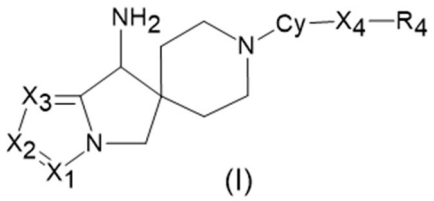
CLAIMS

1. A compound of Formula (I):




(I)

Wherein:

$X_1$ is $CR_1$ or N; $X_2$ is $CR_2$ or N; $X_3$ is $CR_3$ or N;

$R_1$, $R_2$ and $R_3$ are each optionally selected from H, halogen, $OC_{1-3}$alkyl or $C_{1-3}$alkyl optionally substituted with $NH_2$, OH or halogen; or

$R_1$ and $R_2$ are linked to form, together with the carbon atoms to which they are attached, a fused five-, six- or seven membered saturated or partially unsaturated ring optionally containing one or two heteroatoms selected from O, S and N and optionally substituted with one or more substituents at each occurrence selected from halogen, OH, $NH_2$, $OCH_3$, $C_{1-3}$alkyl; or

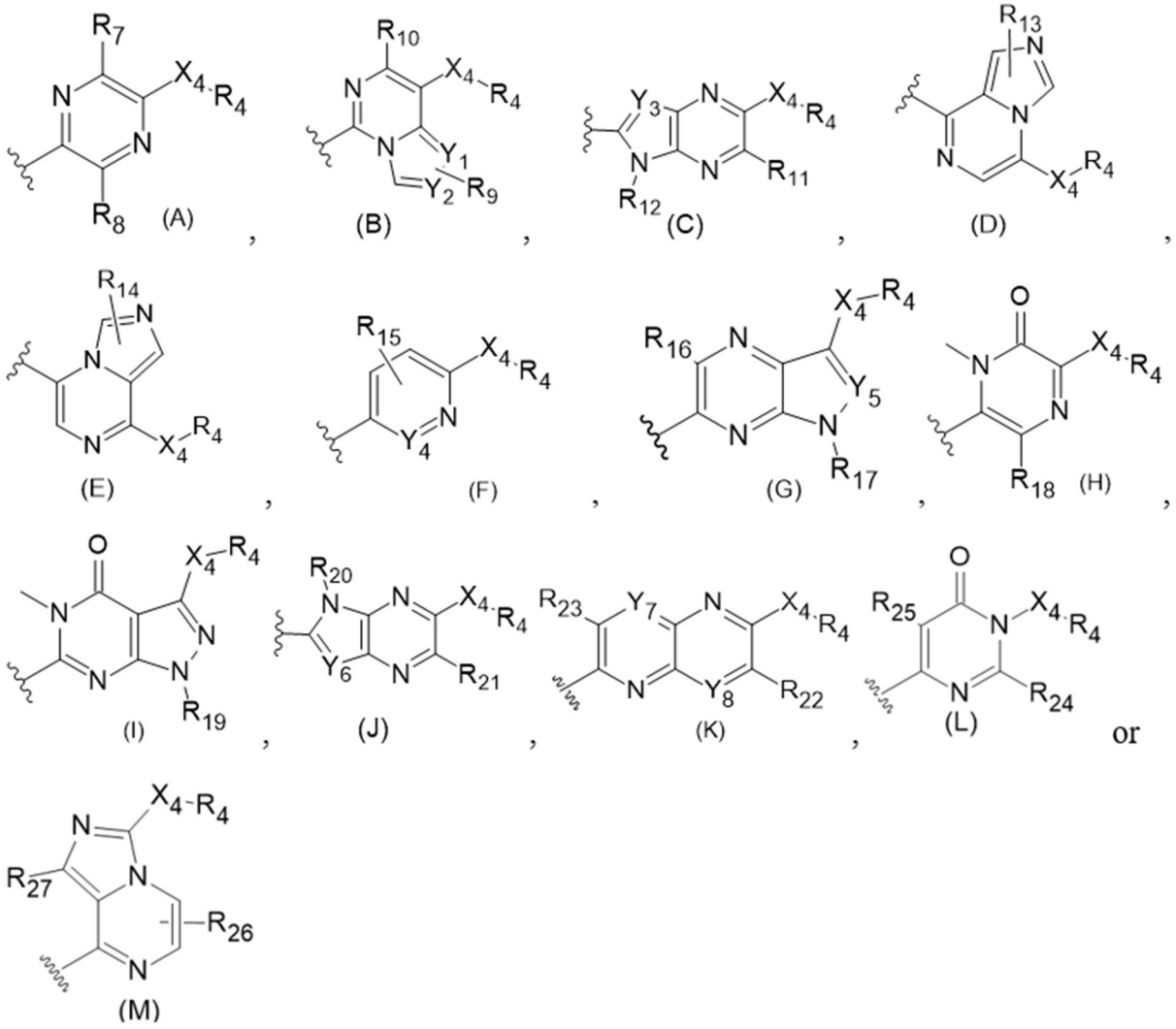
$R_2$ and $R_3$ are linked to form, together with the carbon atoms to which they are attached, a fused five-, six- or seven membered saturated or partially unsaturated ring optionally containing one or two heteroatoms selected from O, S and N and optionally substituted with one or more substituents at each occurrence selected from halogen, OH, $NH_2$, $OCH_3$, $C_{1-3}$alkyl; or

