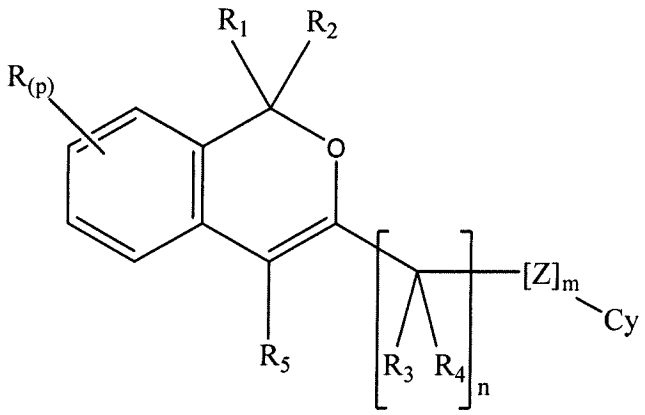
CLAIMS

1. A compound of formula (I):



(I)

wherein:

each R, when present, is independently:

OR_6;

SR_6

$S(O)_q—R_8$

$NR_{10}R_{11}$

halogen

$(C_1\text{-}C_6)$ alkyl;

$(C_1\text{-}C_6)$ haloalkyl;

$(C_3\text{-}C_7)$ cycloalkyl;

$(C_5\text{-}C_7)$ cycloalkenyl;

$(C_2\text{-}C_6)$ alkenyl;

$(C_2\text{-}C_6)$ alkynyl;

substituted or unsubstituted aryl; or

substituted or unsubstituted heteroaryl;

R_1 and R_2 are both H or together form an oxo group (=O);

R_3 and R_4, the same or different, in each occurrence are independently:

H;

$(C_1\text{-}C_6)$ alkyl; or

(C_1-C_6) haloalkyl;

R_5 is:

(C_1-C_6) alkyl;

(C_1-C_6) haloalkyl;

(C_1-C_6) hydroxyalkyl;

(C_1-C_6) aminoalkyl;

(C_3-C_7) cycloalkyl;

aryl (C_1-C_3) alkyl;

(C_5-C_7) cycloalkenyl;

(C_2-C_6) alkenyl;

(C_2-C_6) alkynyl;

(C_2-C_6) aminoalkynyl

substituted or unsubstituted (C_3-C_6) heterocycloalkyl

substituted or unsubstituted aryl; or

substituted or unsubstituted heteroaryl;

R_6, R_7 and R_{14} are the same or different and are at each occurrence independently:

H;

(C_1-C_6) alkyl;

(C_1-C_6) haloalkyl;

(C_1-C_6) hydroxyalkyl;

(C_1-C_6) aminoalkyl;

aryl(C_1-C_6)alkyl

(C_1-C_6) alkanoyl

arylcarbonyl; or

aryl (C_2-C_4) alkanoyl;

R_8 and R_9 are the same or different and are at each occurrence independently:

(C_1-C_6) alkyl;

(C_1-C_6) haloalkyl;

(C_1-C_6) hydroxyalkyl;

(C_1-C_6) aminoalkyl;

substituted or unsubstituted aryl;

substituted or unsubstituted heteroaryl; or

$NR_{12}R_{13}$;

R_{10}, R_{11}, R_{12} and R_{13} are the same or different and are at each occurrence independently selected from the group consisting of H, (C_1-C_6) aminoalkyl, (C_1-C_6) hydroxyalkyl and (C_1-C_6) alkyl, or taken together with the nitrogen atom they are linked to, either R_{10} and R_{11} or R_{12} and R_{13} form a 5 to 6 membered heterocyclic radical;

Z, when present, is an atom or a group each time independently selected from the group consisting of O, NH, C(O), NHC(O), C(O)NH, S, S(O), and $S(O)_2$;

m is zero or 1;

n is 1;

