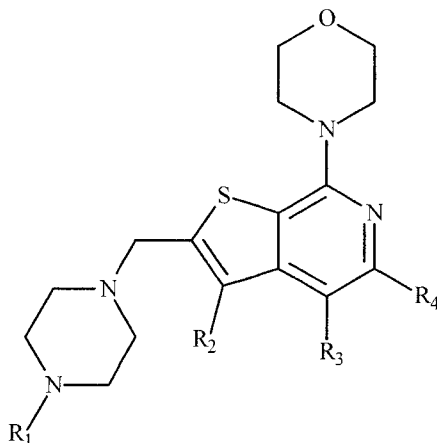


CLAIMS

1. A 7-(Morpholinyl)-2-(*N*-piperazinyl)methyl thieno[2, 3-*c*]pyridine compound of Formula-I or a pharmaceutically acceptable salt thereof,



Formula-I

wherein:

R_1 is H, C_1 – C_6 alkyl, C_3 – C_6 cycloalkyl, $-C(O)R_5$, $-S(O)_2R_5$, $-C(O)_2R_5$,

C_1 – C_6 alkyl substituted with R_6 , C_3 – C_6 cycloalkyl substituted with R_6 , aryl, aryl substituted with R_6 or heteroaryl substituted with R_6 ;

R_2 , R_3 and R_4 are each independently H, $-OH$, $-SH$, halo, amino, cyano, $-nitro$, C_1 – C_6 alkyl, C_3 – C_6 cycloalkyl, aryl, lower alkoxy group, $-C(O)R_5$, $-S(O)_2R_5$, $-C(O)_2R_5$, $-C=C(H)-R_6$, aminocarbonyl substituted with R_6 , alkylamino group substituted with R_6 and optionally containing C_3 – C_6 cycloalkyl, $-alkylaminocarbonyl$, $arylaminocarbonyl$, heteroaryl, heteroaryl optionally substituted with H, amino, aminoalkyl or aminocycloalkyl containing C_3 – C_6 carbon atoms, fused bicyclic or tricyclic heteroaryl containing 1, 2 or 3 heteroatoms such as N, O or S, or aryl optionally substituted with hydroxyl, hydroxylalkyl, amino, aminoalkyl, aminocarbonyl, alkynyl, cyano, halogen, lower alkoxy, aryloxy or R_6 ;

R_5 is H, alkyl, amino, aminoalkyl, $-N(alk)_2$, aryl substituted with R_6 , heteroaryl substituted with R_6 , fused heteroaryl substituted with R_6 or $-trifluoromethyl$;

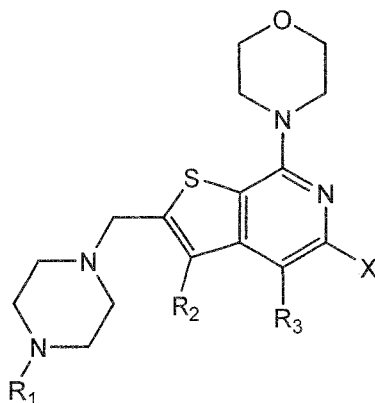
R_6 is H, hydroxy, halogen, cyano, nitro, amino, C_1 – C_6 alkyl, $-N(alk)_2$, substituted alkyl $(CH)_{0-6}$, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted aralkyloxy, aryl(hydroxyl)alkyl, aromatic acylamino, arylsulfonylamino, lower alkoxy aryl

sulfonylamino, hydroxyl lower alkoxy styryl, lower alkoxy aryloxy, optionally substituted arylalkenyl, heteroarylalkenyl, heteroarylalkynyl, aromatic acyl alkynyl, optionally N-substituted amino lower alkyl, arylamino or arylalkylamino.