$X_4$ is $CR_5R_6$, O, S or $X_4$ is a bond;

$R_4$ is an aryl, heteroaryl, partially unsaturated aryl, partially unsaturated heteroaryl ring, each of said aryl, heteroaryl, partially unsaturated aryl, partially unsaturated heteroaryl ring being optionally substituted with one or more substituents independently selected from $C(=O)CH_3$, $C(=O)OCH_3$, OH, halogen, $NH_2$, NH-$C_{1-6}$alkyl, $N(C_{1-6}alkyl)_2$, $C_{1-6}$alkyl, $C_{3-5}$cycloalkyl, halo$C_{1-6}$alkyl, hydroxy$C_{1-6}$alkyl, C(=O)NR'R'', NR'C(=O)$C_{1-6}$alkyl, NR'C(=O)$C_{1-6}$haloalkyl, CN, halo$C_{1-6}$alkoxy, $C_{1-6}$alkoxy, saturated 5- or 6-membered heterocyclic ring, aryl or heteroaryl wherein each of said saturated 5- or 6-membered heterocyclic ring, aryl or heteroaryl is optionally substituted with one or more $CH_3$, $NH_2$, halogen or OH and wherein R' and R'' are each independently H or $C_{1-6}$alkyl, preferably H or $CH_3$;

$R_5$ and $R_6$ are each independently selected from H, $C_{1-6}$alkyl, OH, halogen;

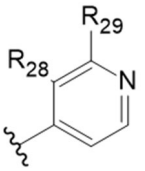
Cy-$X_4$-$R_4$ corresponds to anyone of general formulae (A) - (M) as indicated below:



wherein:

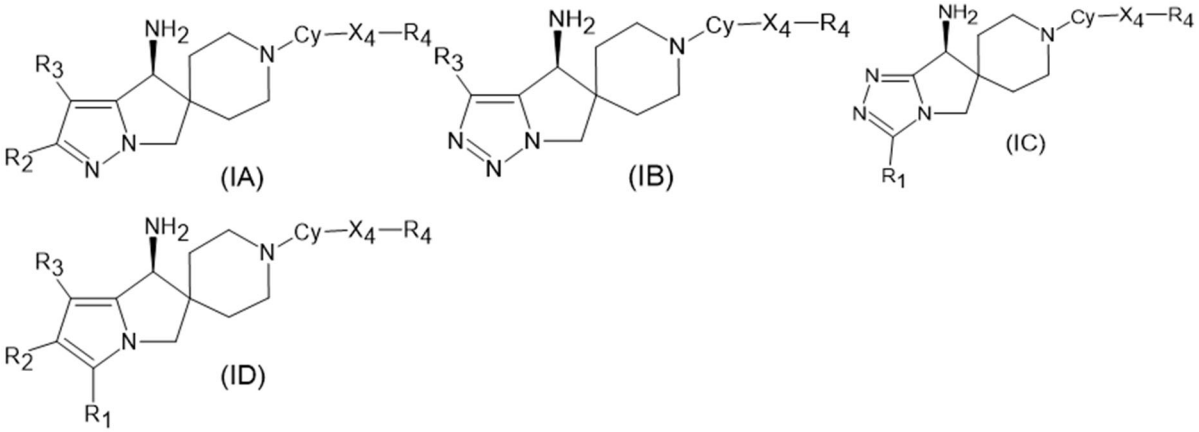
- $R_7$ is selected from H, $C_{1-3}$alkyl and $NH_2$; preferably from H, $CH_3$ and $NH_2$;
- $R_8$ is H, halogen, $C_{1-3}$alkyl wherein said $C_{1-3}$alkyl is optionally substituted with one ore more halogen or OH;
- $R_9$, $R_{10}$, $R_{11}$, $R_{13}$, $R_{14}$, $R_{15}$, $R_{16}$, $R_{18}$, $R_{21}$ and $R_{26}$ are at each occurrence each independently selected from H, halogen, $C_{1-6}$alkyl or halo$C_{1-6}$alkyl;
- $R_{12}$, $R_{17}$, $R_{19}$ and $R_{20}$ are selected from H and $CH_3$;
- $R_{23}$ and $R_{27}$ are independently selected from H, $C_{1-6}$alkyl and hydroxy$C_{1-6}$alkyl;
- $R_{24}$ is H, $C_{1-6}$alkyl, halo$C_{1-6}$alkyl or halogen;
- $R_{25}$ is H, halogen, $C_{1-6}$alkyl, halo$C_{1-6}$alkyl or hydroxy$C_{1-6}$alkyl;
- $Y_1$, $Y_2$, $Y_3$, $Y_4$, $Y_5$, $Y_6$, $Y_7$ and $Y_8$ are each independently selected form N and C;

and wherein when $X_1$ is $CR_1$ and $X_2$ is $CR_2$ and $X_3$ is $CR_3$ and Cy-$X_4$-$R_4$ corresponds to general formula (A), $R_4$ is:



wherein $R_{28}$ is H, halogen or $C_{1\text{-}3}$alkyl and $R_{29}$ is heteroaryl;
or a pharmaceutically acceptable salt, solvate, or stereoisomer thereof.

