer, renal cancer, sarcoma, prostate cancer, urethral cancer, bladder cancer, blood cancer, lymphoma, fibroadenoma, inflammation, diabetes, obesity, psoriasis, rheumatoid arthritis, hemangioma, acute or chronic kidney disease, coronary restenosis, autoimmune diseases, asthma, neurodegenerative diseases, acute infection or ocular diseases caused by angiogenesis.

WHAT IS CLAIMED IS:

1. A thieno[3,2-d]pyrimidine derivative of formula (I) or a pharmaceutically acceptable salt thereof:



(I)

wherein,

A is hydrogen, C_{1-6} alkyl, C_{3-6} cycloalkyl, 3- to 6-membered heterocycloalkyl, C_{6-10} aryl or 5- to 10-membered heteroaryl, wherein said aryl or heteroaryl is optionally reduced or substituted with hydrogen;

W is O, S, S(O), $S(O)_2$, NH, -NHNH- or 3- to 6-membered heterocycloalkyl;

X and Y are each independently CH or N;

Z is hydrogen, C_{1-3} alkyl or NR^3R^4, wherein said R^3 and R^4 are each independently hydrogen, C_{1-6} alkyl or $-(CH_2)q-B-$, B representing NR^5R^6, C_{1-6} alkoxy, C_{3-6} cycloalkyl or 3- to 6-membered heterocycloalkyl;

R^1 is hydrogen, halogen, C_{1-3} alkyl or C_{1-3} alkoxy, wherein said alkyl or alkoxy is unsubstituted or substituted with one or more halogen atoms;

R^2 is hydrogen, halogen, $-CF_3$, $-NO_2$, -OH, -CN, C_{1-6} alkoxy, C_{1-6} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, $-NR^7R^8$, $-NHSO_2R^9$, $-SO_2R^{10}$, $-C(O)R^{11}$, $-NHC(O)R^{12}$, $-NHC(O)OR^{13}$, $-S(O)R^{14}$, C_{3-6} cycloalkyl, 5- to 10-membered heterocycloalkyl, C_{6-10} aryl, C_{6-10} aryloxy, 5- to 10-membered heteroaryl or 3- to 6-membered heteroaryloxy, wherein said R^2 is connected to A by $-(CH_2)p-$ or substituted with C_{1-4} alkyl, C_{2-4}alkynyl, C_{1-4} alkylcarbonyl or one or more halogen atoms;

R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11}, R^{12}, R^{13} and R^{14} are each independently hydrogen, $-NH_2$, C_{1-6} alkyl, C_{1-6} alkoxy, C_{3-6} cycloalkyl or 3-to 6-membered heterocycloalkyl, said alkyl, alkoxy, cycloalkyl or heterocycloalkyl being unsubstituted or substituted with one or more

halogen atoms;

q is an integer ranging from 0 to 3;

p is an integer ranging from 0 to 3;

m is an integer ranging from 0 to 5;

n is an integer ranging from 0 to 2; and

when A is hydrogen, m is 0.

2. The thieno[3,2-d]pyrimidine derivative or its pharmaceutically acceptable salt of claim 1, wherein A is C_{6-10} aryl or 5- to 10-membered heteroaryl.

3. The thieno[3,2-d]pyrimidine derivative or its pharmaceutically acceptable salt of claim 1, wherein W is NH.

4. The thieno[3,2-d]pyrimidine derivative or its pharmaceutically acceptable salt of claim 1, wherein Z is NR^3R^4.

5. The thieno[3,2-d]pyrimidine derivative or its pharmaceutically acceptable salt of claim 1, wherein X is CH and Y is N.

6. The thieno[3,2-d]pyrimidine derivative or its pharmaceutically acceptable salt of claim 1, which is selected from the group consisting of:

1) 4-amino-N-(1-((4-chlorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

2) 4-amino-N-(6-methyl-1-((3-(trifluoromethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

3) N-(1-((4-chlorophenyl)amino)-6-methylisoquinolin-5-yl)-4-(cyclopropylamino)thieno[3,2-d]pyrimidine-7-carboxamide;

4) 4-(cyclopropylamino)-N-(6-methyl-1-((3-(trifluoromethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

5) 4-amino-N-(6-methyl-1-((3-(4-methyl-1H-imidazol-1-yl)-5-

(trifluoromethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

6) 4-(cyclopropylamino)-N-(6-methyl-1-((3-(4-methyl-1H-imidazol-1-yl)-5-(trifluoromethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

7) 4-amino-N-(1-((4-((4-ethylpiperazin-1-yl)methyl)-3-(trifluoromethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

