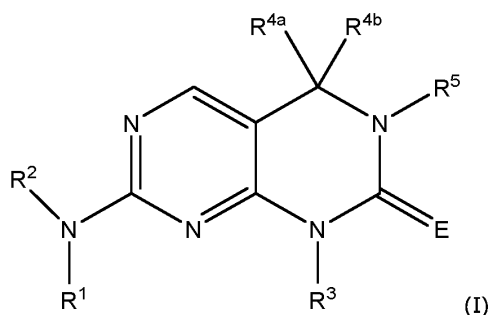


CLAIMS

1. **A compound** selected from the group consisting of a kinase inhibitor of the formula (I):



and solvates, salts, N-oxides, complexes, polymorphs, crystalline forms, racemic mixtures, diastereomers, enantiomers, tautomers, conformers, isotopically labeled forms, prodrugs, and combinations thereof; wherein:

R¹ is -Q-R^{1a};

R^{1a} is selected from the group consisting of H, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, heteroaryl, halogen, -CN, azido, -NO₂, -OR¹¹, -N(R¹²)(R¹³), -N(R¹¹)(OR¹¹), -S(O)₀₋₂R¹¹, -S(O)₁₋₂OR¹¹, -OS(O)₁₋₂R¹¹, -OS(O)₁₋₂OR¹¹, -S(O)₁₋₂N(R¹²)(R¹³), -OS(O)₁₋₂N(R¹²)(R¹³), -N(R¹¹)S(O)₁₋₂R¹¹, -NR¹¹S(O)₁₋₂OR¹¹, -NR¹¹S(O)₁₋₂N(R¹²)(R¹³), -P(O)(OR¹¹)₂, -OP(O)(OR¹¹)₂, -C(=X)R¹¹, -C(=X)XR¹¹, -XC(=X)R¹¹, and -XC(=X)XR¹¹, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, and heteroaryl groups is optionally substituted with one or more independently selected R³⁰;

Q is selected from the group consisting of C₆₋₁₀ aryl, and 5- or 6-membered heteroaryl, wherein each of the C₆₋₁₀ aryl, and 5- or 6-membered heteroaryl is optionally substituted with one or more R³⁰ independently selected from the group consisting of C₁₋₈ alkyl, halogen, -OR¹¹, -N(R¹²)(R¹³), -SR¹¹, C(=O)R¹¹, wherein each of the C₁₋₈ alkyl, halogen, -OR¹¹, -N(R¹²)(R¹³), -SR¹¹, C(=O)R¹¹ is optionally substituted with one or more independently selected R³⁰;

R² is H;

R³ C₁₋₈ alkyl, C₃₋₁₀ cycloalkyl, C₆₋₁₀ aryl, and 5- to 8-membered heteroaryl, wherein each of the C₁₋₈ alkyl, C₃₋₁₀ cycloalkyl, C₆₋₁₀ aryl, and 5- to 8-membered heteroaryl groups is optionally substituted with one or more R³⁰ independently selected from the group consisting of C₁₋₈ alkyl, halogen, -OR¹¹, -N(R¹²)(R¹³), -SR¹¹, C(=O)R¹¹, wherein each of C₁₋₈ alkyl, halogen, -OR¹¹, -N(R¹²)(R¹³), -SR¹¹, and C(=O)R¹¹ is optionally substituted with one or more independently selected R³⁰;

optionally R¹ and R³ may join together via a group L' to form a moiety R¹-L'-R³, preferably to form a moiety Q-L'-R³, **wherein L'** is selected from the group consisting of a bond, alkylene, alkenylene, alkynylene, -(CH₂)_p-[Y-(CH₂)_q]_r-, alkenylene -[Y-(CH₂)_q]_r-, wherein p is an integer between 1 and 10, q is an integer between 0 and 6, r is an integer between 1 and 3, wherein if q is 0 then r is 1; Y is independently selected from O, S, and -N(R¹³)-; and each of the alkylene, alkenylene, alkynylene, -(CH₂)_p-, and -(CH₂)_q- groups is optionally substituted with one or more independently selected R³⁰

both R^{4a} and R^{4b} are H;

R⁵ is -L-R⁶;

L is a bond;

R⁶ is thienyl optionally substituted with one, two, or three independently selected **R⁷**;

R⁷ is independently selected from the group consisting of alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, heteroaryl, halogen, -CN, azido, -NO₂, -OR¹¹, -N(R¹²)(R¹³), -N(R¹¹)(OR¹¹), -S(O)₀₋₂R¹¹, -S(O)₁₋₂OR¹¹, -OS(O)₁₋₂R¹¹,

-OS(O)₁₋₂OR¹¹, -S(O)₁₋₂N(R¹²)(R¹³), -OS(O)₁₋₂N(R¹²)(R¹³), -N(R¹¹)S(O)₁₋₂R¹¹, -NR¹¹S(O)₁₋₂OR¹¹, -NR¹¹S(O)₁₋₂N(R¹²)(R¹³), -P(O)(OR¹¹)₂, -OP(O)(OR¹¹)₂, -C(=X)R¹¹, -C(=X)XR¹¹, -XC(=X)R¹¹, and -XC(=X)XR¹¹, and/or any two **R⁷** which are bound to the same atom of **R⁶** being a heterocyclyl group may join together to form =O, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, and heteroaryl groups is optionally substituted with one or more independently selected **R³⁰**;

E is O;

R¹¹ is independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl groups is optionally substituted with one or more independently selected **R³⁰**;

each of R¹² and R¹³ is independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl, or **R¹²** and **R¹³** may join together with the nitrogen atom to which they are attached to

form the group -N=CR¹⁵R¹⁶, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl

groups is optionally substituted with one or more independently selected **R³⁰**;

each of R¹⁵ and R¹⁶ is independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, heterocyclyl, and -NH_yR^{20-y}, or **R¹⁵** and **R¹⁶** may join together with the atom to which they are attached to form a ring which is optionally substituted with one or more independently selected **R³⁰**, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl groups is optionally substituted with one or more independently selected **R³⁰**;

y is an integer from 0 to 2;

R²⁰ is independently selected from the group consisting of alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl groups is optionally substituted with one or more independently selected **R³⁰**; and