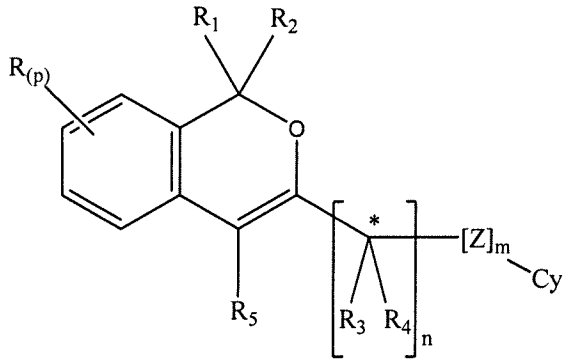
p is zero or an integer ranging from 1 to 3;

q is 1 or 2; and

Cy is substituted or unsubstituted heteroaryl;

or a pharmaceutically acceptable salt thereof.

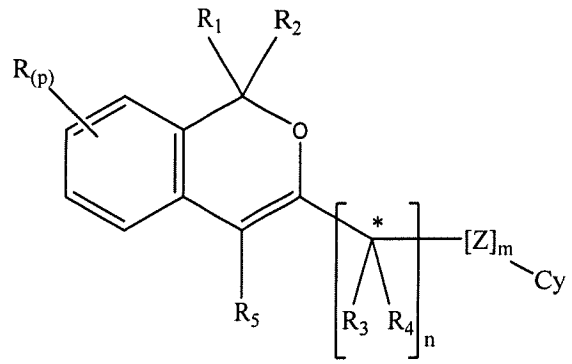
2. A compound or pharmaceutically acceptable salt according to claim 1, which is represented by formula (IA):



(IA)

wherein R_3 is as defined above except H, R_4 is H, and the absolute configuration of the chiral carbon (*) is (R).

3. A compound or pharmaceutically acceptable salt according to claim 1, which is represented by formula (IA):



(IA)

wherein R_3 is as defined above except H, R_4 is H, and the absolute configuration of the chiral carbon (*) is (S).

4. A compound or pharmaceutically acceptable salt according to claim 1, which exists as a mixture of diastereoisomers.

5. A compound or pharmaceutically acceptable salt according to claim 1, wherein:

R_3 is H or (C_1-C_6) alkyl;

R_4 is H; and

R_5 is aryl (C_1-C_3) alkyl; (C_5-C_7) cycloalkenyl; (C_2-C_6) alkyny; (C_2-C_6) aminoalkynyl; substituted or unsubstituted (C_3-C_6) heterocycloalkyl; substituted or unsubstituted aryl; or substituted or unsubstituted heteroaryl.

6. A compound or pharmaceutically acceptable salt according to claim 1, wherein:

p is 0 or 1;

R is not present or is halogen or (C_1-C_6) alkyl;

R_3 is H, methyl, ethyl or propyl;

R_4 is H; and

R_5 is phenyl; phenylmethyl; 2-, 3- or 4-pyridinyl; 5-thiazolyl; 2-, 3-, 4- or 5-thienyl; 1H-pyrazol-4yl, 2-, 4-, 5- or 6- pyrimidinyl; cyclohexenyl; prop-1-ynyl; 1,2,3,6-

tetrahydropyridin-4-yl; 1,2,5,6-tetrahydropyridin-3-yl; 8-azabicyclo[3.2.1]oct-2-en-3-yl; or 3,6-dihydro-2H-pyran-4-yl, optionally substituted by one or more groups selected from the group consisting of halogen, (C_1-C_6) alkyl, OR_7, -$S(O)_q$—R_9, -$C(O)NR_{10}R_{11}$, $COOR_{14}$, (C_1-C_6) hydroxyalkyl, substituted or unsubstituted (C_1-C_6) aminoalkyl, (C_1-C_6) alkanoyl, substituted or unsubstituted (C_3-C_6) heterocycloalkyl, aryl(C_1-C_6)alkyl, heteroaryl(C_1-C_6)alkyl, (C_3-C_7)cycloalkyl(C_1-C_6)alkyl and $NR_{10}R_{11}$.