8) 4-(cyclopropylamino)-N-(1-((4-((4-ethylpiperazin-1-yl)methyl)-3-(trifluoromethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

9) N-(1-((4-((4-ethylpiperazin-1-yl)methyl)-3-(trifluoromethyl)phenyl)amino)-6-methylisoquinolin-5-yl)-4-(methylamino)thieno[3,2-d]pyrimidine-7-carboxamide;

10) 4-amino-N-(1-((4-(4-ethylpiperazin-1-yl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

11) 4-amino-N-(1-((4-((4-ethylpiperazin-1-yl)methyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

12) 4-amino-N-(6-methyl-1-((3-(trifluoromethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

13) 4-amino-N-(1-((4-chloro-3-(trifluoromethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

14) 4-amino-N-(1-((2-methoxy-5-(trifluoromethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

15) 4-amino-N-(6-methyl-1-((4-(trifluoromethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

16) 4-amino-N-(1-((4-methoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

17) 4-amino-N-(6-methyl-1-(p-tolylamino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

18) 4-amino-N-(1-((4-isopropylphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

19) 4-amino-N-(1-((5-(t-butyl)isoxazol-3-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

20) 4-amino-N-(1-((4-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

21) 4-amino-N-(6-methyl-1-(thiazol-2-ylamino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

22) 4-amino-N-(1-((4-cyanophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

23) 4-amino-N-(6-methyl-1-(quinolin-5-ylamino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

24) 4-amino-N-(1-((4-ethoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

25) 4-amino-N-(6-methyl-1-((4-phenoxyphenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

26) 4-amino-N-(1-((4-hydroxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

27) 4-amino-N-(1-((4-isopropoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

28) 4-amino-N-(1-((4-(dimethylamino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

29) 4-amino-N-(1-((2,3-dihydrobenzo[b][1,4]dioxin-6-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

30) 4-amino-N-(1-((3,4-dimethoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

31) 4-amino-N-(1-((3-fluoro-4-methoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

32) 4-amino-N-(6-methyl-1-((3,4,5-trimethoxyphenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

33) 4-amino-N-(6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

34) 4-amino-N-(1-(benzo[d][1,3]dioxol-5-ylamino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

35) 4-amino-N-(6-methyl-1-((5,6,7,8-tetrahydronaphthalen-2-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

36) 4-amino-N-(4-((4-chlorophenyl)amino)-7-methylquinazolin-8-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

37) 4-(cyclopropylamino)-N-(1-((4-methoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

38) 4-amino-N-(1-((3-chlorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

39) 4-amino-N-(1-((3-bromophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

40) 4-amino-N-(1-((2,4-dichlorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

41) 4-amino-N-(1-((3,4-dichlorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

42) 4-amino-N-(1-((3,5-dichlorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

43) 4-amino-N-(6-methyl-1-((3,4,5-trichlorophenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

44) 4-amino-N-(1-((4-chloro-3-methoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

45) 4-amino-N-(1-benzylamino-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

46) 4-amino-N-(6-methyl-1-phenoxyisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

47) 4-amino-N-(6-methyl-1-((4-morpholinophenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

48) N-(1-((4-(1H-pyrrol-1-yl)phenyl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide;

49) 4-amino-N-(6-methyl-1-(pyrimidin-4-ylamino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

50) 4-amino-N-(1-((4-(difluoromethoxy)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

51) 4-amino-N-(6-methyl-1-((4-(trifluoromethoxy)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

52) 4-amino-N-(1-((4-chlorophenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

53) 4-amino-N-(5-((4-chlorophenyl)amino)naphthalen-1-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

54) 4-amino-N-(1-((4-ethynylphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

55) 4-amino-N-(1-(isopropylamino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

56) 4-amino-N-(1-(indolin-6-ylamino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

57) 4-amino-N-(1-((4-(fluoromethoxy)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

58) N-(1-(4-chlorophenylamino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

59) 4-amino-N-(1-((4-chloro-3-((dimethylamino)methyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

60) 4-amino-N-(1-((4-chloro-3-(pyrrolidin-1-ylmethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

61) 4-amino-N-(1-((4-chloro-3-((diethylamino)methyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

62) 4-amino-N-(1-((1,4-diethyl-1,2,3,4-tetrahydroquinoxalin-6-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

63) 4-amino-N-(1-((4-chloro-3-(piperidin-1-ylmethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

64) 4-amino-N-(1-((4-chloro-3-(morpholinomethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