R³⁰ is a 1st level substituent and is, in each case, independently selected from the group consisting of alkyl, alkenyl, alkynyl, aryl, heteroaryl, cycloalkyl, heterocyclyl, halogen, -CN, azido, -NO₂, -OR⁷¹, -N(R⁷²)(R⁷³), -S(O)₀₋₂R⁷¹, -S(O)₁₋₂OR⁷¹, -OS(O)₁₋₂R⁷¹, -OS(O)₁₋₂OR⁷¹, -S(O)₁₋₂N(R⁷²)(R⁷³), -OS(O)₁₋₂N(R⁷²)(R⁷³), -N(R⁷¹)S(O)₁₋₂R⁷¹, -NR⁷¹S(O)₁₋₂OR⁷¹, -NR⁷¹S(O)₁₋₂N(R⁷²)(R⁷³), -OP(O)(OR⁷¹)₂, -C(=X¹)R⁷¹, -C(=X¹)X¹R⁷¹, -X¹C(=X¹)R⁷¹, and -X¹C(=X¹)X¹R⁷¹, and/or any two **R³⁰** which are bound to the same carbon atom of a cycloalkyl or heterocyclyl group may join together to form =X¹, wherein each of the alkyl, alkenyl, alkynyl, aryl, heteroaryl, cycloalkyl, and heterocyclyl groups being a 1st level substituent is optionally substituted by one or more 2nd level substituents, wherein said 2nd level substituent is, in each case, independently selected from the group consisting of C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, 3- to 14-membered aryl, 3- to 14-membered heteroaryl, 3- to 14-membered cycloalkyl, 3- to 14-membered heterocyclyl, halogen, -CF₃, -CN, azido, -NO₂, -OR⁸¹, -N(R⁸²)(R⁸³), -S(O)₀₋₂R⁸¹, -S(O)₁₋₂OR⁸¹, -OS(O)₁₋₂R⁸¹, -OS(O)₁₋₂OR⁸¹, -S(O)₁₋₂N(R⁸²)(R⁸³), -OS(O)₁₋₂N(R⁸²)(R⁸³), -N(R⁸¹)S(O)₁₋₂R⁸¹, -NR⁸¹S(O)₁₋₂OR⁸¹, -NR⁸¹S(O)₁₋₂N(R⁸²)(R⁸³), -OP(O)(OR⁸¹)₂, -C(=X²)R⁸¹, -C(=X²)X²R⁸¹, -X²C(=X²)R⁸¹, and -X²C(=X²)X²R⁸¹, and/or any two 2nd level substituents which are bound to the same carbon

atom of a cycloalkyl or heterocyclyl group being a 1st level substituent may join together to form =X², wherein each of the C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, 3- to 14-membered aryl, 3- to 14-membered heteroaryl, 3- to 14-membered cycloalkyl, 3- to 14-membered heterocyclyl groups being a 2nd level substituent is optionally substituted with one or more 3rd level substituents, wherein said 3rd level substituent is, in each case, independently selected from the group consisting of C₁₋₃ alkyl, halogen, -CF₃, -CN, azido, -NO₂, -OH, -O(C₁₋₃ alkyl), -OCF₃, -S(C₁₋₃ alkyl), -NH₂, -NH(C₁₋₃ alkyl), -N(C₁₋₃ alkyl)₂, -NHS(O)₂(C₁₋₃ alkyl), -S(O)₂NH₂-z(C₁₋₃ alkyl)_z, -C(=O)OH, -C(=O)O(C₁₋₃ alkyl), -C(=O)NH₂-z(C₁₋₃ alkyl)_z, -NHC(=O)(C₁₋₃ alkyl), -NHC(=NH)NH₂-z(C₁₋₃ alkyl)_z, and -N(C₁₋₃ alkyl)C(=NH)NH₂-z(C₁₋₃ alkyl)_z, wherein each z is independently 0, 1, or 2 and each C₁₋₃ alkyl is independently methyl, ethyl, propyl or isopropyl, and/or any two 3rd level substituents which are bound to the same carbon atom of a 3- to 14-membered cycloalkyl or heterocyclyl group being a 2nd level substituent may join together to form =O, =S, =NH, or =N(C₁₋₃ alkyl); wherein

each of R⁷¹, R⁷², and R⁷³ is independently selected from the group consisting of H, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl,

3- to 7-membered cycloalkyl, 5- or 6-membered aryl, 5- or 6-membered heteroaryl, and 3- to 7-membered heterocyclyl, wherein each of the C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, 3- to 7-membered cycloalkyl, 5- or 6-membered aryl, 5- or 6-membered heteroaryl, and 3- to 7-membered heterocyclyl groups is optionally substituted with one, two or three substituents independently selected from the group consisting of C₁₋₃ alkyl, halogen, -CF₃, -CN, azido, -NO₂, -OH, -O(C₁₋₃ alkyl), -OCF₃, =O, -S(C₁₋₃ alkyl), -NH₂, -NH(C₁₋₃ alkyl), -N(C₁₋₃ alkyl)₂, -NHS(O)₂(C₁₋₃ alkyl), -S(O)₂NH₂-z(C₁₋₃ alkyl)_z, -C(=O)(C₁₋₃ alkyl), -C(=O)OH, -C(=O)O(C₁₋₃ alkyl), -C(=O)NH₂-z(C₁₋₃ alkyl)_z, -NHC(=O)(C₁₋₃ alkyl), -NHC(=NH)NH₂-z(C₁₋₃ alkyl)_z, and -N(C₁₋₃ alkyl)C(=NH)NH₂-z(C₁₋₃ alkyl)_z, wherein each z is independently 0, 1, or 2 and each C₁₋₃ alkyl is independently methyl, ethyl, propyl or isopropyl;

each of R⁸¹, R⁸², and R⁸³ is independently selected from the group consisting of H, C₁₋₄ alkyl, C₂₋₄ alkenyl, C₂₋₄ alkynyl, 3- to 6-membered cycloalkyl, 5- or 6-membered aryl, 5- or 6-membered heteroaryl, and 3- to 6-membered heterocyclyl, wherein each of the C₁₋₄ alkyl, C₂₋₄ alkenyl, C₂₋₄ alkynyl, 3- to 6-membered cycloalkyl, 5- or 6-membered aryl, 5- or 6-membered heteroaryl, and 3- to 6-membered heterocyclyl groups is optionally substituted with one, two or three substituents independently selected from the group consisting of C₁₋₃ alkyl, halogen, -CF₃, -CN, azido, -NO₂, -OH, -O(C₁₋₃ alkyl), -OCF₃, =O, -S(C₁₋₃ alkyl), -NH₂, -NH(C₁₋₃ alkyl), -N(C₁₋₃ alkyl)₂, -NHS(O)₂(C₁₋₃ alkyl), -S(O)₂NH₂-z(C₁₋₃ alkyl)_z, -C(=O)(C₁₋₃ alkyl), -C(=O)OH, -C(=O)O(C₁₋₃ alkyl), -C(=O)NH₂-z(C₁₋₃ alkyl)_z, -NHC(=O)(C₁₋₃ alkyl), -NHC(=NH)NH₂-z(C₁₋₃ alkyl)_z, and -N(C₁₋₃ alkyl)C(=NH)NH₂-z(C₁₋₃ alkyl)_z, wherein each z is independently 0, 1, or 2 and

each C₁₋₃ alkyl is independently methyl, ethyl, propyl or isopropyl; and

each of X¹ and X² is independently selected from O, S, and N(R⁸⁴), wherein R⁸⁴ is H or C₁₋₃ alkyl.

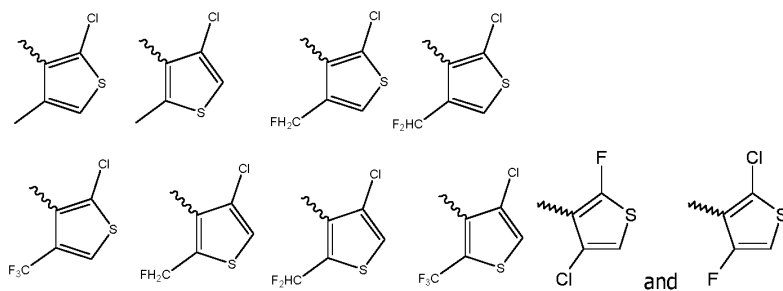
2. The compound of claim 1, wherein R⁶ is substituted with one or more independently selected R⁷; R⁷ is independently selected from the group consisting of alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, heteroaryl, halogen, -CN, azido, -NO₂, -OR¹¹, -N(R¹²)(R¹³), -N(R¹¹)(OR¹¹), -S(O)₀₋₂R¹¹, -S(O)₁₋₂OR¹¹, -OS(O)₁₋₂R¹¹, -OS(O)₁₋₂OR¹¹, -S(O)₁₋₂N(R¹²)(R¹³), -OS(O)₁₋₂N(R¹²)(R¹³), -N(R¹¹)S(O)₁₋₂R¹¹, -NR¹¹S(O)₁₋