7. A compound or pharmaceutically acceptable salt according to claim 1, wherein:

p is 0;

R is not present;

R_3 is H, methyl, ethyl or propyl;

R_4 is H; and

R_5 is phenyl; phenylmethyl; 2-, 3- or 4-pyridinyl; 5-thiazolyl; 2-, 3-, 4- or 5-thienyl; 1,2,3,6-tetrahydropyridin-4-yl; or 3,6-dihydro-2H-pyran-4-yl, optionally substituted by one or more groups selected from the group consisting of fluoro, bromo, methyl, methoxy, amino, dimethylamino, 4-morpholinosulfonyl, 4-(2-morpholinoethoxy), 4-morpholinomethyl and 4-piperazinomethyl; piperidin-1-ylmethyl, 4-methylpiperazine-1-carbonyl, (2-(dimethylamino)ethyl)-carbonyl, acetyl, phenylmethyl, phenylmethoxy-carbonyl, 4,4,5,5-tetramethyl-1,3-dioxolan-2-yl, pyrrolidin-1-ylmethyl, bis(2-hydroxyethyl)aminomethyl, hydroxymethyl, dimethylaminomethyl, (dimethylamino)propyl, 4-(2-hydroxyethyl)piperazin-1-yl)methyl piperazin-2-one-1-ylmethyl, cyclopropylmethyl, hydroxycarbonyl, or pyridin-4-ylmethyl.

8. A compound or pharmaceutically acceptable salt according to claim 1, wherein:

R_3 is H, methyl, ethyl or propyl;

R_4 is H;

R_5 is aryl (C_1-C_3) alkyl; substituted or unsubstituted (C_3-C_6) heterocycloalkyl; substituted or unsubstituted aryl or substituted or unsubstituted heteroaryl; Z, when

present, is an atom or a group selected from the group consisting of O, NH, C(O), NH—C(O), C(O)—NH, S, SO and SO_2;

CY is 7H-purin-7-yl; 9H-purin-9-yl; 9H-purin-6-yl; 1H-pyrazolo[3,4-d]pyrimidin-1-yl; 1H-pyrazolo[3,4-d]pyrimidin-4-yl; 2H-pyrazolo[3,4-d]pyrimidin-2-yl; 2-, 4-, 5- or 6-pyrimidinyl; 2-pyrazinyl; pyrrolo[2,3-d]pyrimidin-7-yl; pyrazolo[1,5-a]pyrimidin-3-yl; pyrido[3,2-d]pyrimidin-4-yl; pyrido[2,3-d]pyrimidin-8-yl-5-one; thieno[3,2-d]pyrimidin-4-yl; or thieno[2,3-d]pyrimidin-4-yl, which are all optionally substituted by one or more groups selected from the group consisting of halogen, (C_1-C_6) alkyl, (C_1-C_6) haloalkyl, CN, $NR_{10}R_{11}$, optionally substituted aryl, and optionally substituted heteroaryl selected from the group consisting of phenyl, 1H-indazol-4-yl, 1H-indazol-5-yl, 1H-indazol-6-yl, 2-, 3-, 4-, 5-, 6-pyridinyl, pyrazol-3-yl, pyrazol-4-yl, pyrazol-5-yl, pyrazin-2yl, pyrimidin-5-yl, pyridazin-4-yl and 2-, 4-, 5-thiazolyl.

9. A compound or pharmaceutically acceptable salt according to claim 1, wherein:

R_1 and R_2 together form an oxo group (=O);

R_3 is H, methyl or ethyl;

R_4 is H;

R_5 is phenyl; phenylmethyl; 2-, 3- or 4-pyridinyl; 5-thiazolyl; 2-, 3-, 4- or 5-thienyl; 1,2,3,6-tetrahydropyridin-4-yl; 3,6-dihydro-2H-pyran-4-yl; or 4-cyclohexenyl, which are all optionally substituted by one or more groups selected from the group consisting of fluoro, bromo, methyl, methoxy, dimethylamino, morpholinosulfonyl, morpholinoethoxy, morpholinomethyl and piperazinomethyl; 4-methylpiperazine-1-carbonyl, 4-(2-hydroxyethyl)piperazin-1-yl-methyl, piperazin-2-one-1-yl-methyl, or pyridin-4-ylmethyl;

