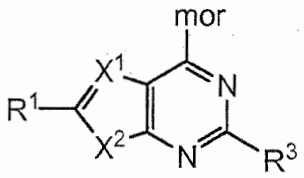
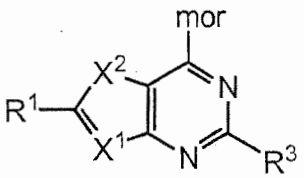
Claims:

1. A compound of Formula Ia or Ib:



Ia



Ib

and stereoisomers, tautomers, or pharmaceutically acceptable salts thereof, wherein

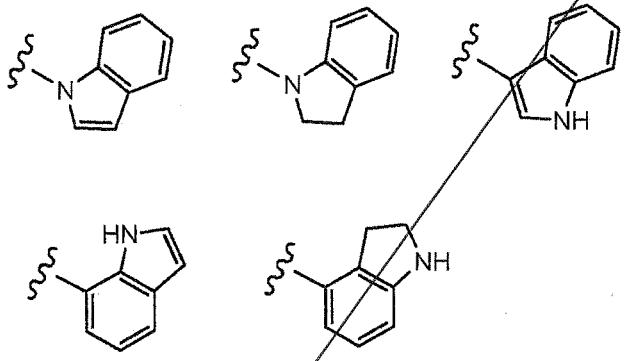
(i) X^1 is N and X^2 is S, (ii) X^1 is CR^7 and X^2 is S, (iii) X^1 is N and X^2 is NR^2, (iv) X^1 is CR^7 and X^2 is O, or (v) X^1 is CR^7 and X^2 is NR^2;

R^1 is selected from C_1–C_{12}alkyl, C_2–C_8alkenyl, C_2–C_8alkynyl, C_6–C_{20}aryl, –(C_1–C_{12}alkylene)–(C_3–C_{12}carbocyclyl), –(C_1–C_{12}alkylene)–O–(C_1–C_{12}alkylene)–(C_3–C_{12}heterocyclyl), –(C_1–C_{12}alkylene)–O–(C_1–C_{12}alkylene)–C(=O)-(C_3–C_{12}heterocyclyl), –(C_1–C_{12}alkylene)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl)–(C_2–C_{20}heterocyclyl), –(C_1–C_{12}alkylene)–(C_2–C_{20}heterocyclyl)–(C_3–C_{12}carbocyclyl), –(C_1–C_{12}alkylene)–(C_2–C_{20}heterocyclyl)–C(=O)–(C_2–C_{20}heterocyclyl), –(C_1–C_{12}alkylene)–(C_1–C_{20}heteroaryl), –(C_1–C_{12}alkylene)–(C_2–C_{20}heterocyclyl)–(C_1–C_{12}alkyl), –(C_1–C_{12}alkylene)–(C_6–C_{20}aryl)–(C_1–C_{12}alkyl), –(C_1–C_{12}alkylene)–(C_1–C_{20}heteroaryl)–(C_1–C_{12}alkyl), –(C_1–C_{12}alkylene)–C(=O)–(C_2–C_{20}heterocyclyl), –(C_1–C_{12}alkylene)–$NHR^{2'}$, –(C_1–C_{12}alkylene)–N(C_1–C_{12}alkyl)$R^{2'}$, –(C_1–C_{12}alkylene)–N(C_1–C_{12}alkyl)-(C_2–C_{20}heterocyclyl), –(C_1–C_{12}alkylene)–NH–(C_1–C_{12}alkylene)–(C_1–C_{20}heteroaryl), –(C_1–C_{12}alkylene)–NH–(C_1–C_{12}alkylene)–(C_1–C_{20}heterocyclyl), –(C_1–C_{12}alkylene)–NH–(C_1–C_{12}alkylene)–NHC(=O)–(C_1–C_{20}heteroaryl), –(C_1–C_{12}alkylene)–(C_2–C_{20}heterocyclyl)–N(C_1–C_{12}alkyl)$R^{2'}$, –(C_1–C_{12}alkylene)–(C_2–C_{20}heterocyclyl)–(C_1–C_{12}alkyl)–N(C_1–C_{12}alkyl)$R^{2'}$, and –(C_1–C_{12}alkylene)–N(C_2–C_{20}heterocyclyl)$R^{2'}$, where alkyl, alkenyl, alkynyl, alkylene, carbocyclyl, heterocyclyl, aryl, and heteroaryl are optionally substituted with one or more groups independently selected from F, Cl, Br, I, $–CH_3$, $–CH_2CH_3$, $–C(CH_3)_3$, $–CH_2OH$, $–CH_2CH_2OH$, $–C(CH_3)_2OH$, $–C(CH_3)_2OCH_3$, –CN, $–CF_3$, $–CO_2H$, $–COCH_3$, $–CO_2CH_3$,