$_2\text{OR}^{11}$, $-\text{NR}^{11}\text{S}(\text{O})_{1-2}\text{N}(\text{R}^{12})(\text{R}^{13})$, $-\text{P}(\text{O})(\text{OR}^{11})_2$, $-\text{OP}(\text{O})(\text{OR}^{11})_2$, $-\text{C}(=\text{X})\text{R}^{11}$, $-\text{C}(=\text{X})\text{XR}^{11}$, $-\text{XC}(=\text{X})\text{R}^{11}$, and $-\text{XC}(=\text{X})\text{XR}^{11}$; and wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, and heteroaryl groups is optionally substituted with one or more independently selected R^{30} , **and**

wherein **at least one of R^7 is F and/or at least one of R^7 is substituted with one or more F atoms.**

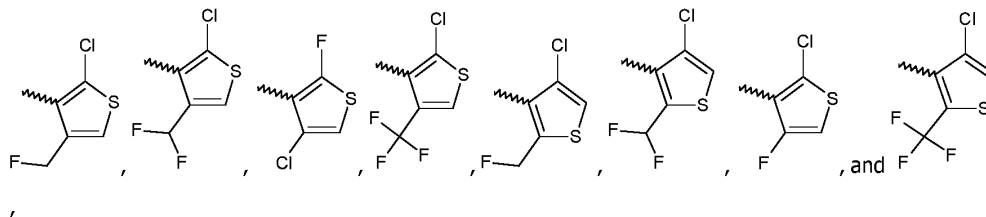
3. The compound of claim 2, wherein at least one of R^7 is F and/or at least one of R^7 is C_{1-3} alkyl, wherein the alkyl group of C_{1-3} alkyl is substituted with one or more F atoms.

4. The compound of any one of claims 1 to 3:
wherein R^6 is selected from the group consisting of



wherein represents the bond by which R^6 is bound to the remainder of the compound.

5. The compound of claim 4, wherein R^6 is selected from the group consisting of



wherein represents the bond by which R^6 is bound to the remainder of the compound.

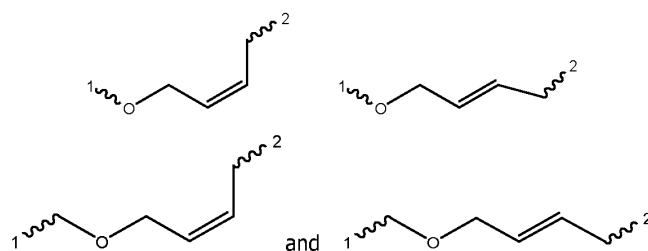
6. The compound of any of the claims 1 to 5, **wherein R^{1a} is selected from the group consisting of C_{1-3} alkyl, $-\text{O}(\text{C}_{1-3}$ alkyl), $-\text{S}(\text{C}_{1-3}$ alkyl), $-\text{NH}(\text{C}_{1-3}$ alkyl), piperazinyl, morpholinyl, piperidinyl, pyrrolidinyl, and azepanyl** wherein each of the piperazinyl, morpholinyl, piperidinyl, pyrrolidinyl, and azepanyl groups is optionally substituted with one or two moieties independently selected from the group consisting of methyl, ethyl, $-\text{OH}$, $-\text{OCH}_3$, $-\text{SCH}_3$, cyclopropyl, 2-hydroxyethyl, 2-(N,N-dimethylamino)ethyl, 2-(N,N-dimethylamino)ethoxy, 2-aminoethyl, 2-(N-methylamino)ethyl, 2-(methoxy)ethyl, 4-methylpiperazinyl, $-\text{C}(=\text{O})(\text{C}_{1-3}$ alkyl), $-(\text{CH}_2)_{1-3}\text{COOH}$, and $-\text{NH}_2\text{-z}(\text{CH}_3)_z$, wherein z is 0, 1, or 2; and each of the C_{1-3} alkyl groups is optionally substituted with one or two moieties independently selected from the group consisting of $-\text{OH}$, $-\text{OCH}_3$, $-\text{SCH}_3$, cyclopropyl, piperazinyl, 4-methyl-piperazinyl, 4-(2-hydroxyethyl)piperazinyl, 2-(N,N-dimethylamino)ethoxy, and $-\text{NH}_2\text{-z}(\text{CH}_3)_z$, wherein z is 0, 1, or 2.

7. The compound of any of the claims 1 to 6, wherein R^{1a} is piperidinyl substituted with one to three R^{30} independently selected from the group consisting of C_1 to C_4 alkyl.

8. The compound of any of the claims 1 to 7, wherein R^{1a} is piperidinyl substituted with one to three methyl.

- 9.** The compound of any of the claims 1 to 8, **wherein Q** is C₆₋₁₀ aryl, wherein the C₆₋₁₀ aryl is optionally substituted with one or more R³⁰ being -OR¹¹, wherein R¹¹ is independently selected from C₁₋₈ alkyl.
- 10.** The compound of any of the claims 1 to 9, wherein Q is C₆ aryl, wherein the C₆ aryl is optionally substituted with one or more R³⁰ being -OR¹¹, wherein R¹¹ is methyl.
- 11.** The compound of any of the claims 1 to 10, **wherein R³** is selected from the group consisting of methyl, ethyl, phenyl, and pyridyl, wherein each of the methyl, ethyl, phenyl, and pyridyl is optionally substituted with one or more R³⁰ being methoxy.
- 12.** The compound of any of the claims 1 to 11, wherein R³ is selected from the group consisting of methyl, 2-methoxyethyl, methoxyphenyl, and 3-methoxypyridyl, and 1,3-dimethoxyphenyl.
- 13.** The compound of any of the claims 1 to 12, **wherein R¹ and R³ join together** via a group L' to form a moiety R¹-L'-R³ and, optionally, wherein R³ is a bond.
- 14.** The compound of claim 13, wherein R¹ and R³ join together via a group L' to form a moiety Q-L'-R³, and optionally, wherein R³ is a bond.
- 15.** The compound of any of the claims 1 to 14, wherein R⁶ is substituted with two independently selected R⁷.
- 16.** The compound of claim 15, wherein R⁶ is substituted with two R⁷ that differ from each other.
- 17.** The compound of any of the claims 1 to 16, **wherein R⁷** is independently selected from the group consisting of C₁₋₃ alkyl, halogen, -CN, -O(C₁₋₃ alkyl), -NH(C₁₋₃ alkyl), and -N(C₁₋₃ alkyl)₂.
- 18.** The compound of any of the claims 1 to 17, wherein any two R⁷ which are bound to the same atom of R⁶ being a heterocyclyl group may join together to form =O, wherein each of the C₁₋₃ alkyl groups is optionally substituted with one or more independently selected R³⁰.
- 19.** The compound of any of the claims 1 to 18, wherein R⁷ is independently selected from the group consisting of halogen and C₁₋₂ alkyl, wherein the C₁₋₂ alkyl groups is optionally substituted with one, two, or three independently selected R³⁰.
- 20.** The compound of any of the claims 1 to 19, wherein R⁷ is independently selected from the group consisting of Cl, F, methyl, fluoromethyl, difluoromethyl, and trifluoromethyl.
- 21.** The compound of any of the claims 1 to 20, **wherein R¹ and R³ join together** via a group L' to form a moiety R¹-L'-R³ and **wherein L'** is selected from the group consisting of C₃₋₁₀ alkylene, C₃₋₁₀ alkenylene, C₃₋₁₀ alkynylene, -(CH₂)_p-[Y-(CH₂)_q]-, and alkenylene -[Y-(CH₂)_q]-, wherein p is an integer between 1 and 10, q is an integer between 0 and 6, r is an integer between 1 and 3, wherein if q is 0 then r is 1; Y is independently selected from O, S, and -N(R¹³)-; and each of the C₃₋₁₀ alkylene, C₃₋₁₀ alkenylene, C₃₋₁₀ alkynylene, -(CH₂)_p-, and -(CH₂)_q- groups is optionally substituted with one or more independently selected R³⁰; optionally wherein R¹ and R³ join together via a group L' to form a moiety Q-L'-R³; *and, optionally::*