Z, when present, is an atom or a group each time independently selected from O, NH, C(O), NH--C(O), C(O)--NH, S, SO, and SO_2;

CY is 7H-purin-7-yl; 9H-purin-9-yl; 9H-purin-6-yl; 1H-pyrazolo[3,4-d]pyrimidin-1-yl; 1H-pyrazolo[3,4-d]pyrimidin-4-yl; 2H-pyrazolo[3,4-d]pyrimidin-2-yl; and 2-, 4-, 5- or 6-pyrimidinyl; or 2-pyrazinyl which are all optionally substituted by one or more groups selected from the group consisting of Cl, Br, F, I, methyl, trifluoromethyl, CN; NH_2; $NH\text{-}CH_3$; $N(CH_3)_2$; 3-methyl-1H-indazol-5-yl, 1H-indazol-4-

yl; 3-fluoro-5-hydroxyphenyl; 1-(3-fluoro-4-hydroxyphenyl); 6-, 5-, 4-hydroxypyridin-3-yl, 6-, 5-methoxypyridin-3-yl, 5-aminopyridin-3-yl, 5-fluoropyridin-3-yl, 5-fluoro-6-hydroxypyridin-3-yl 6-(methylsulfonyl)pyridin-3-yl, 5-hydroxy-6-methylpyridin-3-yl, 6-, 5-(hydroxymethyl)pyridin-3-yl, 2-aminothiazol-5-yl; 2-(acetamino)-(thiazol-5-yl), 2-aminopyrimidin-5-yl, 2-methoxypyrimidin-5-yl, 2-hydroxypyrimidin-5-yl, pyrazin-2-yl, 6-hydroxypyrazin-2-yl and 3-fluoro-4-isopropoxyphenyl.

10. A compound or pharmaceutically acceptable salt according to claim 1, wherein m is 1.

11. A compound or pharmaceutically acceptable salt according to claim 5, wherein m is 1.

12. A compound or pharmaceutically acceptable salt according to claim 6, wherein m is 1.

13. A compound or pharmaceutically acceptable salt according to claim 7, wherein m is 1.

14. A compound or pharmaceutically acceptable salt according to claim 8, wherein m is 1.

15. A compound or pharmaceutically acceptable salt according to claim 9, wherein m is 1.

16. A compound or pharmaceutically acceptable salt, which is an isochromene compound selected from the group consisting of:

3-((6-amino-9H-purin-9-yl)methyl)-4-phenyl-1H-isochromen-1-one;

3-((6-amino-9H-purin-9-yl)methyl)-4-(3-fluorophenyl)-1H-isochromen-1-one;

3-((6-amino-9H-purin-9-yl)methyl)-4-(2-fluorophenyl)-1H-isochromen-1-one;

3-((6-amino-9H-purin-9-yl)methyl)-4-m-tolyl-1H-isochromen-1-one;

3-(1-(6-amino-9H-purin-9-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(6-amino-9H-purin-9-yl)ethyl)-4-m-tolyl-1H-isochromen-1-one;

3-(1-(6-amino-9H-purin-9-yl)ethyl)-4-(3-fluorophenyl)-1H-isochromen-1-one;

3-(1-(6-amino-9H-purin-9-yl)ethyl)-4-(3-(dimethylamino)phenyl)-1H-isochromen-1-one;

3-(1-(6-amino-9H-purin-9-yl)ethyl)-4-(3-(morpholinosulfonyp)phenyl)-1H-isochromen-1-one;

3-((9H-purin-6-ylthio)methyl)-4-phenyl-1H-isochromen-1-one;

3-((9H-purin-6-ylthio)methyl)-4-m-tolyl-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylthio)ethyl)-4-m-tolyl-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylthio)ethyl)-4-(3-fluorophenyl)-1H-isochromen-1-one;

3-(1-(4-amino-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(6-methylpyridin-3-yl)-1H-isochromen-1-one;

3-(1-(4-amino-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(3-(morpholinosulfonyl)phenyl)-1H-isochromen-1-one;