2. A compound according to claim 1 or a pharmaceutically acceptable salt thereof, which compound is:

- i) 5-[3-methyl-2-[(4-methyl sulfonylpiperazin-1-yl) methyl]-7-morpholino-thieno[2,3-c]pyridin-5-yl]pyrimidin-2-amine;
- ii) 5-[2-[(4-methylsulfonyl piperazin-1-yl)methyl]-7-morpholino-thieno[2,3-c]pyridin-5-yl]pyrimidin-2-amine;
- iii) 4-[5-(1H-indazol-4-yl)-2-[(4-methylsulfonyl piperazin-1-yl) methyl] thieno [2, 3-c] pyridin-7-yl] morpholine;
- iv) [3-[2-[(4-methylsulfonyl piperazin-1-yl)methyl] -7-morpholino-thieno[2,3-c]pyridin-5-yl]phenyl] methanol;
- v) 3-[2-[(4-methylsulfonyl piperazin-1-yl)methyl]-7-morpholino-thieno[2,3-c]pyridin-5-yl]aniline;
- vi) 4-[5-(1H-indazol-4-yl)-3-methyl-2-[(4-methyl sulfonyl piperazin-1-yl) methyl]thieno [2,3-c] pyridin-7-yl]morpholine;
- vii) [3-[3-methyl-2-[(4-methyl sulfonylpiperazin-1-yl) methyl]-7-morpholino-thieno[2,3-c]pyridin-5-yl]phenyl]methanol;
- viii) 3-[3-methyl-2-[(4-methyl sulfonylpiperazin-1-yl) methyl]-7-morpholino-thieno[2,3-c]pyridin-5-yl]aniline;
- ix) 5-[3-methyl-2-[(4-methylsulfonylpiperazin-1-yl)methyl]-7-morpholino-4-nitro-thieno[2,3-c]pyridin-5-yl]pyrimidin-2-amine;
- x) 5-(2-amino-pyrimidin-5-yl)-3-methyl-2-[(4-methylsulfonyl piperazin-1-yl)methyl]-7-morpholino-thieno[2,3-c]pyridin-4-amine;
- xi) 5-[3-methyl-2-[(4-methylsulfonylpiperazin-1-yl)methyl]-7-morpholino-4-nitro-thieno[2,3-c]pyridin-5-yl]pyrimidin-2,4-diamine; or
- xii) 5-[4-amino-3-methyl-2-[(4-methylsulfonylpiperazin-1-yl)methyl]-7-morpholino-thieno[2,3-c]pyridin-5-yl]pyrimidine-2,4-diamine.

3. A compound according to claim 1, which compound is a compound of Formula-II

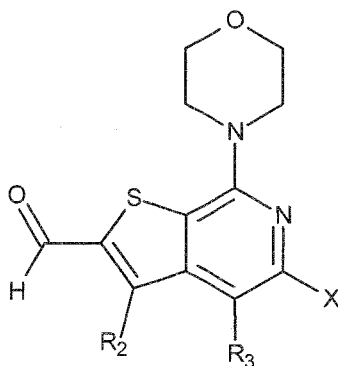


Formula-II

wherein X is halogen.

4. A compound according to claim 3, which compound is:
- i) 4-[5-bromo-3-methyl-2-[(4-methylsulfonylpiperazin-1-yl) methyl]-4-nitro-thieno[2,3-c]pyridin-7-yl]morpholine;
 - ii) 4-[5-bromo-2-[(4-methylsulfonylpiperazin-1-yl) methyl] thieno [2, 3-c] pyridin-7-yl] morpholine; or
 - iii) 4-[5-bromo-3-methyl-2-[(4-methylsulfonylpiperazin-1-yl) methyl]thieno[2, 3-c] pyridin-7-yl] morpholine.

5. A compound of Formula-III,



Formula-III

wherein:

R₂ and R₃ are each independently H, -OH, -SH, halo, amino, cyano, -nitro, C₁-C₆ alkyl, C₃-C₆ cycloalkyl, aryl, lower alkoxy group, -C(O)R₅, -S(O)₂R₅, -C(O)₂R₅, -C=C(H)-R₆, aminocarbonyl substituted with R₆, alkylamino group substituted with R₆ and optionally containing C₃-C₆ cycloalkyl, -alkylaminocarbonyl, arylaminocarbonyl, heteroaryl, heteroaryl optionally substituted with H, amino, aminoalkyl or aminocycloalkyl containing C₃-C₆ carbon atoms, fused bicyclic or tricyclic heteroaryl containing 1, 2 or 3 heteroatoms such as N, O or S, or aryl optionally substituted with hydroxyl, hydroxylalkyl, amino, aminoalkyl, aminocarbonyl, alkynyl, cyano, halogen, lower alkoxy, aryloxy or R₆;
and X is a halogen.

6. A compound according to claim 5, which compound is:

- i) 5-bromo-3-methyl-7-morpholino-4-nitro-thieno[2,3-c]pyridine-2-carbaldehyde;
- ii) 5-bromo-3-methyl-7-morpholino-thieno[2,3-c]pyridine-2-carbaldehyde; or
- iii) 5-bromo-7-morpholino-thieno [2, 3-c] pyridine-2-carbaldehyde.

7. A pharmaceutical composition comprising:

- (a) a therapeutically effective amount of a compound as defined in claim 1 or claim 2 or pharmaceutically acceptable salt thereof; and
- (b) a pharmaceutically acceptable carrier, diluent or vehicle.

8. Use of a compound as defined in claim 1 or claim 2 or a pharmaceutically acceptable salt therefore for the manufacture of a medicament for the treatment of cancer.

9. The use according to claim 8, wherein the cancer is lung cancer, pancreatic cancer, prostate cancer, breast cancer, brain cancer or ovarian cancer.

10. The use according to claim 8 or claim 9 wherein the treatment of cancer comprises orally, parenterally or rectally administering to a human an effective anticancer amount of the compound or pharmaceutically acceptable salt thereof.