$-CONH_2$, $-CONHCH_3$, $-CON(CH_3)_2$, $-C(CH_3)_2CONH_2$, $-NO_2$, $-NH_2$, $-NHCH_3$, $-N(CH_3)_2$, $-NHCOCH_3$, $-NHS(O)_2CH_3$, $-N(CH_3)C(CH_3)_2CONH_2$, $-N(CH_3)CH_2CH_2S(O)_2CH_3$, =O, $-OH$, $-OCH_3$, $-S(O)_2N(CH_3)_2$, $-SCH_3$, $-CH_2OCH_3$, $-S(O)_2CH_3$, cyclopropyl, morpholino, and 1,1-dioxo-thiopyran-4-yl;

R^2 and $R^{2'}$ are independently selected from C_1–C_{12} alkyl, C_2–C_8 alkenyl, C_2–C_8 alkynyl, –(C_1–C_{12} alkylene)–(C_3–C_{12} carbocyclyl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–C(=O)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–(C_6–C_{20} aryl), and –(C_1–C_{12} alkylene)–(C_1–C_{20} heteroaryl), where alkyl, alkenyl, alkynyl, alkylene, carbocyclyl, heterocyclyl, aryl, and heteroaryl are optionally substituted with one or more groups independently selected from F, Cl, Br, I, $-CH_3$, $-CH_2OH$, $-CN$, $-CF_3$, $-CO_2H$, $-COCH_3$, $-CO_2CH_3$, $-CONH_2$, $-CONHCH_3$, $-CON(CH_3)_2$, $-NO_2$, $-NH_2$, $-NHCH_3$, $-NHCOCH_3$, $-NHS(O)_2CH_3$, $-OH$, $-OCH_3$, $-S(O)_2N(CH_3)_2$, $-SCH_3$, $-CH_2OCH_3$, and $-S(O)_2CH_3$;

R^3 is selected from:



where the wavy line indicates the site of attachment;

each of which are optionally substituted with one or more groups independently selected from F, Cl, Br, I, $-CH_3$, $-CH_2CH_3$, $-CH_2CH_2CH_3$, $-CH(CH_3)_2$, $-C(CH_3)_3$, $-CH_2OCH_3$, $-CHF_2$, $-CN$, $-CF_3$, $-CH_2OH$, $-CH_2OCH_3$, $-CH_2CH_2OH$, $-CH_2C(CH_3)_2OH$, $-CH(CH_3)OH$, $-CH(CH_2CH_3)OH$, $-CH_2CH(OH)CH_3$, $-C(CH_3)_2OH$, $-C(CH_3)_2OCH_3$, $-CH(CH_3)F$, $-C(CH_3)F_2$, $-CH(CH_2CH_3)F$, $-C(CH_2CH_3)_2F$, $-CO_2H$, $-CONH_2$, $-CON(CH_2CH_3)_2$, $-COCH_3$, $-CON(CH_3)_2$, $-NO_2$, $-NH_2$, $-NHCH_3$, $-N(CH_3)_2$, $-NHCH_2CH_3$, $-NHCH(CH_3)_2$, $-NHCH_2CH_2OH$, $-NHCH_2CH_2OCH_3$, $-NHCOCH_3$, $-NHCOCH_2CH_3$, $-NHCOCH_2OH$, $-NHS(O)_2CH_3$, $-N(CH_3)S(O)_2CH_3$, =O, $-OH$, $-OCH_3$, $-OCH_2CH_3$, $-OCH(CH_3)_2$, -SH, -NHC(=O)NHCH$_3$, –NHC(=O)NHCH$_2$CH$_3$, $-S(O)CH_3$, $-S(O)CH_2CH_3$, $-S(O)_2CH_3$, $-S(O)_2NH_2$, $-S(O)_2NHCH_3$, $-S(O)_2N(CH_3)_2$, $-CH_2S(O)_2CH_3$;