3-(1-(4-amino-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(thiazol-5-yl)-1H-isochromen-1-one;

3-(1-(4-amino-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(2-methylpyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-benzyl-1H-isochromen-1-one;

3((9H-purin-6-ylamino)methyl)-4-(3-fluorophenyl)-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylamino)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylamino)ethyl)-4-(1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylamino)ethyl)-4-(3,6-dihydro-2H-pyran-4-yl)-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylamino)propyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylamino)ethyl)-4-(4-(2-morpholinoethoxy)phenyl)-1H-isochromen-1-one;

4-amino-8-(1-(1-oxo-4-phenyl-1H-isochromen-3-yl)ethyl)pyrido[2,3-d]pyrimidin-5(8H)-one;

3-(1-(9H-purin-6-ylamino)ethyl)-4-(5-(morpholinomethyl)thiophen-2-yl)-1H-isochromen-1-one;

3-((9H-purin-6-ylamino)methyl)-4-phenyl-1H-isochromen-1-one;

3-((9H-purin-6-ylamino)methyl)-4-(2-fluorophenyl)-1H-isochromen-1-one;

3-((9H-purin-6-ylamino)methyl)-4-m-tolyl-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylamino)ethyl)-4-(3-fluorophenyl)-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylamino)ethyl)-4-m-tolyl-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylamino)ethyl)-4-(3-(dimethylamino)phenyl)-1H-isochromen--1-one;

3-((4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)methyl)-4-phenyl-1H-isochromen-1-one;

3-((4-amino-3-(1H-indazol-5-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)methyl)-4-phenyl-1H-isochromen-1-one;

3-((4-amino-3-(3-methyl-1H-indazol-5-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)methyl)-4-phenyl-1H-isochromen-1-one;

3-((4-amino-3-(1H-indazol-6-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)methyl)-4-phenyl-1H-isochromen-1-one;

3-((4-amino-3-(3-fluoro-4-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)methyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-m-tolyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(1H-pyrazol-4-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-m-tolyl-1H-isochromen-1-one;

3-(1-(6-amino-9H-purin-9-yl)ethyl)-4-(6-methoxypyridin-3-yl)-1H-isochromen-1-one;

3-((4-amino-3-iodo-1H-pyrazolo[3,4-d]pyrimidin-1-yl)methyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-iodo-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-iodo-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-m-tolyl-1H-isochromen-1-one;

3-(1-(1H-pyrazolo[3,4-d]pyrimidin-4-ylamino)ethyl)-4-phenyl-1H-isochromen-1-one;

4-amino-6-(1-(1-oxo-4-phenyl-1H-isochromen-3-yl)ethylamino)pyrimidine-5-carbonitrile;

3-(1-(9H-purin-6-ylamino)ethyl)-4-(1-methyl-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-methyl-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-methyl-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one single enantiomer 1;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-methyl-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one single enantiomer 2;

3-(1-(9H-purin-6-ylamino)ethyl)-4-(4-(morpholinomethyl)phenyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(4-(morpholinomethyl)phenyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-(morpholinomethyl)thiophen-2-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-(morpholinomethyl)thiophen-2-yl)-1H-isochromen-1-one single enantiomer 1;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-(morpholinomethyl)thiophen-2-yl)-1H-isochromen-1-one single enantiomer 2;

3-(1-(9H-purin-6-ylamino)ethyl)-4-cyclohexenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(2-aminopyrimidin-5-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)-ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(pyrazin-2-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(pyridazin-4-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(pyridin-4-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(2-methoxypyrimidin-5-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(2-hydroxypyrimidin-5-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-methoxypyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)-ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(pyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(2-aminothiazol-5-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(6-methoxypyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(6-hydroxypyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