wherein L' is selected from the group consisting of



wherein represents the bond by which L' is bound to R¹, and represents the bond by which L' is bound to R³; and/or

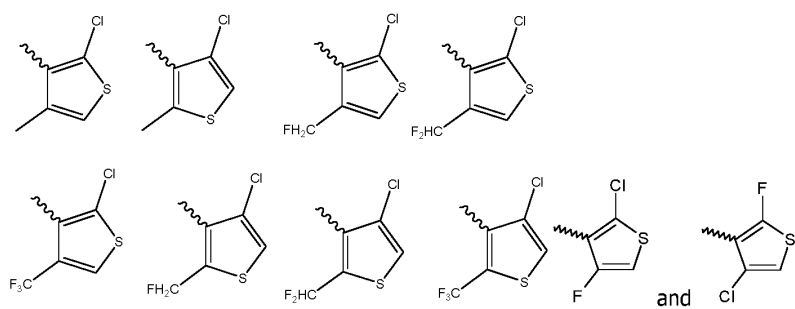
wherein R³ is a bond.

22. The compound of claim 1, wherein:

- **R^{1a}** is selected from the group consisting of piperidinyl substituted with one to three moieties independently selected from the group consisting of C₁ to C₄ alkyl; piperazinyl group substituted with one or two moieties independently selected from the group consisting of 2-hydroxyethyl and C₁ to C₄ alkyl; azepanyl substituted with one to three moieties independently selected from the group consisting of C₁ to C₄ alkyl; morpholinyl; and C₁₋₃ alkyl group substituted with -NH_{2-z}(CH₃)_z, wherein z is 0, 1, or 2;
- **Q** is C₆₋₁₀ aryl, wherein the C₆₋₁₀ aryl is optionally substituted with one or more R³⁰ being -OR¹¹, wherein R¹¹ is independently selected from C₁₋₁₂ alkyl;
- **E** is O;
- **R³** is selected from the group consisting of C₁₋₆ alkyl, C₆ aryl, and 5- or 6-membered heteroaryl, wherein each of the C₁₋₆ alkyl, C₆ aryl, and 5- or 6-membered heteroaryl groups is optionally substituted with one or more R³⁰ independently selected from the group consisting of C₁₋₆ alkyl, and OR¹¹, wherein R¹¹ C₁₋₁₂ alkyl;
- both **R^{4a}** and **R^{4b}** are H;
- **R⁶** is thienyl substituted with one, two, or three independently selected R⁷;
- **R⁷** is independently selected from the group consisting of Cl, F, methyl, fluoromethyl, difluoromethyl, and trifluoromethyl, preferably wherein at least one of R⁷ is F and/or at least one of R⁷ is substituted with one or more F atoms; and
- **L** is a bond; and
- **L'**, if present, is C₃₋₁₀ alkenylene-[O-(CH₂)_q]_r.

23. The compound of claim 1, wherein:

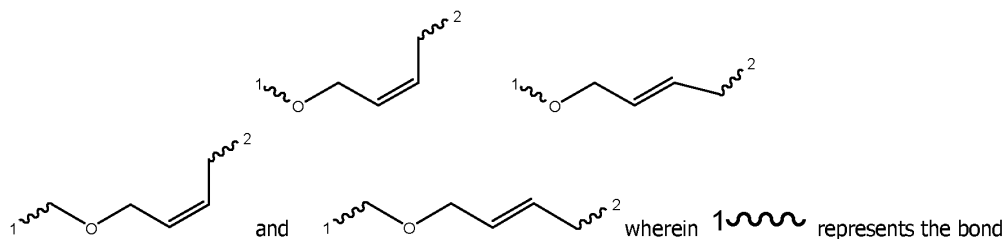
- **R^{1a}** is selected from the group consisting of 1-methylpiperidinyl, 1,2-dimethylpiperidinyl, 1,2,6-trimethylpiperidinyl, 1-methylazepanyl, 4-(2-hydroxyethyl)piperazinyl, 1-methyl-4-(2-hydroxyethyl)piperazinyl, 4-methylpiperazinyl, 4-acetyl piperazinyl, and (2-hydroxyethyl)amino;
- **Q** is C₆ aryl, wherein the C₆ aryl is optionally substituted with one or more -OR¹¹, wherein R¹¹ is methyl;
- **E** is O;
- **R³** is selected from the group consisting of methyl, 2-methoxyethyl, methoxyphenyl, and 3-methoxypyridyl, and 1,3-dimethoxyphenyl;
- both **R^{4a}** and **R^{4b}** are H;
- **R⁶** is selected from the group consisting of



wherein represents the bond by which R⁶ is bound to the remainder of the compound;

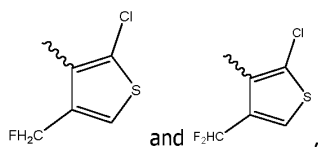
- **L** is a bond; **and**

- **L'**, if present, is selected from the group consisting of



by which L' is bound to R¹, and 2 represents the bond by which L' is bound to R³.