R^7 is selected from H, C_1–C_{12} alkyl, C_2–C_8 alkenyl, C_2–C_8 alkynyl, –(C_1–C_{12} alkylene)–(C_3–C_{12} carbocyclyl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–C(=O)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–(C_6–C_{20} aryl) and –(C_1–C_{12} alkylene)–(C_1–C_{20} heteroaryl), where alkyl, alkenyl, alkynyl, alkylene, carbocyclyl, heterocyclyl, aryl, and heteroaryl are optionally substituted with one or more groups independently selected from F, Cl, Br, I, $–CH_3$, $–CH_2OH$, –CN, $–CF_3$, $–CO_2H$, $–COCH_3$, $–CO_2CH_3$, $–CONH_2$, $–CONHCH_3$, $–CON(CH_3)_2$, $–NO_2$, $–NH_2$, $–NHCH_3$, $–NHCOCH_3$, $–NHS(O)_2CH_3$, –OH, $–OCH_3$, $–S(O)_2N(CH_3)_2$, $–SCH_3$, $–CH_2OCH_3$ and $–S(O)_2CH_3$; and

mor is a morpholine group which is unsubstituted or substituted with one or more groups selected from F, Cl, Br, I, $–CH_3$, $–CH_2CH_3$, $–CH_2CH_2CH_3$, $–CH(CH_3)_2$, $–C(CH_3)_3$, $–CH_2OCH_3$, $–CHF_2$, –CN, $–CF_3$, $–CH_2OH$, $–CH_2OCH_3$, $–CH_2CH_2OH$, $–CH_2C(CH_3)_2OH$, $–CH(CH_3)OH$, $–CH(CH_2CH_3)OH$, $–CH_2CH(OH)CH_3$, $–C(CH_3)_2OH$, $–C(CH_3)_2OCH_3$, $–CH(CH_3)F$, $–C(CH_3)F_2$, $–CH(CH_2CH_3)F$, $–C(CH_2CH_3)_2F$, $–CO_2H$, $–CONH_2$, $–CON(CH_2CH_3)_2$, $–COCH_3$, $–CON(CH_3)_2$, $–NO_2$, $–NH_2$, $–NHCH_3$, $–N(CH_3)_2$, $–NHCH_2CH_3$, $–NHCH(CH_3)_2$, $–NHCH_2CH_2OH$, $–NHCH_2CH_2OCH_3$, $–NHCOCH_3$, $–NHCOCH_2CH_3$, $–NHCOCH_2OH$, $–NHS(O)_2CH_3$, $–N(CH_3)S(O)_2CH_3$, =O, –OH, $–OCH_3$, $–OCH_2CH_3$, $–OCH(CH_3)_2$, -SH, -NHC(=O)$NHCH_3$, $–NHC(=O)NHCH_2CH_3$, $–S(O)CH_3$, $–S(O)CH_2CH_3$, $–S(O)_2CH_3$, $–S(O)_2NH_2$, $–S(O)_2NHCH_3$, $–S(O)_2N(CH_3)_2$, $–CH_2S(O)_2CH_3$.