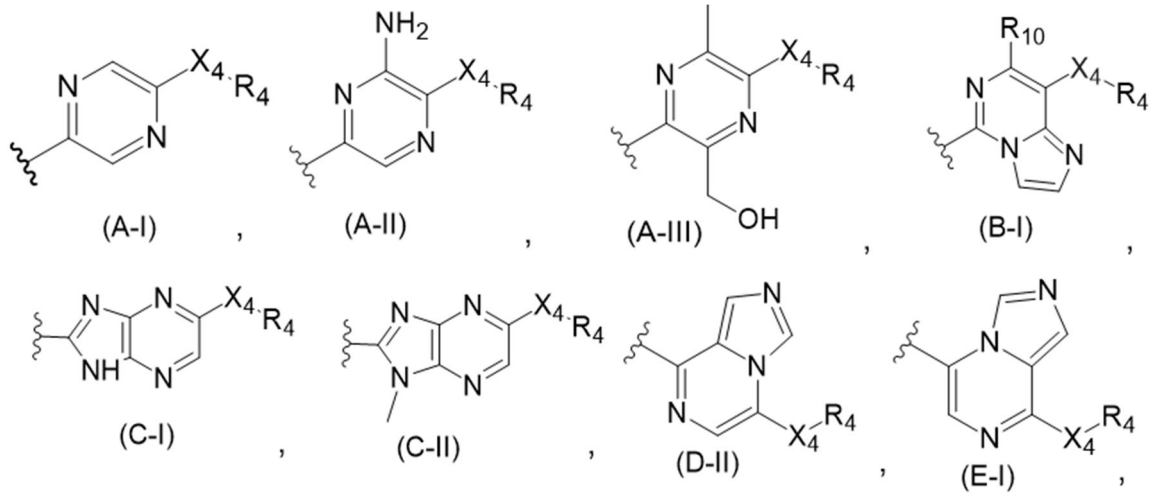
2. The compound of formula (I) according to claim 1, having general formula (IA), (IB), (IC) or (ID):

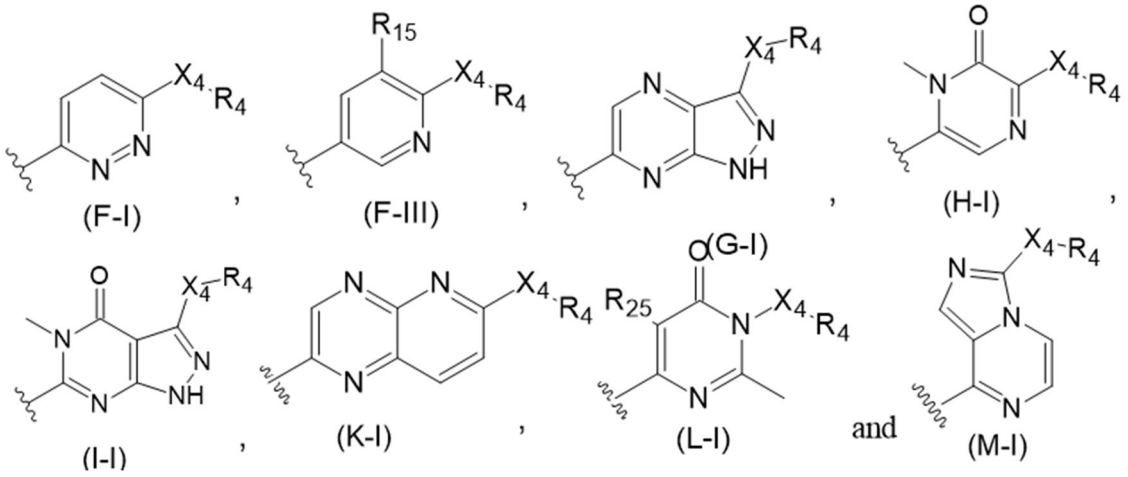


or a pharmaceutically acceptable salt, solvate, or stereoisomer thereof.

3. The compound of formula (I) according to any one of previous claims wherein $R_1$, $R_2$ and $R_3$ are each independently selected from H, Br, Cl, F, $OCH_3$, $CH_3$ and $CH_2OH$ or $R_2$ and $R_3$ are joined together to form a fused ring selected from cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, tetrahydrofurane, tetrahydropyrrole.

4. The compound of formula (I) according to anyone claims 1 to 3 wherein Cy-$X_4$-$R_4$ is selected from:






5. The compound of formula (I) according to anyone of claims 1 to 4 wherein $X_4$ is S, O or $X_4$ is a bond.

6. The compound of formula (I) according to anyone of claims 1 to 5 wherein $R_4$ is selected from: phenyl, pyridine, pyrimidine, pyrazine, imidazo[1,2-a]pyridine, indole, 2H-indazole, 2,3-dihydroindole, 2,3,3a,4-tetrahydro-1H-pyrrolo[2,1-c][1,4]benzoxazine, 6a,7,8,9-tetrahydro-6H-pyrido[3,2-b]pyrrolo[1,2-d][1,4]oxazine, 2,3-dihydro-1H-pyrrolo[2,3-b]pyridine, 1,8-napthyridine, triazolo[4,3-a]pyridine, imidazo[1,2-a]pyridin-2(3H)-one, each of said ring being optionally substituted with one or more substituents independently selected from $C(=O)CH_3$, $C(=O)OCH_3$, OH, halogen, $NH_2$, $CF_3$, $C(=O)CH_3$, $C_{1-3}$alkyl, $C(=O)NH_2$, $C(=O)NHC_{1-3}$alkyl, $C(=O)N(C_{1-3}alkyl)_2$, CN, $C_{3-5}$cycloalkyl, aryl or heteroaryl wherein each of said aryl or heteroaryl is optionally substituted with one or more halogen, $C(=O)NH_2$, $C(=O)NHCH_3$, $C(=O)N(CH_3)_2$, $C_{1-3}$alkyl and $NHC(=O)CF_3$.