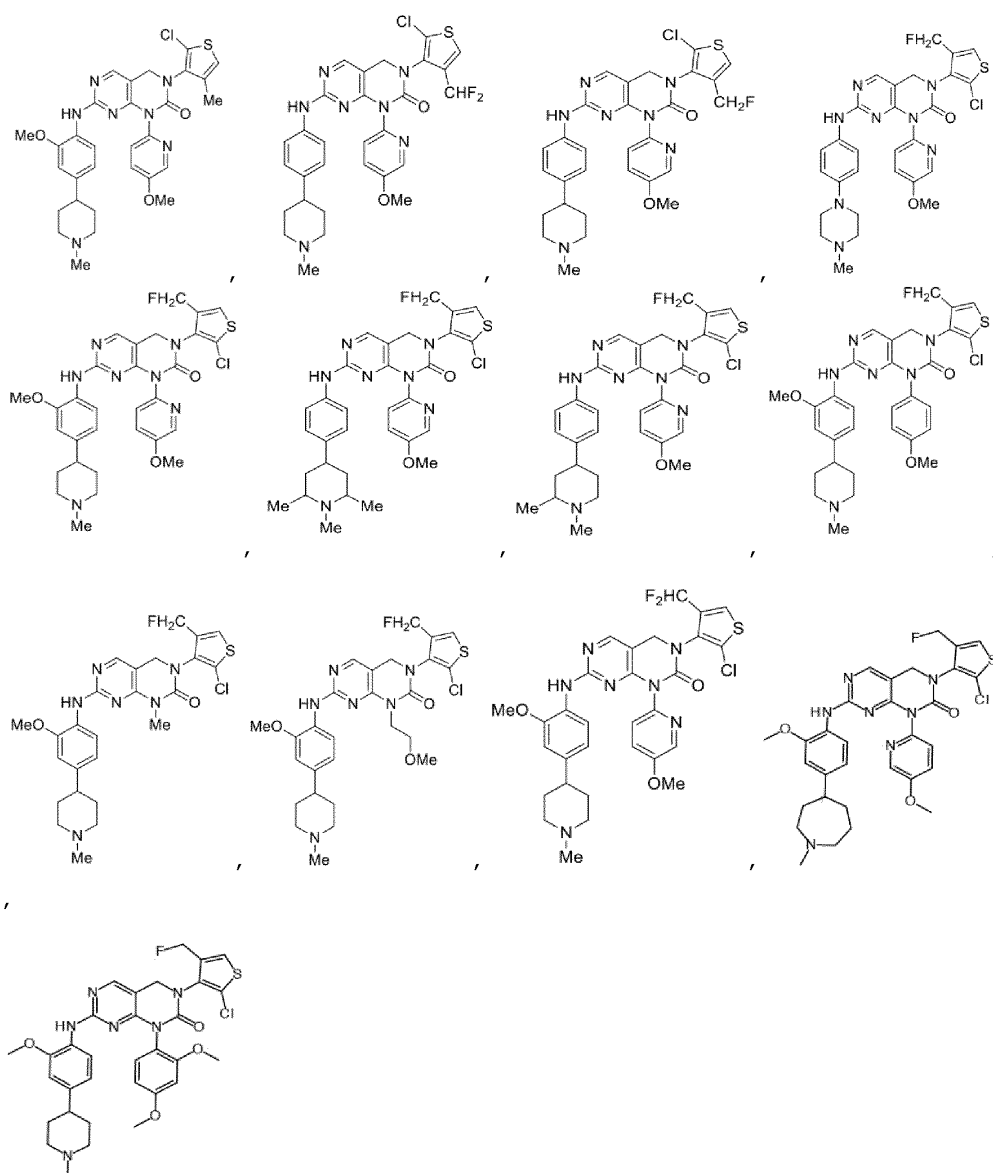
24. The compound of claim 22 or 23, wherein R⁶ is selected from the group consisting of:



wherein represents the bond by which R⁶ is bound to the remainder of the compound; *and/or*

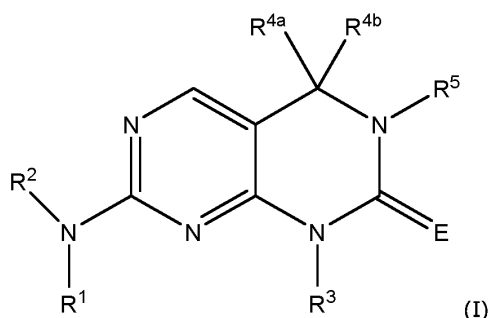
wherein R¹ and R³ join together via a group L' to form a moiety R¹-L'-R³, preferably to form a moiety Q-L'-R³, and optionally wherein R³ is a bond.

25. The compound of claim 1, selected from the group consisting of



and solvates, salts, N-oxides, complexes, polymorphs, crystalline forms, racemic mixtures, diastereomers, enantiomers, tautomers, conformers, isotopically labeled forms, prodrugs, and combinations thereof.

26. A compound selected from the group consisting of a kinase inhibitor of the formula (I):



and solvates, salts, N-oxides, complexes, polymorphs, crystalline forms, racemic mixtures, diastereomers, enantiomers, tautomers, conformers, isotopically labeled forms, prodrugs, and combinations thereof;

wherein:

R¹ is -Q-R^{1a};

R^{1a} is selected from the group consisting of H, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, heteroaryl, halogen, -CN, azido, -NO₂, -OR¹¹, -N(R¹²)(R¹³), -N(R¹¹)(OR¹¹), -S(O)₀₋₂R¹¹, -S(O)₁₋₂OR¹¹, -OS(O)₁₋₂R¹¹, -OS(O)₁₋₂OR¹¹, -S(O)₁₋₂N(R¹²)(R¹³), -OS(O)₁₋₂N(R¹²)(R¹³), -N(R¹¹)S(O)₁₋₂R¹¹, -NR¹¹S(O)₁₋₂OR¹¹, -NR¹¹S(O)₁₋₂N(R¹²)(R¹³), -P(O)(OR¹¹)₂, -OP(O)(OR¹¹)₂, -C(=X)R¹¹, -C(=X)XR¹¹, -XC(=X)R¹¹, and -XC(=X)XR¹¹, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, and heteroaryl groups is optionally substituted with one or more independently selected R³⁰;

Q is selected from the group consisting of a bond, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, heteroaryl, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, and heteroaryl groups is optionally substituted with one or more independently selected R³⁰;

R² is H;

R³ is selected from the group consisting of a bond, H, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, heteroaryl, halogen, -CN, azido, -NO₂, -OR¹¹, -N(R¹²)(R¹³), -N(R¹¹)(OR¹¹), -S(O)₀₋₂R¹¹, -S(O)₁₋₂OR¹¹, -OS(O)₁₋₂R¹¹, -OS(O)₁₋₂OR¹¹, -S(O)₁₋₂N(R¹²)(R¹³), -OS(O)₁₋₂N(R¹²)(R¹³), -N(R¹¹)S(O)₁₋₂R¹¹, -NR¹¹S(O)₁₋₂OR¹¹, -NR¹¹S(O)₁₋₂N(R¹²)(R¹³), -P(O)(OR¹¹)₂, -OP(O)(OR¹¹)₂, -C(=X)R¹¹, -C(=X)XR¹¹, -XC(=X)R¹¹, and -XC(=X)XR¹¹, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, and heteroaryl groups is optionally substituted with one or more independently selected R³⁰;

optionally R¹ and R³ may join together via a group L' to form a moiety R¹-L'-R³, preferably to form a moiety Q-L'-R³, **wherein L'** is selected from the group consisting of a bond, alkylene, alkenylene, alkynylene, -(CH₂)_p-[Y-(CH₂)_q]-, alkenylene -[Y-(CH₂)_q]-, wherein p is an integer between 1 and 10, q is an integer between 0 and 6, r is an integer between 1 and 3, wherein if q is 0 then r is 1; Y is independently selected from O, S, and -N(R¹³)-; and each of the alkylene, alkenylene, alkynylene, -(CH₂)_p-, and -(CH₂)_q- groups is optionally substituted with one or more independently selected R³⁰;

each of R^{4a} and R^{4b} is independently selected from the group consisting of H, C₁₋₈ alkyl, and -(CH₂)_s-[O-(CH₂)_t]-H wherein s is an integer between 0 and 7, t is an integer between 0 and 7, u is an integer between 1 and 3, wherein if t is 0 then u is 1, and the total number of carbon and oxygen atoms of the -(CH₂)_s-[O-(CH₂)_t]-H does not exceed 8; or *optionally R^{4a} and R^{4b} may join together* to form, together with the carbon to which they are attached, C₃₋₈ cycloalkyl or a 4- to 8- membered heterocyclyl comprising at least

one O as the only heteroatom element, wherein in case that the 4- to 8- membered heterocyclyl comprises more than one O, different O are not directly bound to each other;