2. The compounds of claim 1 wherein

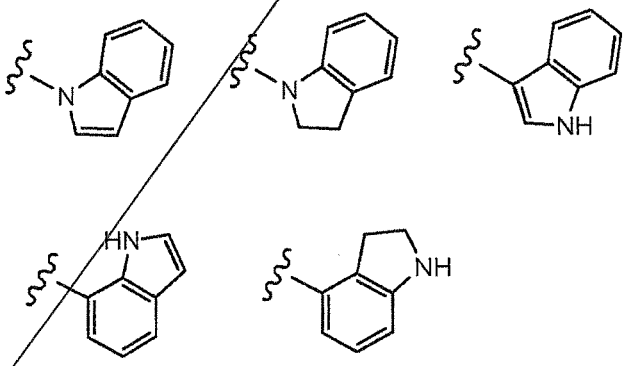
(i) X^1 is N and X^2 is S, (ii) X^1 is CR^7 and X^2 is S, (iii) X^1 is N and X^2 is NR^2, (iv) X^1 is CR^7 and X^2 is O, or (v) X^1 is CR^7 and X^2 is NR^2;

R^1 is selected from C_1–C_{12} alkyl, C_2–C_8 alkenyl, C_2–C_8 alkynyl, C_6–C_{20} aryl, –(C_1–C_{12} alkylene)–(C_3–C_{12} carbocyclyl), –(C_1–C_{12} alkylene)–O–(C_1–C_{12} alkylene)–(C_3–C_{12} heterocyclyl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl)–(C_3–C_{12} carbocyclyl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl)–C(=O)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–(C_1–C_{20} heteroaryl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl)–(C_1–C_{12} alkyl), –(C_1–C_{12} alkylene)–(C_6–C_{20} aryl)–(C_1–C_{12} alkyl), –(C_1–C_{12} alkylene)–(C_1–C_{20} heteroaryl)–(C_1–C_{12} alkyl), –(C_1–C_{12} alkylene)–C(=O)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–$NHR^{2'}$, –(C_1–C_{12} alkylene)–N(C_1–C_{12} alkyl)$R^{2'}$, –(C_1–C_{12} alkylene)–N(C_1–C_{12} alkyl)(C_2–C_{20} heterocyclyl), –(C_1–C_{12}

alkylene)–NH–(C_1–C_{12} alkylene)–(C_1–C_{20} heteroaryl), –(C_1–C_{12} alkylene)–NH–(C_1–C_{12} alkylene)–(C_1–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–NH–(C_1–C_{12} alkylene)–NHC(=O)–(C_1–C_{20} heteroaryl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl)–N(C_1–C_{12} alkyl)$R^{2'}$, –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl)–(C_1–C_{12} alkyl)–N(C_1–C_{12} alkyl)$R^{2'}$, and –(C_1–C_{12} alkylene)–N(C_2–C_{20} heterocyclyl)$R^{2'}$, where alkyl, alkenyl, alkynyl, alkylene, carbocyclyl, heterocyclyl, aryl, and heteroaryl are optionally substituted with one or more groups independently selected from F, Cl, Br, I, $–CH_3$, $–CH_2CH_3$, $–C(CH_3)_3$, $–CH_2OH$, $–CH_2CH_2OH$, $–C(CH_3)_2OH$, –CN, $–CF_3$, $–CO_2H$, $–COCH_3$, $–CO_2CH_3$, $–CONH_2$, $–CONHCH_3$, $–CON(CH_3)_2$, $–C(CH_3)_2CONH_2$, $–NO_2$, $–NH_2$, $–NHCH_3$, $–N(CH_3)_2$, $–NHCOCH_3$, $–NHS(O)_2CH_3$, $–N(CH_3)C(CH_3)_2CONH_2$, $–N(CH_3)CH_2CH_2S(O)_2CH_3$, =O, –OH, $–OCH_3$, $–S(O)_2N(CH_3)_2$, $–SCH_3$, $–CH_2OCH_3$, $–S(O)_2CH_3$, cyclopropyl, morpholino, and 1,1-dioxo-thiopyran-4-yl;