7. The compound of formula (I) according to claim 6 wherein $R_4$ is selected from the group consisting of: 2-(trifluoromethyl)pyridin-3-yl, 2-amino-3-chloropyridin-4-yl, (S)-6a,7,8,9-tetrahydro-6H-pyrido[3,2-b]pyrrolo[1,2-d][1,4]oxazin-4-yl, 4-chloro-2-methyl-2H-indazol-5-yl, (R)-6a',7'-dihydro-6'H,9'H-spiro[cyclopropane-1,8'-pyrido[3,2-b]pyrrolo[1,2-d][1,4]oxazin]-4'-yl, 3,3-difluoroindolin-1-yl-ethan-1-one, 8-chloroimidazo[1,2-a]pyridin-7-yl, 3-chloro-2-(1H-pyrazol-1-yl)pyridin-4-yl, 3-chloro-2-(3,5-dimethyl-1H-pyrazol-1-yl)pyridin-4-yl, 2,3-dichlorophenyl, 8-chloro-2-methylimidazo[1,2-a]pyridin-7-yl, 8-chloro-2-cyanoimidazo[1,2-*a*]pyridin-7-yl, 5-chloroimidazo[1,2-a]pyridin-6-yl, 6-amino-2-chloropyridin-3-yl, 3-chloro-2-(1H-pyrrol-1-yl)pyridin-4-yl, 3-chloro-2-(4-fluoro-1H-pyrazol-1-yl)pyridin-4-yl, 3-chloro-2-(1H-imidazol-1-yl)pyridin-4-yl, 5-amino-3-chloropyrazin-2-yl, 3,8-dichloroimidazo[1,2-a]pyridin-7-yl, 8-chloro-[1,2,4]triazolo[4,3-a]pyridin-7-yl, 8-chloro-3-nitroimidazo[1,2-a]pyridin-7-yl, 8-chloroimidazo[1,2-a]pyridin-2-yl)-2,2,2-trifluoroacetamide, 8-chloroimidazo[1,2-a]pyridine-2-carboxamide, 8-chloroimidazo[1,2-a]pyridine-2-carbonitrile, 8-chloroimidazo[1,2-a]pyridin-2(3H)-one, 3-chloropyridin-2-yl)-1H-pyrazole-4-carboxamide, 3-chloropyridin-2-yl)-1H-pyrrole-3-carboxamide, 3-chloropyridin-2-yl)-N-methyl-1H-pyrrole-3-

carboxamide, 8-chloro-N,N-dimethylimidazo[1,2-a]pyridine-2-carboxamide, 3-chloropyridin-2-yl)-N,N-dimethyl-1H-pyrazole-4-carboxamide and 8-fluoroquinolin-4-yl.

8. A compound of formula (I) selected from:

- (S)-1-(5-((2-(trifluoromethyl)pyridin-3-yl)thio)-1H-imidazo[4,5-b]pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)-1H-imidazo[4,5-b]pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(6-amino-5-((2-(trifluoromethyl)pyridin-3-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(6-amino-5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(6-amino-5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-3'-chloro-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-3'-chloro-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-3'-bromo-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-3'-fluoro-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-3'-methyl-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-2'-methyl-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-2'-methoxy-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-(((S)-6a,7,8,9-tetrahydro-6H-pyrido[3,2-b]pyrrolo[1,2-d][1,4]oxazin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-3'-chloro-2'-methyl-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(8-((2-amino-3-chloropyridin-4-yl)thio)imidazo[1,2-c]pyrimidin-5-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(8-((4-chloro-2-methyl-2H-indazol-5-yl)thio)imidazo[1,2-c]pyrimidin-5-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;