R⁵ is -L-R⁶;

L is selected from the group consisting of a bond, C₁₋₆ alkylene, C₂₋₆ alkenylene, C₂₋₆ alkynylene, and -(CH₂)_m-[Y-(CH₂)_n]_o-, wherein m is an integer between 1 and 6, n is an integer between 0 and 3, o is an integer between 1 and 3, wherein if n is 0 then o is 1; Y is independently selected from O, S, and -N(R¹³)-; and each of the C₁₋₆ alkylene, C₂₋₆ alkenylene, C₂₋₆ alkynylene, -(CH₂)_m-, and -(CH₂)_n- groups is optionally substituted with one or two independently selected R³⁰;

R⁶ is heteroaryl or heterocyclyl each of which is optionally substituted with one or more independently selected R⁷;

R⁷ is independently selected from the group consisting of alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, heteroaryl, halogen, -CN, azido, -NO₂, -OR¹¹, -N(R¹²)(R¹³), -N(R¹¹)(OR¹¹), -S(O)₀₋₂R¹¹, -S(O)₁₋₂OR¹¹, -OS(O)₁₋₂OR¹¹, -S(O)₁₋₂N(R¹²)(R¹³), -OS(O)₁₋₂N(R¹²)(R¹³), -N(R¹¹)S(O)₁₋₂R¹¹, -NR¹¹S(O)₁₋₂OR¹¹, -NR₁₁S(O)₁₋₂N(R¹²)(R¹³), -P(O)(OR¹¹)₂, -OP(O)(OR¹¹)₂, -C(=X)R¹¹, -C(=X)XR¹¹, -XC(=X)R¹¹, and -XC(=X)XR¹¹, and/or any two R⁷ which are bound to the same atom of R⁶ being a heterocyclyl group may join together to form =O, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, and heteroaryl groups is optionally substituted with one or more independently selected R³⁰;

E is O or S;

R¹¹ is independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl groups is optionally substituted with one or more independently selected R³⁰;

each of R¹² and R¹³ is independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl, or R¹² and R¹³ may join together with the nitrogen atom to which they are attached to

form the group -N=CR¹⁵R¹⁶, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl

groups is optionally substituted with one or more independently selected R³⁰;

each of R¹⁵ and R¹⁶ is independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, heterocyclyl, and -NH_yR^{20-y}, or R¹⁵ and R¹⁶ may join together with the atom to which they are attached to form a ring which is optionally substituted with one or more independently selected R³⁰, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl groups is optionally substituted with one or more independently selected R³⁰;

y is an integer from 0 to 2;

R²⁰ is independently selected from the group consisting of alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl groups is optionally substituted with one or more independently selected R³⁰; and

R³⁰ is a 1st level substituent and is, in each case, independently selected from the group consisting of alkyl, alkenyl, alkynyl, aryl, heteroaryl, cycloalkyl, heterocyclyl, halogen, -CN, azido, -NO₂, -OR⁷¹, -N(R⁷²)(R⁷³), -S(O)₀₋₂R⁷¹, -S(O)₁₋₂OR⁷¹, -OS(O)₁₋₂R⁷¹, -OS(O)₁₋₂OR⁷¹, -S(O)₁₋₂N(R⁷²)(R⁷³), -OS(O)₁₋₂N(R⁷²)(R⁷³), -N(R⁷¹)S(O)₁₋₂R⁷¹, -NR⁷¹S(O)₁₋₂OR⁷¹,

$-\text{NR}^{71}\text{S}(\text{O})_{1-2}\text{N}(\text{R}^{72})(\text{R}^{73})$, $-\text{OP}(\text{O})(\text{OR}^{71})_2$, $-\text{C}(=\text{X}^1)\text{R}^{71}$, $-\text{C}(=\text{X}^1)\text{X}^1\text{R}^{71}$, $-\text{X}^1\text{C}(=\text{X}^1)\text{R}^{71}$, and $-\text{X}^1\text{C}(=\text{X}^1)\text{X}^1\text{R}^{71}$, and/or any two R^{30} which are bound to the same carbon atom of a cycloalkyl or heterocyclyl group may join together to form $=\text{X}^1$, wherein each of the alkyl, alkenyl, alkynyl, aryl, heteroaryl, cycloalkyl, and heterocyclyl groups being a 1st level substituent is optionally substituted by one or more 2nd level substituents, wherein said 2nd level substituent is, in each case, independently selected from the group consisting of C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, 3- to 14-membered aryl, 3- to 14-membered heteroaryl, 3- to 14-membered cycloalkyl, 3- to 14-membered heterocyclyl, halogen, $-\text{CF}_3$, $-\text{CN}$, azido, $-\text{NO}_2$, $-\text{OR}^{81}$, $-\text{N}(\text{R}^{82})(\text{R}^{83})$, $-\text{S}(\text{O})_{0-2}\text{R}^{81}$, $-\text{S}(\text{O})_{1-2}\text{OR}^{81}$, $-\text{OS}(\text{O})_{1-2}\text{R}^{81}$, $-\text{OS}(\text{O})_{1-2}\text{OR}^{81}$, $-\text{S}(\text{O})_{1-2}\text{N}(\text{R}^{82})(\text{R}^{83})$, $-\text{OS}(\text{O})_{1-2}\text{N}(\text{R}^{82})(\text{R}^{83})$, $-\text{N}(\text{R}^{81})\text{S}(\text{O})_{1-2}\text{R}^{81}$, $-\text{NR}^{81}\text{S}(\text{O})_{1-2}\text{OR}^{81}$, $-\text{NR}^{81}\text{S}(\text{O})_{1-2}\text{N}(\text{R}^{82})(\text{R}^{83})$, $-\text{OP}(\text{O})(\text{OR}^{81})_2$, $-\text{C}(=\text{X}^2)\text{R}^{81}$, $-\text{C}(=\text{X}^2)\text{X}^2\text{R}^{81}$, $-\text{X}^2\text{C}(=\text{X}^2)\text{R}^{81}$, and $-\text{X}^2\text{C}(=\text{X}^2)\text{X}^2\text{R}^{81}$, and/or any two 2nd level substituents which are bound to the same carbon atom of a cycloalkyl or heterocyclyl group being a 1st level substituent may join together to form $=\text{X}^2$, wherein each of the C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, 3- to 14-membered aryl, 3- to 14-membered heteroaryl, 3- to 14-membered cycloalkyl, 3- to 14-membered heterocyclyl groups being a 2nd level substituent is optionally substituted with one or more 3rd level substituents, wherein said 3rd level substituent is, in each case, independently selected from the group consisting of C_{1-3} alkyl, halogen, $-\text{CF}_3$, $-\text{CN}$, azido, $-\text{NO}_2$, $-\text{OH}$, $-\text{O}(\text{C}_{1-3}$ alkyl), $-\text{OCF}_3$, $-\text{S}(\text{C}_{1-3}$ alkyl), $-\text{NH}_2$, $-\text{NH}(\text{C}_{1-3}$ alkyl), $-\text{N}(\text{C}_{1-3}$ alkyl)₂, $-\text{NHS}(\text{O})_2(\text{C}_{1-3}$ alkyl), $-\text{S}(\text{O})_2\text{NH}_{2-z}(\text{C}_{1-3}$ alkyl)_z, $-\text{C}(=\text{O})\text{OH}$, $-\text{C}(=\text{O})\text{O}(\text{C}_{1-3}$ alkyl), $-\text{C}(=\text{O})\text{NH}_{2-z}(\text{C}_{1-3}$ alkyl)_z, $-\text{NHC}(=\text{O})(\text{C}_{1-3}$ alkyl), $-\text{NHC}(=\text{NH})\text{NH}_{2-z}(\text{C}_{1-3}$ alkyl)_z, and $-\text{N}(\text{C}_{1-3}$ alkyl) $\text{C}(=\text{NH})\text{NH}_{2-z}(\text{C}_{1-3}$ alkyl)_z, wherein each z is independently 0, 1, or 2 and each C_{1-3} alkyl is independently methyl, ethyl, propyl or isopropyl, and/or any two 3rd level substituents which are bound to the same carbon atom of a 3- to 14-membered cycloalkyl or heterocyclyl group being a 2nd level substituent may join together to form $=\text{O}$, $=\text{S}$, $=\text{NH}$, or $=\text{N}(\text{C}_{1-3}$ alkyl); wherein

each of R^{71} , R^{72} , and R^{73} is independently selected from the group consisting of H, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl,