N-(5-(4-amino-1-(1-(1-oxo-4-phenyl-1H-isochromen-3-yl)ethyl)-1H-pyrazolo[3,4-d]pyrimidin-3-yl)thiazol-2-yl)acetamide;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-methyl-1,2,5,6-tetrahydropyridin-3-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-(pyridin-4-ylmethyl)-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-(cyclopropylmethyl)-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(3-((dimethylamino)methyl)phenyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(3-((dimethylamino)methyl)phenyl)-1H-isochromen-1-one enantiomer 1;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(3-((dimethylamino)methyl)phenyl)-1H-isochromen-1-one enantiomer 2;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-(piperidin-1-ylmethyl)thiophen-2-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-(piperidin-1-ylmethyl)thiophen-2-yl)-1H-isochromen-1-one single enantiomer 1;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-(piperidin-1-ylmethyl)thiophen-2-yl)-1H-isochromen-1-one single enantiomer 2;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(4-(4-methylpiperazine-1-carbonyl)phenyl)-1H-isochromen-1-one;

3-(3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-1-oxo-1H-isochromen-4-yl)-N-(2-(dimethylamino)ethyl)benzamide;

4-(1-acetyl-1,2,3,6-tetrahydropyridin-4-yl)-3-(1-(4-amino-3-(5-hydroxypyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-1H-isochromen-1-one;

4-(1-acetyl-1,2,3,6-tetrahydropyridin-4-yl)-3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-(pyrrolidin-1-ylmethyl)thiophen-2-yl)-1H- isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-((bis(2-hydroxyethyl)amino)methyl)thiophen-2-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-(hydroxymethyl)thiophen-2-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-((4-(2-hydroxyethyl)piperazin-1-yl)methyl)thiophen-2-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-((4-(2-hydroxyethyl)piperazin-1-yl)methyl)thiophen-2-yl)-1H-isochromen-1-one single enantiomer 1;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-((4-(2-hydroxyethyl)piperazin-1-yl)methyl)thiophen-2-yl)-1H-isochromen-1-one single enantiomer 2;

4-((5-(3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-1-oxo-1H-isochromen-4-yl)thiophen-2-yl)methyl)piperazin-2-one;

5-(3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-1-oxo-1H-isochromen-4-yl)thiophene-2-carboxylic acid;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-benzyl-1H-isochromen-1-one;

4-(1H-pyrazol-4-yl)-3-(1-(thieno[3,2-d]pyrimidin-4-ylamino)ethyl)-1H-isochromen-1-one;

4-(5-(morpholinomethyl)thiophen-2-yl)-3-(1-(thieno[3,2-d]pyrimidin-4-ylamino)ethyl)-1H-isochromen-1-one;

4-amino-6-((1-(4-(5-(morpholinomethyl)thiophen-2-yl)-1-oxo-1H-isochromen-3-yl)ethyl)amino)pyrimidine-5-carbonitrile;

4-phenyl-3-(1-(pyrrolo[2,1-f][1,2,4]triazin-4-ylamino)ethyl)-1H-isochromen-1-one;

4-phenyl-3-(1-(pyrido[3,2-d]pyrimidin-4-ylamino)ethyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-(hydroxymethyl)pyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(6-(hydroxymethyl)pyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

N-(5-(4-amino-1-(1-(1-oxo-4-phenyl-1H-isochromen-3-yl)ethyl)-1H-pyrazolo[3,4-d]pyrimidin-3-yl)pyridin-3-yl)-4-fluorobenzenesulfonamide;

3-(1-(4-amino-3-(5-aminopyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(2-aminopyrimidin-4-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(6-hydroxypyrazin-2-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-hydroxypyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(8-methyl-8-azabicyclo[3.2.1]oct-2-en-3-yl)-1H-isochromen-1-one hydrochloride;

3-(1-(4-amino-3-(3-fluoro-4-isopropoxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-fluoropyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-chloro-5-fluorophenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-(methylsulfonyl)pyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(6-(methylsulfonyl)pyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-fluoro-6-hydroxypyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-hydroxy-6-methylpyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-(trifluoromethyl)pyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-hydroxy-3-sulfur pentafluoride)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

5-(4-amino-1-(1-(1-oxo-4-phenyl-1H-isochromen-3-yl)ethyl)-1H-pyrazolo[3,4-d]pyrimidin-3-yl)nicotinonitrile;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(4-aminocyclohex-1-en-1-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(trifluoromethyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-methyl-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-7H-pyrrolo[2,3-d]pyrimidin-7-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(2,6-diamino-9H-purin-9-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