65) 4-amino-N-(1-((4-chloro-3-((4-methylpiperazin-1-yl)methyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

66) 4-amino-N-(1-((4-chloro-3-((diisopropylamino)methyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

67) 4-amino-N-(6-methyl-1-((3-(methylsulfonamido)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

68) tert-butyl 4-(5-((5-(4-aminothieno[3,2-d]pyrimidine-7-carboxamido)-6-methylisoquinolin-1-yl)amino)-2-chlorobenzyl)piperazine-1-carboxylate;

69) 4-amino-N-(1-((4-chloro-3-(piperazin-1-ylmethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

70) 4-amino-N-(1-((3-chloro-4-methoxyphenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

71) 4-amino-N-(1-((3-(dimethylcarbamoyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

72) 4-amino-N-(6-methyl-1-((3-(methylcarbamoyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

73) 4-amino-N-(1-((4-chloro-2-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

74) 4-amino-N-(1-((4-bromo-2-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

75) 4-amino-N-(1-((4-methoxybenzyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

76) 4-amino-N-(1-((4-chlorobenzyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

77) 4-amino-N-(1-(2-(4-chlorophenyl)hydrazinyl)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

78) 4-amino-N-(1-((3-((dimethylamino)methyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

79) 4-amino-N-(6-methyl-1-((4-oxo-4H-chromen-6-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

80) N-(1-((3-acetylphenyl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide;

81) 4-amino-N-(1-((4-(2-methoxyethoxy)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

82) 4-amino-N-(6-methyl-1-((3-(trifluoromethoxy)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

83) N-(1-((4-acetylphenyl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide;

84) 4-amino-N-(6-methyl-1-((4-(methylsulfonamido)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

85) 4-amino-N-(6-methyl-1-((3-(methylsulfonyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

86) 4-amino-N-(1-((4-chloro-3-(methoxymethyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

87) 4-amino-N-(1-((4-methoxy-3-(methylsulfonamido)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

88) 4-amino-N-(1-((4-chloro-3-(methylsulfonamido)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

89) 4-amino-N-(1-((6-chloropyridin-3-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

90) 4-amino-N-(1-((2-chloropyridin-4-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

91) 4-amino-N-(6-methyl(4-(methylsulfonamidomethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

92) 4-amino-N-(6-methyl-1-((3-(methylsulfonamidomethyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

93) 4-amino-N-(1-((4-chloro-3-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

94) 4-amino-N-(1-((3-bromo-4-chlorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

95) 4-amino-N-(1-((4-(dimethylcarbamoyl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

96) N-(1-((3-acetamidophenyl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide;

97) 4-amino-N-(6-methyl-1-((1-methyl-1H-indazol-6-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

98) 4-amino-N-(6-methyl-1-((4-(methylsulfinyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

99) 4-amino-N-(6-methyl-1-((2-methyl-1,3-dioxoisoindolin-5-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

100) 4-amino-N-(1-((6-methoxypyridin-3-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

101) 4-amino-N-(6-methyl-1-((3-(2,2,2-trifluoroacetyl)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

102) 4-amino-N-(6-methyl-1-((4-propionylphenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

103) 4-amino-N-(1-((4-hexanoylphenyl)amino)-6-methylisoquinolin-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

104) N-(1-((1-acetyl-1H-indazol-6-yl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide;

105) 4-amino-N-(1-((3-chloro-4-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

106) 4-amino-N-(6-methyl-1-((5-oxo-5,6,7,8-tetrahydronaphthalen-2-

yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

107) 4-amino-N-(6-methyl-1-((2-methyl-2H-indazol-6-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

108) methyl 4-((5-(4-aminothieno[3,2-d]pyrimidine-7-carboxamido)-6-methylisoquinolin-1-yl)amino)benzoate;

109) 4-amino-N-(6-methyl-1-((1-methyl-1H-indazol-5-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

110) 4-amino-N-(6-methyl-1-((2-methyl-2H-indazol-5-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

111) 4-amino-N-(6-methyl-1-((6-methylpyridin-3-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

112) 4-amino-N-(6-methyl-1-((1-methyl-1H-indol-6-yl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

113) tert-butyl 6-((5-(4-aminothieno[3,2-d]pyrimidine-7-carboxamido)-6-methylisoquinolin-1-yl)amino)-1H-indazol-1-carboxylate;

114) N-(1-((1H-indazol-6-yl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide hydrochloride;

115) 4-amino-N-(1-((5-chloro-2-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

116) 4-amino-N-(1-((3-chloro-2-fluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