3- to 7-membered cycloalkyl, 5- or 6-membered aryl, 5- or 6-membered heteroaryl, and 3- to 7-membered heterocyclyl, wherein each of the C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, 3- to 7-membered cycloalkyl, 5- or 6-membered aryl, 5- or 6-membered heteroaryl, and 3- to 7-membered heterocyclyl groups is optionally substituted with one, two or three substituents independently selected from the group consisting of C_{1-3} alkyl, halogen, $-\text{CF}_3$, $-\text{CN}$, azido, $-\text{NO}_2$, $-\text{OH}$, $-\text{O}(\text{C}_{1-3}$ alkyl), $-\text{OCF}_3$, $=\text{O}$, $-\text{S}(\text{C}_{1-3}$ alkyl), $-\text{NH}_2$, $-\text{NH}(\text{C}_{1-3}$ alkyl), $-\text{N}(\text{C}_{1-3}$ alkyl)₂, $-\text{NHS}(\text{O})_2(\text{C}_{1-3}$ alkyl), $-\text{S}(\text{O})_2\text{NH}_{2-z}(\text{C}_{1-3}$ alkyl)_z, $-\text{C}(=\text{O})(\text{C}_{1-3}$ alkyl), $-\text{C}(=\text{O})\text{OH}$, $-\text{C}(=\text{O})\text{O}(\text{C}_{1-3}$ alkyl), $-\text{C}(=\text{O})\text{NH}_{2-z}(\text{C}_{1-3}$ alkyl)_z, $-\text{NHC}(=\text{O})(\text{C}_{1-3}$ alkyl), $-\text{NHC}(=\text{NH})\text{NH}_{2-z}(\text{C}_{1-3}$ alkyl)_z, and $-\text{N}(\text{C}_{1-3}$ alkyl) $\text{C}(=\text{NH})\text{NH}_{2-z}(\text{C}_{1-3}$ alkyl)_z, wherein each z is independently 0, 1, or 2 and each C_{1-3} alkyl is independently methyl, ethyl, propyl or isopropyl;

each of R^{81} , R^{82} , and R^{83} is independently selected from the group consisting of H, C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl, 5- or 6-membered aryl, 5- or 6-membered heteroaryl, and 3- to 6-membered heterocyclyl, wherein each of the C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl, 5- or 6-membered aryl, 5- or 6-membered heteroaryl, and 3- to 6-membered heterocyclyl groups is optionally substituted with one, two or three substituents independently selected from the group consisting of C_{1-3} alkyl, halogen, $-\text{CF}_3$, $-\text{CN}$, azido, $-\text{NO}_2$, $-\text{OH}$, $-\text{O}(\text{C}_{1-3}$ alkyl), $-\text{OCF}_3$, $=\text{O}$, $-\text{S}(\text{C}_{1-3}$ alkyl), $-\text{NH}_2$, $-\text{NH}(\text{C}_{1-3}$ alkyl), $-\text{N}(\text{C}_{1-3}$ alkyl)₂, $-\text{NHS}(\text{O})_2(\text{C}_{1-3}$ alkyl), $-\text{S}(\text{O})_2\text{NH}_{2-z}(\text{C}_{1-3}$ alkyl)_z, $-\text{C}(=\text{O})(\text{C}_{1-3}$ alkyl), $-\text{C}(=\text{O})\text{OH}$, $-\text{C}(=\text{O})\text{O}(\text{C}_{1-3}$ alkyl), $-\text{C}(=\text{O})\text{NH}_{2-z}(\text{C}_{1-3}$ alkyl)_z, $-\text{NHC}(=\text{O})(\text{C}_{1-3}$ alkyl), $-\text{NHC}(=\text{NH})\text{NH}_{2-z}(\text{C}_{1-3}$ alkyl)_z, and $-\text{N}(\text{C}_{1-3}$ alkyl) $\text{C}(=\text{NH})\text{NH}_{2-z}(\text{C}_{1-3}$ alkyl)_z, wherein each z is independently 0, 1, or 2 and each C_{1-3} alkyl is independently methyl, ethyl, propyl or isopropyl;

$z(C_{1-3} \text{ alkyl})_z$, $-C(=O)(C_{1-3} \text{ alkyl})$, $-C(=O)OH$, $-C(=O)O(C_{1-3} \text{ alkyl})$, $-C(=O)NH_{2-z}(C_{1-3} \text{ alkyl})_z$, $-NHC(=O)(C_{1-3} \text{ alkyl})$,

$-NHC(=NH)NH_{2-z}(C_{1-3} \text{ alkyl})_z$, and $-N(C_{1-3} \text{ alkyl})C(=NH)NH_{2-z}(C_{1-3} \text{ alkyl})_z$, wherein each z is independently 0, 1, or 2 and

each C_{1-3} alkyl is independently methyl, ethyl, propyl or isopropyl; **and**

each of X^1 and X^2 is independently selected from O, S, and $N(R^{84})$, wherein R^{84} is H or C_{1-3} alkyl;

with the proviso that:

when E is O and either of (1) or (2) is true:

(1) R^1 and R^3 do not join together via a group L' to form a moiety $R^1-L'-R^3$; or

(2) both of R^{4a} and R^{4b} are H,

then either:

(a) R^6 is: (i) a 5-membered monocyclic heteroaryl which contains at least one S ring atom and which is substituted with one or more independently selected R^7 ; (ii) a 5-membered monocyclic heteroaryl which contains at least two nitrogen atoms and which is substituted with one or more independently selected R^7 ; or (iii) a 5-membered monocyclic heteroaryl which contains at least one nitrogen atom and at least one oxygen atom and which is substituted with one or more independently selected R^7 ;

or

(b) R^7 is independently selected from the group consisting of alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, heteroaryl, halogen, -CN, azido, -NO₂, -OR¹¹, -N(R¹²)(R¹³), -N(R¹¹)(OR¹¹), -S(O)₀₋₂R¹¹, -S(O)₁₋₂OR¹¹, -OS(O)₁₋₂R¹¹, -OS(O)₁₋₂OR¹¹, -S(O)₁₋₂N(R¹²)(R¹³), -OS(O)₁₋₂N(R¹²)(R¹³), -N(R¹¹)S(O)₁₋₂R¹¹, -NR¹¹S(O)₁₋₂OR¹¹, -NR¹¹S(O)₁₋₂N(R¹²)(R¹³), -P(O)(OR¹¹)₂, -OP(O)(OR¹¹)₂, -C(=X)R¹¹, -C(=X)XR¹¹, -XC(=X)R¹¹, and -XC(=X)XR¹¹, wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, and heteroaryl groups is optionally substituted with one or more independently selected R^3 , wherein at least one of R^7 is F and/or at least one of R^7 is substituted with one or more F atoms.