- (S)-1-(8-(((S)-6a,7,8,9-tetrahydro-6H-pyrido[3,2-b]pyrrolo[1,2-d][1,4]oxazin-4-yl)thio)imidazo[1,2-c]pyrimidin-5-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(8-((2-amino-3-chloropyridin-4-yl)thio)imidazo[1,2-c]pyrimidin-5-yl)-3'-chloro-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)imidazo[1,5-a]pyrazin-8-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1'-(6-amino-5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-1,2,3,8-tetrahydro-6H-spiro[cyclopenta[d]pyrrolo[1,2-b]pyrazole-7,4'-piperidin]-8-amine;
- (S)-1'-(5-((2-amino-3-chloropyridin-4-yl)thio)imidazo[1,5-a]pyrazin-8-yl)-1,2,3,8-tetrahydro-6H-spiro[cyclopenta[d]pyrrolo[1,2-b]pyrazole-7,4'-piperidin]-8-amine;
- 1'-(5-((2-amino-3-chloropyridin-4-yl)thio)imidazo[1,5-a]pyrazin-8-yl)-1,2,3,8-tetrahydro-6H-spiro[cyclopenta[d]pyrrolo[1,2-b]pyrazole-7,4'-piperidin]-8-ol;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)imidazo[1,5-a]pyrazin-8-yl)-2'-methyl-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-(((R)-6a',7'-dihydro-6'H,9'H-spiro[cyclopropane-1,8'-pyrido[3,2-b]pyrrolo[1,2-d][1,4]oxazin]-4'-yl)thio)imidazo[1,5-a]pyrazin-8-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-(((S)-6a',7'-dihydro-6'H,9'H-spiro[cyclopropane-1,8'-pyrido[3,2-b]pyrrolo[1,2-d][1,4]oxazin]-4'-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(4-((3-amino-5-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)pyrazin-2-yl)thio)-3,3-difluoroindolin-1-yl)ethan-1-one;
- (S)-1'-(5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-1,8-dihydro-3H,6H-spiro[furo[3,4-d]pyrrolo[1,2-b]pyrazole-7,4'-piperidin]-8-amine;
- (S)-(4'-amino-1-(5-((2-amino-3-chloropyridin-4-yl)thio)imidazo[1,5-a]pyrazin-8-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazole]-2',3'-diyl)dimethanol;
- (S)-1'-(5-((2-amino-3-chloropyridin-4-yl)thio)imidazo[1,5-a]pyrazin-8-yl)-1,8-dihydro-3H,6H-spiro[furo[3,4-d]pyrrolo[1,2-b]pyrazole-7,4'-piperidin]-8-amine;
- (S)-1-(8-((2-amino-3-chloropyridin-4-yl)thio)imidazo[1,5-a]pyrazin-5-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((8-chloroimidazo[1,2-a]pyridin-7-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((8-chloroimidazo[1,2-a]pyridin-7-yl)thio)imidazo[1,5-a]pyrazin-8-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((3-chloro-2-(1H-pyrazol-1-yl)pyridin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;

- (S)-1-(5-((3-chloro-2-(3,5-dimethyl-1H-pyrazol-1-yl)pyridin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(6-((2-amino-3-chloropyridin-4-yl)thio)pyridazin-3-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(6-amino-5-((2-(trifluoromethyl)pyridin-3-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-c][1,2,3]triazol]-4'-amine;
- (S)-1-(6-amino-5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-c][1,2,3]triazol]-4'-amine;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-c][1,2,3]triazol]-4'-amine;
- (S)-1-(8-((2-amino-3-chloropyridin-4-yl)thio)imidazo[1,2-c]pyrimidin-5-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-c][1,2,3]triazol]-4'-amine;
- (S)-1-(3-(2-amino-3-chloropyridin-4-yl)-1H-pyrazolo[3,4-b]pyrazin-6-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(3-(2,3-dichlorophenyl)-1H-pyrazolo[3,4-b]pyrazin-6-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-c][1,2,3]triazol]-4'-amine;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)pyrazin-2-yl)-5'H,7'H-spiro[piperidine-4,6'-pyrrolo[2,1-c][1,2,4]triazol]-7'-amine;
- (S)-1-(5-((8-chloro-2-methylimidazo[1,2-a]pyridin-7-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(6-amino-5-((8-chloroimidazo[1,2-a]pyridin-7-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-(6-((2-amino-3-chloropyridin-4-yl)thio)-3-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)-5-methylpyrazin-2-yl)methanol;
- (S)-3-(2-amino-3-chloropyridin-4-yl)-6-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)-5-methyl-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one;
- (S)-1-(5-((5-amino-3-chloropyrazin-2-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((3,8-dichloroimidazo[1,2-a]pyridin-7-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((8-chloroimidazo[1,2-a]pyridin-7-yl)thio)pyrazin-2-yl)-3'-fluoro-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((3,8-dichloroimidazo[1,2-a]pyridin-7-yl)thio)pyrazin-2-yl)-3'-fluoro-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((8-chloro-[1,2,4]triazolo[4,3-a]pyridin-7-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;

- (S)-1-(5-((8-chloro-3-nitroimidazo[1,2-a]pyridin-7-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-N-(7-((5-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)pyrazin-2-yl)thio)-8-chloroimidazo[1,2-a]pyridin-2-yl)-2,2,2-trifluoroacetamide;
- (S)-7-((5-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)pyrazin-2-yl)thio)-8-chloroimidazo[1,2-a]pyridine-2-carboxamide;
- (S)-1-(5-((6-amino-2-chloropyridin-3-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((5-chloroimidazo[1,2-a]pyridin-6-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-7-((5-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)pyrazin-2-yl)thio)-8-chloroimidazo[1,2-a]pyridine-2-carbonitrile;
- (S)-7-((5-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)pyrazin-2-yl)thio)-8-chloroimidazo[1,2-a]pyridin-2(3H)-one;
- (S)-1-(5-((3-chloro-2-(1H-imidazol-1-yl)pyridin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(6-amino-5-((3-chloro-2-(1H-pyrazol-1-yl)pyridin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((3-chloro-2-(4-fluoro-1H-pyrazol-1-yl)pyridin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((3-chloro-2-(1H-pyrrol-1-yl)pyridin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(6-amino-5-((3-chloro-2-(1H-imidazol-1-yl)pyridin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(6-amino-5-((8-chloro-2-methylimidazo[1,2-a]pyridin-7-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(4-((5-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)pyrazin-2-yl)thio)-3-chloropyridin-2-yl)-1H-pyrazole-4-carboxamide;
- (S)-1-(4-((5-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)pyrazin-2-yl)thio)-3-chloropyridin-2-yl)-1H-pyrrole-3-carboxamide;
- (S)-1-(4-((5-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)pyrazin-2-yl)thio)-3-chloropyridin-2-yl)-N-methyl-1H-pyrrole-3-carboxamide;
- (S)-7-((5-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)pyrazin-2-yl)thio)-8-chloro-N,N-dimethylimidazo[1,2-a]pyridine-2-carboxamide;
- (S)-1-(4-((5-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)pyrazin-2-yl)thio)-3-chloropyridin-2-yl)-N,N-dimethyl-1H-pyrazole-4-carboxamide;