117) 4-amino-N-(1-((3-fluoro-4-(4-methylpiperazin-1-yl)phenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

118) 4-amino-N-(1-((3-chloro-1-methyl-1H-indazol-6-yl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

119) 4-amino-N-(6-methyl-1-((4-(prop-2-yn-1-yloxy)phenyl)amino)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

120) 4-amino-N-(1-((2-methoxy-4-morpholinophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

121) 4-amino-N-(1-(benzo[d]thiazol-6-ylamino)-6-methylisoquinolin-5-

yl)thieno[3,2-d]pyrimidine-7-carboxamide;

122) N-(1-((1H-indazol-5-yl)amino)-6-methylisoquinolin-5-yl)-4-aminothieno[3,2-d]pyrimidine-7-carboxamide;

123) 4-amino-N-(1-((3-chloro-2,4-difluorophenyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide;

124) 4-amino-N-(1-((3-(dimethylamino)propyl)amino)-6-methylisoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide; and

125) 4-amino-N-(6-methyl-1-(piperidin-1-yl)isoquinolin-5-yl)thieno[3,2-d]pyrimidine-7-carboxamide.

7. A pharmaceutical composition comprising the compound of any one of claims 1 to 6 as an active ingredient.

8. The pharmaceutical composition of claim 7, wherein the pharmaceutical composition further comprises a drug selected from the group consisting of cell signal transduction inhibitors, mitosis inhibitors, alkylating agents, antimetabolites, antibiotics, growth factor inhibitors, cell cycle inhibitors, topoisomerase inhibitors, biological reaction modifiers, antihormonal agents, antiandrogen, cell differentiation/proliferation/survival inhibitors, apoptosis inhibitors, inflammation inhibitors and P-glycoprotein inhibitors.

9. A pharmaceutical formulation comprising the pharmaceutical composition of claim 7.

10. The pharmaceutical formulation of claim 9, wherein said formulation is an oral formulation.

11. The pharmaceutical formulation of claim 9, wherein said formulation is in the form of a tablet, a pill, powder, a capsule, syrup, an emulsion or a microemulsion.

12. The pharmaceutical formulation of claim 9, which is used in combination or

developed into a combined formulation with a drug selected from the group consisting of cell signal transduction inhibitors, mitosis inhibitors, alkylating agents, antimetabolites, antibiotics, growth factor inhibitors, cell cycle inhibitors, topoisomerase inhibitors, biological reaction modifiers, antihormonal agents, antiandrogen, cell differentiation/proliferation/survival inhibitors, apoptosis inhibitors, inflammation inhibitors and P-glycoprotein inhibitors.

13. A use of the compound of claim 1 for the manufacture of a medicament for preventing or treating a disease caused by abnormal activation of a protein kinase.

14. The use of claim 13, wherein said protein kinase is selected from the group consisting of: ALK, AMPK, Aurora A, Aurora B, Aurora C, Axl, Blk, Bmx, BTK, CaM , CD 2/cyclinE, CDK5/p25, CHK1 , CK2, c-RAF, DDR1, DDR2, DMPK, EGFR1, Her2, Her4, EphAl, EphBl, FA , FGFR2, FGFR3, FGFR4, Flt-1 , Flt-3, Flt-4, Fms (CSF-1), Fyn, GSK3beta, HIPK1 , IKKbeta, IGFR-1R, IR, Itk, JA 2, JAK3, KDR, Kit, Lck, Lyn, MAPK1, MAPKAP-K2, MEK1, Met, MKK6, MLCK, NEK2, p70S6K, PAK2, PDGFR alpha, PDGFR beta, PDK1, Pim-1, PKA, PKBalpha, PKCalpha, Plkl, Ret, ROCK-I, Rskl, SAPK2a, SGK, Src, Syk, Tie-2, Tec, Trk and ZAP-70.

15. The use of claim 13, wherein said disease is selected from the group consisting of: gastric cancer, lung cancer, liver cancer, colorectal cancer, small intestine cancer, pancreatic cancer, brain cancer, bone cancer, melanoma, breast cancer, sclerosing adenosis, uterine cancer, cervical cancer, head and neck cancer, esophagus cancer, thyroid cancer, parathyroid cancer, renal cancer, sarcoma, prostate cancer, urethral cancer, bladder cancer, blood cancer, lymphoma, fibroadenoma, inflammation, diabetes, obesity, psoriasis, rheumatoid arthritis, hemangioma, acute or chronic kidney disease, coronary restenosis, autoimmune diseases, asthma, neurodegenerative diseases, acute infection or ocular diseases caused by angiogenesis.