4-phenyl-3-(1-(thieno[2,3-d]pyrimidin-4-ylamino)ethyl)-1H-isochromen-1-one;

4-phenyl-3-(1-(thieno[3,2-d]pyrimidin-4-ylamino)ethyl)-1H-isochromen-1-one;

2-amino-N-(1-(1-oxo-4-phenyl-1H-isochromen-3-yl)ethyl)pyrazolo[1,5-a]pyrimidine-3-carboxamide;

3-(1-(4-amino-3-(1H-pyrazol-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(1H-indazol-4-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-amino-1H-indazol-5-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-hydroxy-5-(trifluoromethoxy)phenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(6-amino-9H-purin-9-yl)ethyl)-4-(5-(morpholinomethyl)thiophen-2-yl)-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylamino)ethyl)-4-(6-methoxypyridin-3-yl)-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylamino)ethyl)-4-(thiazol-5-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-2H-pyrazolo[3,4-d]pyrimidin-2-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(3-(dimethylamino)phenyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(thiazol-5-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(2-aminothiazol-5-yl)-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylamino)ethyl)-4-(1H-pyrazol-4-yl)-1H-isochromen-1-one;

4-amino-6-((1-(1-oxo-4-(1H-pyrazol-4-yl)-1H-isochromen-3-yl)ethyl)amino)pyrimidine-5-carbonitrile;

3-(1-(9H-purin-6-ylamino)ethyl)-4-(2-aminopyrimidin-5-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(4-(piperazin-1-ylmethyl)phenyl)-1H-isochromen-1-one;

3-(1-(9H-purin-6-ylamino)ethyl)-4-(4-(piperazin-1-ylmethyl)phenyl)-1H-isochromen-1-one;

3-(1-(4-amino-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(4-(piperazin-1-ylmethyl)phenyl)-1H-isochromen-1-one;

3-(4-amino-1-((4-phenyl-1H-isochromen-3-yl)methyl)-1H-pyrazolo[3,4-d]pyrimidin-3-yl)-5-fluorophenol;

5-(4-amino-1-((4-phenyl-1H-isochromen-3-yl)methyl)-1H-pyrazolo[3,4-d]pyrimidin-3-yl)pyridin-3-ol;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(morpholinomethyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-benzyl-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-hydroxypyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-benzyl-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

benzyl 4-(3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-1-oxo-1H-isochromen-4-yl)-5,6-dihydropyridine-1(2H)-carboxylate;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-(piperazin-1-ylmethyl)thiophen-2-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-((4-methylpiperazin-1-yl)methyl)thiophen-2-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(5-(3-(dimethylamino)propyl)thiophen-2-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(3-(3-(dimethylamino)propyl)phenyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(3-(3-(dimethylamino)propyl)phenyl)-1H-isochromen-1-one single enantiomer 1;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(3-(3-(dimethylamino)propyl)phenyl)-1H-isochromen-1-one single enantiomer 2;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(4-(3-(dimethylamino)propyl)phenyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(4-(3-(dimethylamino)propyl)phenyl)-1H-isochromen-1-one single enantiomer 1;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(4-(3-(dimethylamino)propyl)phenyl)-1H-isochromen-1-one single enantiomer 2;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(4-((4-methylpiperazin-1-yl)methyl)phenyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(4-(pyrrolidin-1-ylmethyl)phenyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(4-(piperidin-1-ylmethyl)phenyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(3-((4-methylpiperazin-1-yl)methyl)phenyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(3-(piperidin-1-ylmethyl)phenyl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(2,2,6,6-tetramethyl-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-hydroxypyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(2,2,6,6-tetramethyl-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-(4-(dimethylamino)butanoyl)-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-(2-(dimethylamino)acetyl)-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-(1-methylpiperidine-4-carbonyl)-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-(1-isopropylpiperidin-4-yl)-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-(azetidine-3-carbonyl)-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-(1-methylazetidine-3-carbonyl)-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-chloro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-hydroxy-5-(trifluoromethyl)phenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-chloro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-methyl-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-hydroxy-5-(trifluoromethyl)phenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-methyl-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-(azetidin-3-yl)-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-(1-(cyclopropylmethyl)azetidin-3-yl)-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(3-(dimethylamino)prop-1-yn-1-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-hydroxy-4-methylpyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-hydroxy-2-methylpyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-hydroxy-6-(trifluoromethyl)pyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-7-methyl-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-7-chloro-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-6-chloro-4-phenyl-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-6-fluoro-4-phenyl-1H-isochromen-1-one;