R^2 and $R^{2'}$ are independently selected from C_1–C_{12} alkyl, C_2–C_8 alkenyl, C_2–C_8 alkynyl, –(C_1–C_{12} alkylene)–(C_3–C_{12} carbocyclyl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–C(=O)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–(C_6–C_{20} aryl) and –(C_1–C_{12} alkylene)–(C_1–C_{20} heteroaryl), where alkyl, alkenyl, alkynyl, alkylene, carbocyclyl, heterocyclyl, aryl, and heteroaryl are optionally substituted with one or more groups independently selected from F, Cl, Br, I, $–CH_3$, $–CH_2OH$, –CN, $–CF_3$, $–CO_2H$, $–COCH_3$, $–CO_2CH_3$, $–CONH_2$, $–CONHCH_3$, $–CON(CH_3)_2$, $–NO_2$, $–NH_2$, $–NHCH_3$, $–NHCOCH_3$, $–NHS(O)_2CH_3$, –OH, $–OCH_3$, $–S(O)_2N(CH_3)_2$, $–SCH_3$, $–CH_2OCH_3$ and $–S(O)_2CH_3$;

R^3 is selected from:



where the wavy line indicates the site of attachment;

each of which are optionally substituted with one or more groups independently selected from F, Cl, Br, I, $–CH_3$, $–CH_2CH_3$, $–CH_2CH_2CH_3$, $–CH(CH_3)_2$, $–C(CH_3)_3$, $–CH_2OCH_3$, $–CHF_2$, –CN, $–CF_3$, $–CH_2OH$, $–CH_2OCH_3$, $–CH_2CH_2OH$, $–CH_2C(CH_3)_2OH$,

$-CH(CH_3)OH$, $-CH(CH_2CH_3)OH$, $-CH_2CH(OH)CH_3$, $-C(CH_3)_2OH$, $-C(CH_3)_2OCH_3$, $-CH(CH_3)F$, $-C(CH_3)F_2$, $-CH(CH_2CH_3)F$, $-C(CH_2CH_3)_2F$, $-CO_2H$, $-CONH_2$, $-CON(CH_2CH_3)_2$, $-COCH_3$, $-CON(CH_3)_2$, $-NO_2$, $-NH_2$, $-NHCH_3$, $-N(CH_3)_2$, $-NHCH_2CH_3$, $-NHCH(CH_3)_2$, $-NHCH_2CH_2OH$, $-NHCH_2CH_2OCH_3$, $-NHCOCH_3$, $-NHCOCH_2CH_3$, $-NHCOCH_2OH$, $-NHS(O)_2CH_3$, $-N(CH_3)S(O)_2CH_3$, =O, $-OH$, $-OCH_3$, $-OCH_2CH_3$, $-OCH(CH_3)_2$, -SH, $-NHC(=O)NHCH_3$, $-NHC(=O)NHCH_2CH_3$, $-S(O)CH_3$, $-S(O)CH_2CH_3$, $-S(O)_2CH_3$, $-S(O)_2NH_2$, $-S(O)_2NHCH_3$, $-S(O)_2N(CH_3)_2$, $-CH_2S(O)_2CH_3$;

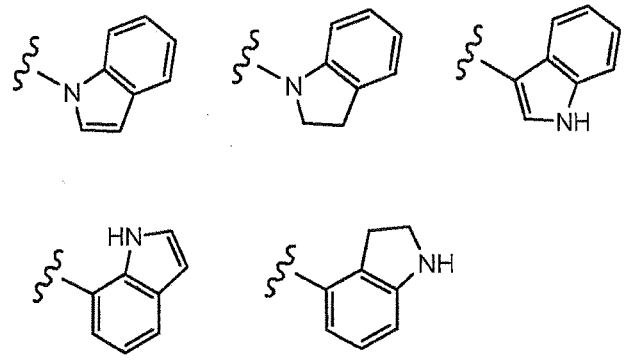
R^7 is selected from H, C_1–C_{12} alkyl, C_2–C_8 alkenyl, C_2–C_8 alkynyl, –(C_1–C_{12} alkylene)–(C_3–C_{12} carbocyclyl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–C(=O)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–(C_6–C_{20} aryl), and –(C_1–C_{12} alkylene)–(C_1–C_{20} heteroaryl), where alkyl, alkenyl, alkynyl, alkylene, carbocyclyl, heterocyclyl, aryl, and heteroaryl are optionally substituted with one or more groups independently selected from F, Cl, Br, I, $-CH_3$, $-CH_2OH$, $-CN$, $-CF_3$, $-CO_2H$, $-COCH_3$, $-CO_2CH_3$, $-CONH_2$, $-CONHCH_3$, $-CON(CH_3)_2$, $-NO_2$, $-NH_2$, $-NHCH_3$, $-NHCOCH_3$, $-NHS(O)_2CH_3$, $-OH$, $-OCH_3$, $-S(O)_2N(CH_3)_2$, $-SCH_3$, $-CH_2OCH_3$ and $-S(O)_2CH_3$; and