- (S)-1-(3-(4-chloro-2-methyl-2H-indazol-5-yl)-1H-pyrazolo[3,4-b]pyrazin-6-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(3-(3-chloro-2-(1H-pyrazol-1-yl)pyridin-4-yl)-1H-pyrazolo[3,4-b]pyrazin-6-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(6-((3-chloro-2-(1H-pyrazol-1-yl)pyridin-4-yl)thio)pyrido[2,3-b]pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(6-((2-amino-3-chloropyridin-4-yl)thio)pyrido[2,3-b]pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((2-amino-3-chloropyridin-4-yl)thio)-1-methyl-1H-imidazo[4,5-b]pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(8-((3-chloro-2-(1H-pyrazol-1-yl)pyridin-4-yl)thio)imidazo[1,5-a]pyrazin-5-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-5-((2-amino-3-chloropyridin-4-yl)thio)-2-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)-3-methylpyrimidin-4(3H)-one;
- (S)-6-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)-3-(2,3-dichlorophenyl)-2-methylpyrimidin-4(3H)-one;
- (S)-6-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)-5-chloro-3-(2,3-dichlorophenyl)-2-methylpyrimidin-4(3H)-one;
- (S)-1-(5-((8-fluoroquinolin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((3-chloropyridin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((3-fluoro-2-methylpyridin-4-yl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(5-((3-chloro-2-(1H-pyrazol-1-yl)pyridin-4-yl)thio)pyrazin-2-yl)-1'H,3'H-spiro[piperidine-4,2'-pyrrolizin]-1'-amine;
- (S)-1-(5-((2,3-dichlorophenyl)thio)pyrazin-2-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(6-((2,3-dichlorophenyl)thio)pyridin-3-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(3-(2,3-dichlorophenyl)imidazo[1,5-a]pyrazin-8-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-6-(1'-amino-1'H,3'H-spiro[piperidine-4,2'-pyrrolizin]-1-yl)-3-(2,3-dichlorophenyl)-2-methylpyrimidin-4(3H)-one;
- (S)-6-(4'-amino-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-1-yl)-3-(2,3-dichlorophenyl)-2,5-dimethylpyrimidin-4(3H)-one;

- (S)-1-(3-(3-fluoro-2-methylpyridin-4-yl)imidazo[1,5-a]pyrazin-8-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;
- (S)-1-(6-(2,3-dichlorophenoxy)pyridin-3-yl)-4'H,6'H-spiro[piperidine-4,5'-pyrrolo[1,2-b]pyrazol]-4'-amine;

or a pharmaceutically acceptable salt, solvate, or stereoisomer thereof.

9. A compound of Formula (I) being (S)-1-(5-((3-fluoro-2-methylpyridin-4-yl)thio)pyrazin-2-yl)-1'H,3'H-spiro[piperidine-4,2'-pyrrolizin]-1'-amine, or a pharmaceutically acceptable salt, solvate, or stereoisomer thereof.

10. A compound or a pharmaceutically acceptable salt, solvate, or stereoisomer thereof as defined in any one of previous claims for medical use.

11. The compound or the pharmaceutically acceptable salt, solvate, or stereoisomer thereof according to any one of previous claims for use in the treatment and/or prevention of a disease or disorder mediated by the activity of SHP2.

12. The compound or the pharmaceutically acceptable salt, solvate, or stereoisomer thereof according to any one of the previous claims for use in the treatment and/or prevention of a disease or disorder selected from the group consisting of: cancer, cardiovascular disease, immunological disorder, autoimmune disorder, fibrosis, an ocular disorder, systemic lupus erythematosus, diabetes, neutropenia and combinations thereof.

13. The compound or the pharmaceutically acceptable salt, solvate, or stereoisomer thereof for use according to claims 11 or 12, wherein the disease or disorder is selected from the group consisting of: Noonan Syndrome, Leopard Syndrome, juvenile myelomonocytic leukemias, neuroblastoma, melanoma, head and neck squamous-cell carcinoma, acute myeloid leukemia, breast cancer, esophageal tumor, lung cancer, colon cancer, head cancer, gastric carcinoma, lymphoma, glioblastoma, gastric cancer, pancreatic cancer and combinations thereof.

14. The compound or the pharmaceutically acceptable salt, solvate, or stereoisomer thereof for use according to claims 12 or 13 wherein any one of said cancers is a primary cancer or a cancer metastasis.