27. The compound of claim 26, **wherein R^6 is a 5-membered monocyclic heteroaryl which contains at least one S ring atom and which is substituted with one or more independently selected R^7 ;**

R^7 is independently selected from the group consisting of alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, heteroaryl, halogen, -CN, azido, -NO₂, -OR¹¹, -N(R¹²)(R¹³), -N(R¹¹)(OR¹¹), -S(O)₀₋₂R¹¹, -S(O)₁₋₂OR¹¹, -OS(O)₁₋₂R¹¹, -S(O)₁₋₂N(R¹²)(R¹³), -OS(O)₁₋₂N(R¹²)(R¹³), -N(R¹¹)S(O)₁₋₂R¹¹, -NR¹¹S(O)₁₋₂OR¹¹, -NR¹¹S(O)₁₋₂N(R¹²)(R¹³), -P(O)(OR¹¹)₂, -OP(O)(OR¹¹)₂, -C(=X)R¹¹, -C(=X)XR¹¹, -XC(=X)R¹¹, and -XC(=X)XR¹¹; and wherein each of the alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclyl, and heteroaryl groups is optionally substituted with one or more independently selected R^{30} , **and**

wherein **at least one of R^7 is F and/or at least one of R^7 is substituted with one or more F atoms.**

28. The compound of claim 27, wherein at least one of R^7 is F and/or at least one of R^7 is C_{1-3} alkyl, wherein the alkyl group of C_{1-3} alkyl is substituted with one or more F atoms.

29. The compound of any one of claims 1 to 28, wherein the compound is in substantially pure form, in particular in greater than about 90%, 95%, 98% or 99% pure form.

30. A pharmaceutical composition comprising the compound of any one of claims 1 to 29, and optionally further comprising a pharmaceutically acceptable excipient.

31. A method for the treatment of a disease, disorder or condition in a subject, comprising administering to the subject a compound of any one of claims 1 to 29, or a pharmaceutical composition of claim 30 optionally wherein the disease, disorder or condition is associated with a kinase, such as one or more disclosed herein.

32. A compound for use, or a pharmaceutical composition for use, in a treatment of a proliferative disorder in a subject, the treatment comprising administering the compound or the pharmaceutical composition to the subject, **wherein the compound is selected from** any one of claims 1 to 29, and the pharmaceutical composition is a pharmaceutical composition of claim 30, optionally wherein the disease, disorder or condition is associated with a kinase, such as one or more disclosed herein.

33. The compound for use, or the pharmaceutical composition for use, of claim 32, wherein the proliferative disorder is a cancer or tumor.

34. The compound for use, or pharmaceutical composition for use, of claim 32 or 33, wherein the proliferative disorder is characterised by, or cells involved with the proliferative disorder characterised by: (i) the presence of a human chromosomal translocation at 11q23; (ii) the presence of a rearrangement of the *KMT2A* gene; and/or (iii) the presence of an *KMT2A* fusion oncoprotein, preferably wherein:

(a) the human chromosome translocation is one selected from the group consisting of: t(4,11), t(9,11), t(11,19), t(10,11) and t(6,11); and/or

(b) the rearrangement of the *KMT2A* gene comprises, or the *KMT2A* fusion oncoprotein is expressed from a rearrangement that comprises, a fusion of the *KMT2A* gene with a translocation partner gene selected from the group consisting of: *AF4*, *AF9*, *ENL*, *AF10*, *ELL* and *AF6*; and/or

wherein the proliferative disorder is: (i) a myeloma, preferably multiple myeloma; or (ii) a leukaemia, preferably an acute myeloid leukaemia (AML) or an acute lymphoblastic leukaemia (ALL), more preferably T cell acute lymphoblastic leukaemia (T-ALL), an MLL-AML or an MLL-ALL; and/or

wherein the subject is a human paediatric patient and/or is a subject carrying a *KMT2A* rearrangement (*KMT2A-r*); preferably wherein the subject is a patient suffering from a *KMT2A-r* leukaemia.

35. A method for determining that a subject suffering from a proliferative disorder is suitable for treatment with a compound or pharmaceutical composition as defined in claim 32 or 33, the method comprising, determining in a biological sample that has been obtained from said subject, and preferable that comprises cells involved with the proliferative disorder:

(X) the presence of MEF2C protein, such as of phosphorylated MEF2C protein and/or of MEF2C protein as an active transcription factor; preferably wherein the proliferative disorder is further characterised by the presence of phosphorylated HDAC4 protein, such as of HDAC4 protein phosphorylated by SIK3; and/or

(Y) (i) the presence of a human chromosomal translocation at 11q23; (ii) the presence of a rearrangement of the *KMT2A* gene; (iii) the presence of an *KMT2A* fusion oncoprotein; and/or (iv) the presence of a mutation in the *KRAS* gene and/or in the *RUNX1* gene,

wherein, the presence of said protein, translocation, rearrangement, oncoprotein and or mutation in the biological sample indicates that the subject is suitable for treatment with the compound or pharmaceutical composition; and, optionally:

the method comprising determining in a biological sample that has been obtained from said subject:
(i) the presence of a human chromosomal translocation at 11q23; (ii) the presence of a rearrangement of the *KMT2A* gene; and/or (iii) the presence of an *KMT2A* fusion oncoprotein, preferably wherein:

(a) the human chromosome translocation is one selected from the group consisting of: t(4,11), t(9,11), t(11,19), t(10,11), and t(6,11); and/or

(b) the rearrangement of the *KMT2A* gene comprises, or the *KMT2A* fusion oncoprotein is expressed from a rearrangement that comprises, a fusion of the *KMT2A* gene with a translocation partner gene selected from the group consisting of: *AF4*, *AF9*, *ENL*, *AF10*, *ELL* and *AF6*; and/or

wherein the proliferative disorder is: (i) a myeloma, preferably multiple myeloma; or (ii) a leukaemia, preferably an acute myeloid leukaemia (AML) or an acute lymphoblastic leukaemia (ALL), more preferably T cell acute lymphoblastic leukaemia (T-ALL), an MLL-AML or an MLL-ALL; and/or

wherein the subject is a human paediatric patient and/or is a subject carrying a *KMT2A* rearrangement (*KMT2A-r*); preferably wherein such subject is a patient suffering from a *KMT2A-r* leukaemia.

36. A method of preparing a compound of claim 29, comprising the steps:

- providing a compound of any one of claims 1 to 28 in admixture with one or more impurities; and
- removing at least a fraction of the impurities from the admixture.

37. A method of manufacturing a pharmaceutical composition comprising the step of formulating a compound of any one of claims 1 to 29 together with a pharmaceutically acceptable excipient.

38. A method of preparing a pharmaceutical package, comprising the steps:

- inserting into packaging a pharmaceutical composition of claim 30, preferably wherein the pharmaceutical composition is in finished pharmaceutical form, thereby forming a package containing the pharmaceutical composition; and optionally,
- inserting into the package a leaflet describing prescribing information for the pharmaceutical composition.

39. A pharmaceutical package containing a pharmaceutical composition of claim 30, preferably, wherein the pharmaceutical composition is in finished pharmaceutical form.