mor is a morpholine group which is unsubstituted or substituted with one or more groups selected from F, Cl, Br, I, $-CH_3$, $-CH_2CH_3$, $-CH_2CH_2CH_3$, $-CH(CH_3)_2$, $-C(CH_3)_3$, $-CH_2OCH_3$, $-CHF_2$, $-CN$, $-CF_3$, $-CH_2OH$, $-CH_2OCH_3$, $-CH_2CH_2OH$, $-CH_2C(CH_3)_2OH$, $-CH(CH_3)OH$, $-CH(CH_2CH_3)OH$, $-CH_2CH(OH)CH_3$, $-C(CH_3)_2OH$, $-C(CH_3)_2OCH_3$, $-CH(CH_3)F$, $-C(CH_3)F_2$, $-CH(CH_2CH_3)F$, $-C(CH_2CH_3)_2F$, $-CO_2H$, $-CONH_2$, $-CON(CH_2CH_3)_2$, $-COCH_3$, $-CON(CH_3)_2$, $-NO_2$, $-NH_2$, $-NHCH_3$, $-N(CH_3)_2$, $-NHCH_2CH_3$, $-NHCH(CH_3)_2$, $-NHCH_2CH_2OH$, $-NHCH_2CH_2OCH_3$, $-NHCOCH_3$, $-NHCOCH_2CH_3$, $-NHCOCH_2OH$, $-NHS(O)_2CH_3$, $-N(CH_3)S(O)_2CH_3$, =O, $-OH$, $-OCH_3$, $-OCH_2CH_3$, $-OCH(CH_3)_2$, -SH, $-NHC(=O)NHCH_3$, $-NHC(=O)NHCH_2CH_3$, $-S(O)CH_3$, $-S(O)CH_2CH_3$, $-S(O)_2CH_3$, $-S(O)_2NH_2$, $-S(O)_2NHCH_3$, $-S(O)_2N(CH_3)_2$, $-CH_2S(O)_2CH_3$.

3. The compounds of claim 1 or 2 of formula Ia wherein X^1 is N and X^2 is S; R^1 is –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl) or –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl)–(C_2–C_{20} heterocyclyl), where heterocyclyl is optionally substituted with one or more $-C(CH_3)_2OH$; R^3 is 1H-indol-3-yl and mor is a morpholine group;

or of formula Ib wherein X^1 is CR^7 and X^2 is S, R^1 is selected from –(C_1–C_{12} alkylene)–O–(C_1–C_{12} alkylene)–(C_3–C_{12} heterocyclyl), –(C_1–C_{12} alkylene)–O–(C_1–C_{12}

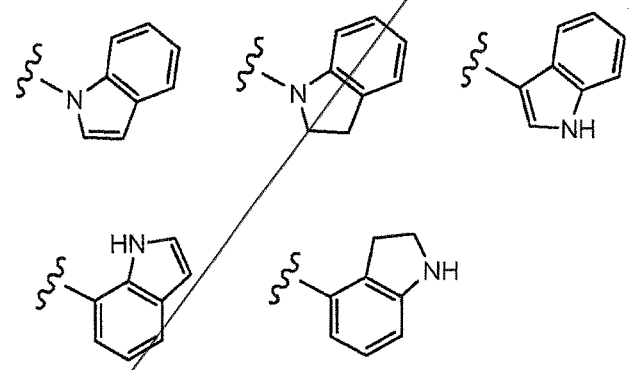
alkylene)–C(=O)-(C_3–C_{12} heterocyclyl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl)–(C_1–C_{12} alkyl), where alkyl and heterocyclyl are optionally substituted with one or more groups independently selected from –$CONH_2$, –$N(CH_3)_2$, and =O; R^3 is selected from:



;

where the wavy line indicates the site of attachment; each of which are optionally substituted with one or more groups independently selected from F, –CH_3, –CH_2OCH_3, –CN, and –OH; R^7 is H or C_1–C_{12} alkyl; and mor is a morpholine group;

or of formula Ia wherein X^1 is N and X^2 is NR^2, R^1 is selected from –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl), –(C_1–C_{12} alkylene)–(C_2–C_{20} heterocyclyl)–(C_2–C_{20} heterocyclyl), where heterocyclyl is optionally substituted with one or more groups independently selected from F, –$C(CH_3)_2OH$, –$C(CH_3)_2OCH_3$, –$N(CH_3)_2$, and =O; R^2 is C_1–C_{12} alkyl, which is optionally substituted with one or more –OH; R^3 is selected from:

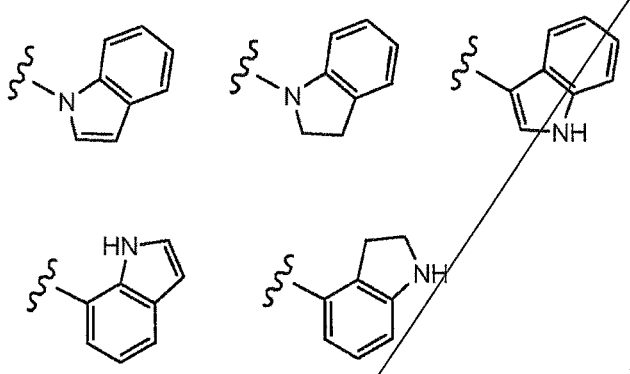


where the wavy line indicates the site of attachment; each of which are optionally substituted with one or more groups independently selected from F, –CH_3, –CH_2OCH_3, and –CN; and mor is a morpholine group.

4. The compounds of any one of claims 1 to 3 of formula Ia or Ib wherein $\mathbf{R^1}$ is $-(C_1-C_{12}$ alkylene$)-(C_2-C_{20}$ heterocyclyl) or $-(C_1-C_{12}$ alkylene$)-(C_2-C_{20}$ heterocyclyl$)-(C_2-C_{20}$ heterocyclyl), where heterocyclyl is optionally substituted with one or more $-C(CH_3)_2OH$; or is $-(C_1-C_{12}$ alkylene$)-O-(C_1-C_{12}$ alkylene$)-(C_3-C_{12}$ heterocyclyl), $-(C_1-C_{12}$ alkylene$)-O-(C_1-C_{12}$ alkylene$)-C(=O)-(C_3-C_{12}$ heterocyclyl), $-(C_1-C_{12}$ alkylene$)-(C_2-C_{20}$ heterocyclyl), $-(C_1-C_{12}$ alkylene$)-(C_2-C_{20}$ heterocyclyl$)-(C_2-C_{20}$ heterocyclyl), $-(C_1-C_{12}$ alkylene$)-(C_2-C_{20}$ heterocyclyl$)-(C_1-C_{12}$ alkyl), where alkyl and heterocyclyl are optionally substituted with one or more groups independently selected from $-CONH_2$, $-N(CH_3)_2$, and =O; or is $-(C_1-C_{12}$ alkylene$)-(C_2-C_{20}$ heterocyclyl), $-(C_1-C_{12}$ alkylene$)-(C_2-C_{20}$ heterocyclyl$)-(C_2-C_{20}$ heterocyclyl), where heterocyclyl is optionally substituted with one or more groups independently selected from F, $-C(CH_3)_2OH$, $-C(CH_3)_2OCH_3$, $-N(CH_3)_2$, and =O.

5. The compounds of any one of claims 1 to 4 wherein $\mathbf{R^2}$ is C_1-C_{12} alkyl, which is optionally substituted with one or more –OH.