15. The compound or the pharmaceutically acceptable salt, solvate, or stereoisomer thereof for use according to any one of claims 10-14, wherein said use is in combination with radiotherapy or with at least one further therapeutic agent, preferably said at least one further therapeutic agent is selected from the group consisting of:

(a) alkylating agents, including but not limited to carmustine, chlorambucil (LEUKERAN), cisplatin (PLATIN), carboplatin (PARAPLATIN), oxaliplatin (ELOXATIN), streptozocin (ZANOSAR), busulfan (MYLERAN), dacarbazine, ifosfamide, lomustine (CCNU), melphalan (ALKERAN), procarbazine (MATULAN), temozolomide (TEMODAR), thiotepa, and cyclophosphamide (ENDOXAN);

(b) anti-metabolites, including but not limited to cladribine (LEUSTATIN), mercaptopurine (PURINETHOL), thioguanine, pentostatin (NIPENT), cytosine arabinoside (cytarabine, ARA-C), gemcitabine (GEMZAR), fluorouracil (5-FU, CARAC), capecitabine (XELODA), leucovorin (FUSILEV), methotrexate (RHEUMATREX) and raltitrexed;

(c) antimitotics, which are often plant alkaloids and terpenoids, or derivatives thereof, including but not limited to taxanes such as docetaxel (TAXITERE) and paclitaxel (ABRAXANE, TAXOL); vinca alkaloids such as vincristine (ONCOVIN), vinblastine, vindesine, vinorelbine (NAVELBINE), and vinflunine;

(d) checkpoint inhibitors, such as anti- PD-1 or PD-L1 antibodies pembrolizumab (KEYTRUDA), nivolumab (OPDIVO), MEDI4736 and MPDL3280A; anti-CTLA-4 antibody ipilimumab (YERVOY); inhibitors that target LAG3 (lymphocyte activation gene 3 protein), KIR (killer cell immunoglobulin-like receptor), 4-1BB (tumour necrosis factor receptor superfamily member 9), TIM3 (T-cell immunoglobulin and mucin-domain containing protein 3) and/or OX40 (tumour necrosis factor receptor superfamily member 4); (e) topoisomerase inhibitors, including but not limited to camptothecin (CTP), irinotecan (CAMPTOSAR), topotecan (HYCAMTIN), teniposide (VUMON) and etoposide (EPOSIN);

(f) cytotoxic antibiotics, including but not limited to actinomycin D (dactinomycin, COSMEGEN), bleomycin (BLENOXANE) doxorubicin (ADRIAMYCIN), daunorubicin (CERUBIDINE), epirubicin (ELLENCE), fludarabine (FLUDARA), idarubicin, mitomycin (MITOSOL), mitoxantrone (NOVANTRONE), plicamycin; aromatase inhibitors, including but not limited to aminoglutethimide, anastrozole (ARIMIDEX), letrozole (FEMARA), vorozole (RIVIZOR) and exemestane (AROMASIN);

(g) angiogenesis inhibitors, including but not limited to genistein, sunitinib (SUTENT) and bevacizumab (AVASTIN);

(h) anti-steroids and anti-androgens such as aminoglutethimide (CYTADREN), bicalutamide (CASODEX), cyproterone, flutamide (EULEXIN) and nilutamide (NILANDRON);

(i) tyrosine kinase inhibitors, including but not limited to imatinib (GLEEVEC), erlotinib (TARCEVA), lapatininb (TYKERB), sorafenib (NEXAVAR), and axitinib (INLYTA);

(j) mTOR inhibitors such as everolimus, temsirolimus (TORISEL), and sirolimus; monoclonal antibodies such as trastuzumab (HERCEPTIN) and rituximab (RITUXAN);

(k) other agents, such as amsacrine; Bacillus Calmette–Guérin (B-C-G) vaccine; buserelin (ETILAMIDE); chloroquine (ARALEN); clodronate, pamidronate, and other bisphosphonates; colchicine; demethoxyviridin; dichloroacetate; estramustine; filgrastim (NEUPOGEN); fludrocortisone (FLORINEF); goserelin (ZOLADEX); interferon; leucovorin; leuprolide (LUPRON); levamisole; lonidamine; mesna; metformin; mitotane (o,p'-DDD, LYSODREN); nocodazole; octreotide (SANDOSTATIN); perifosine; porfimer (particularly in combination with photo- and radiotherapy); suramin; tamoxifen; titanocene

dichloride; tretinoin; anabolic steroids such as fluoxymesterone(HALOTESTIN); estrogens such as estradiol, diethylstilbestrol (DES), and dienestrol; progestins such as medroxyprogesterone acetate (MPA) and megestrol; testosterone; 5-fluoro-2-4(l H,3H)-pyrimidinedione and combinations thereof.