4-(1-acetyl-1,2,3,6-tetrahydropyridin-4-yl)-3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-1H-isochromen-1-one single enantiomer 1;

4-(1-acetyl-1,2,3,6-tetrahydropyridin-4-yl)-3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-1H-isochromen-1-one single 2;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(thiazol-5-yl)-1H-isochromen-1-one single enantiomer 1;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(thiazol-5-yl)-1H-isochromen-1-one single enantiomer 2;

3-(1-(4-amino-3-(5-hydroxypyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one single enantiomer 1;

3-(1-(4-amino-3-(5-hydroxypyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one single enantiomer 2;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-benzyl-1,2,5,6-tetrahydropyridin-3-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-benzyl-1,2,5,6-tetrahydropyridin-3-yl)-1H-isochromen-1-one single enantiomer 1;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-benzyl-1,2,5,6-tetrahydropyridin-3-yl)-1H-isochromen-1-one single enantiomer 2;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(pyridin-2-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1,2,5,6-tetrahydropyridin-3-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-(1-methylpiperidin-4-yl)-1,2,5,6-tetrahydropyridin-3-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-(azetidin-3-yl)-1,2,5,6-tetrahydropyridin-3-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-isopropyl-1,2,5,6-tetrahydropyridin-3-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(5-hydroxypyridin-3-yl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-(1-methyl-1,2,3,6-tetrahydropyridin-4-yl)-1H-isochromen-1-one;

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one single enantiomer 1; and

3-(1-(4-amino-3-(3-fluoro-5-hydroxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)ethyl)-4-phenyl-1H-isochromen-1-one single enantiomer 2;

or a pharmaceutically acceptable salt of said isochromene compound.

17. A pharmaceutical composition, comprising a compound or pharmaceutically acceptable salt according to claim 1, either alone or in combination with one or more active ingredients, in admixture with one or more pharmaceutically acceptable carriers or excipents.

18. The compound or pharmaceutically acceptable salt according to any one of claims 1-16 for use in the treatment of a disorder associated with a PI3K enzyme mechanism.

19. The compound or pharmaceutically acceptable salt according to claim 18, wherein said disorder is a respiratory disease; viral infections; non-viral respiratory infections; allergic diseases; autoimmune diseases; inflammatory disorders; cardiovascular diseases; hematologic malignancies; neurodegenerative diseases; pancreatitis; multiorgan failure; kidney diseases; platelet aggregation; cancer; sperm motility; transplantation rejection; graft rejection; lung injuries; or pain.

20. The compound or pharmaceutically acceptable salt according to claim 18, wherein said disorder is asthma, chronic obstructive pulmonary disease (COPD), or idiopathic pulmonary fibrosis (IPF).

21. Use of the compound or pharmaceutically acceptable salt according to any one of claims 1-16 in the manufacture of a medicament for the treatment of a disorder associated with a PI3K enzyme mechanism.

22. The use according to claim 21, wherein said disorder is a respiratory disease; viral infections; non-viral respiratory infections; allergic diseases; autoimmune diseases; inflammatory disorders; cardiovascular diseases; hematologic malignancies; neurodegenerative diseases; pancreatitis; multiorgan failure; kidney diseases; platelet aggregation; cancer; sperm motility; transplantation rejection; graft rejection; lung injuries; or pain.

23. The use according to claim 21, wherein said disorder is asthma, chronic obstructive pulmonary disease (COPD), or idiopathic pulmonary fibrosis (IPF).