16. A pharmaceutical composition comprising the compound or the pharmaceutically acceptable salt, solvate, or stereoisomer thereof as defined in anyone of claims 1-9, alone or in combination with at least one further therapeutic agent, and at least one pharmaceutically acceptable excipient, preferably said at least one further therapeutic agent is selected from the group consisting of:

(a) alkylating agents, including but not limited to carmustine, chlorambucil (LEUKERAN), cisplatin (PLATIN), carboplatin (PARAPLATIN), oxaliplatin (ELOXATIN), streptozocin (ZANOSAR), busulfan (MYLERAN), dacarbazine, ifosfamide, lomustine (CCNU), melphalan (ALKERAN), procarbazine (MATULAN), temozolomide (TEMODAR), thiotepa, and cyclophosphamide (ENDOXAN);

(b) anti-metabolites, including but not limited to cladribine (LEUSTATIN), mercaptopurine (PURINETHOL), thioguanine, pentostatin (NIPENT), cytosine arabinoside (cytarabine, ARA-C), gemcitabine (GEMZAR), fluorouracil (5-FU, CARAC), capecitabine (XELODA), leucovorin (FUSILEV), methotrexate (RHEUMATREX) and raltitrexed;

(c) antimitotics, which are often plant alkaloids and terpenoids, or derivatives thereof, including but not limited to taxanes such as docetaxel (TAXITERE) and paclitaxel (ABRAXANE, TAXOL); vinca alkaloids such as vincristine (ONCOVIN), vinblastine, vindesine, vinorelbine (NAVELBINE), and vinflunine;

(d) checkpoint inhibitors, such as anti- PD-1 or PD-L1 antibodies pembrolizumab (KEYTRUDA), nivolumab (OPDIVO), MEDI4736 and MPDL3280A; anti-CTLA-4 antibody ipilimumab (YERVOY); inhibitors that target LAG3 (lymphocyte activation gene 3 protein), KIR (killer cell immunoglobulin-like receptor), 4-1BB (tumour necrosis factor receptor superfamily member 9), TIM3 (T-cell immunoglobulin and mucin-domain containing protein 3) and/or OX40 (tumour necrosis factor receptor superfamily member 4);

(e) topoisomerase inhibitors, including but not limited to camptothecin (CTP), irinotecan (CAMPTOSAR), topotecan (HYCAMTIN), teniposide (VUMON) and etoposide (EPOSIN);

(f) cytotoxic antibiotics, including but not limited to actinomycin D (dactinomycin, COSMEGEN), bleomycin (BLENOXANE) doxorubicin (ADRIAMYCIN), daunorubicin (CERUBIDINE), epirubicin (ELLENCE), fludarabine (FLUDARA), idarubicin, mitomycin (MITOSOL), mitoxantrone (NOVANTRONE), plicamycin; aromatase inhibitors, including but not limited to aminoglutethimide, anastrozole (ARIMIDEX), letrozole (FEMARA), vorozole (RIVIZOR) and exemestane (AROMASIN);

(g) angiogenesis inhibitors, including but not limited to genistein, sunitinib (SUTENT) and bevacizumab (AVASTIN);

(h) anti-steroids and anti-androgens such as aminoglutethimide (CYTADREN), bicalutamide (CASODEX), cyproterone, flutamide (EULEXIN) and nilutamide (NILANDRON);

(i) tyrosine kinase inhibitors, including but not limited to imatinib (GLEEVEC), erlotinib (TARCEVA), lapatininb (TYKERB), sorafenib (NEXAVAR), and axitinib (INLYTA);
(j) mTOR inhibitors such as everolimus, temsirolimus (TORISEL), and sirolimus; (12) monoclonal antibodies such as trastuzumab (HERCEPTIN) and rituximab (RITUXAN);
(k) other agents, such as amsacrine; Bacillus Calmette–Guérin (B-C-G) vaccine; buserelin (ETILAMIDE); chloroquine (ARALEN); clodronate, pamidronate, and other bisphosphonates; colchicine; demethoxyviridin; dichloroacetate; estramustine; filgrastim (NEUPOGEN); fludrocortisone (FLORINEF); goserelin (ZOLADEX); interferon; leucovorin; leuprolide (LUPRON); levamisole; lonidamine; mesna; metformin; mitotane (o,p'-DDD, LYSODREN); nocodazole; octreotide (SANDOSTATIN); perifosine; porfimer (particularly in combination with photo- and radiotherapy); suramin; tamoxifen; titanocene dichloride; tretinoin; anabolic steroids such as fluoxymesterone (HALOTESTIN); estrogens such as estradiol, diethylstilbestrol (DES), and dienestrol; progestins such as medroxyprogesterone acetate (MPA) and megestrol; testosterone; 5-fluoro-2-4(l H,3H)-pyrimidinedione and combinations thereof.

17. The pharmaceutical composition according to claim 16 for the use as defined in any one of claims 11-15.

18. Use of the compound or a pharmaceutically acceptable salt, solvate, or stereoisomer thereof as defined in any one of claims 1-9, or the compound or the pharmaceutically acceptable salt, solvate, or stereoisomer thereof according to any one of claims 10-14, wherein said use is in combination with radiotherapy or with at least one further therapeutic agent, as defined in claim 15, in the preparation of a medicament for the treatment and/or prevention of a disease or disorder mediated by the activity of SHP2.

19. The use according to claim 18, wherein the medicament is for the treatment and/or prevention of a disease or disorder selected from the group consisting of: cancer, cardiovascular disease, immunological disorder, autoimmune disorder, fibrosis, an ocular disorder, systemic lupus erythematosus, diabetes, neutropenia and combinations thereof.

20. The use of claim 18 or 19, wherein the disease or disorder is selected from the group consisting of: Noonan Syndrome, Leopard Syndrome, juvenile myelomonocytic leukemias, neuroblastoma, melanoma, head and neck squamous-cell carcinoma, acute myeloid leukemia, breast cancer, esophageal tumor, lung cancer, colon cancer, head cancer, gastric carcinoma, lymphoma, glioblastoma, gastric cancer, pancreatic cancer and combinations thereof.