6. The compounds of any one of claims 1 to 5 wherein $\mathbf{R^3}$ is selected from:



;

where the wavy line indicates the site of attachment; each of which are optionally substituted with one or more groups independently selected from F, $-CH_3$, $-CH_2OCH_3$, –CN, and –OH.

7. The compounds of any one of claims 1 to 6 wherein $\mathbf{R^7}$ is H or C_1-C_{12} alkyl.

8. The compounds of any one of claims 1 to 7 wherein mor is a morpholine group which is unsubstituted or substituted with one or more $-CH_3$.

9. The compounds of any one of claims 1 to 8 which show an IC50 binding activity to p110 delta of ten or more times lower than the binding activity to p110 alpha.

10. A pharmaceutical composition comprised of a compound of any one of claims 1 to 9, and a pharmaceutically acceptable carrier, glidant, diluent, or excipient.

11. The pharmaceutical composition according to claim 10, further comprising a second therapeutic agent.

12. A process for making a pharmaceutical composition which comprises combining a compound of any one of claims 1 to 9 with a pharmaceutically acceptable carrier, glidant, diluent, or excipient.

13. Use of a compound of any one of claims 1 to 9 in the manufacture of a medicament for treating a disease or disorder selected from immune disorders, cancer, cardiovascular disease, viral infection, inflammation, metabolism/endocrine function disorders and neurological disorders, and mediated by the p110 delta isoform of PI3 kinase.

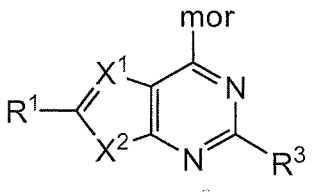
14. A kit for treating a condition mediated by the p110 delta isoform of PI3 kinase, comprising: a) a first pharmaceutical composition comprising a compound of any one of claims 1 to 9; and b) instructions for use.

15. The compound of any one of claims 1 to 9 for use as a medicament.

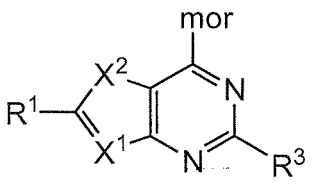
16. The compound of any one of claims 1 to 9 for use as a medicament in treating a disease or disorder selected from immune disorders, cancer, cardiovascular disease, viral infection, inflammation, metabolism/endocrine function disorders and neurological disorders, and mediated by the p110 delta isoform of PI3 kinase.

Claims:

1. A compound of Formula Ia or Ib:



Ia

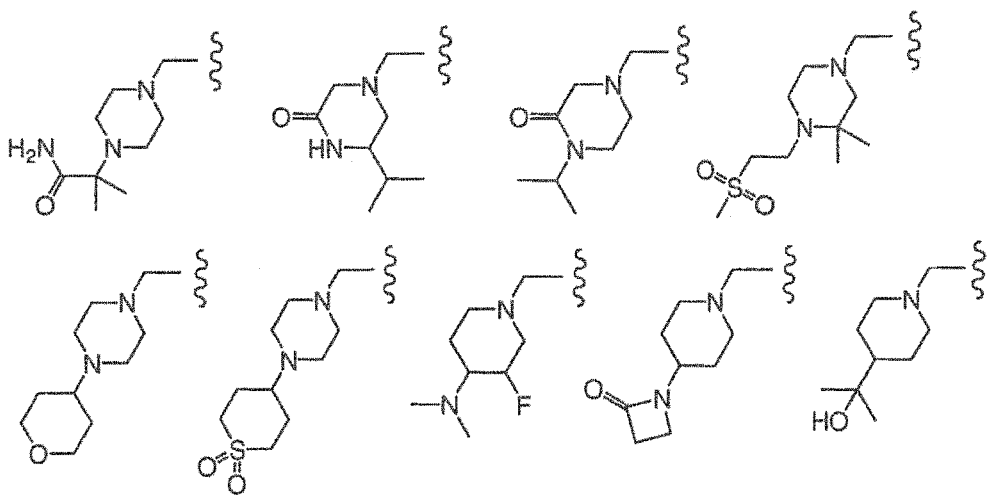


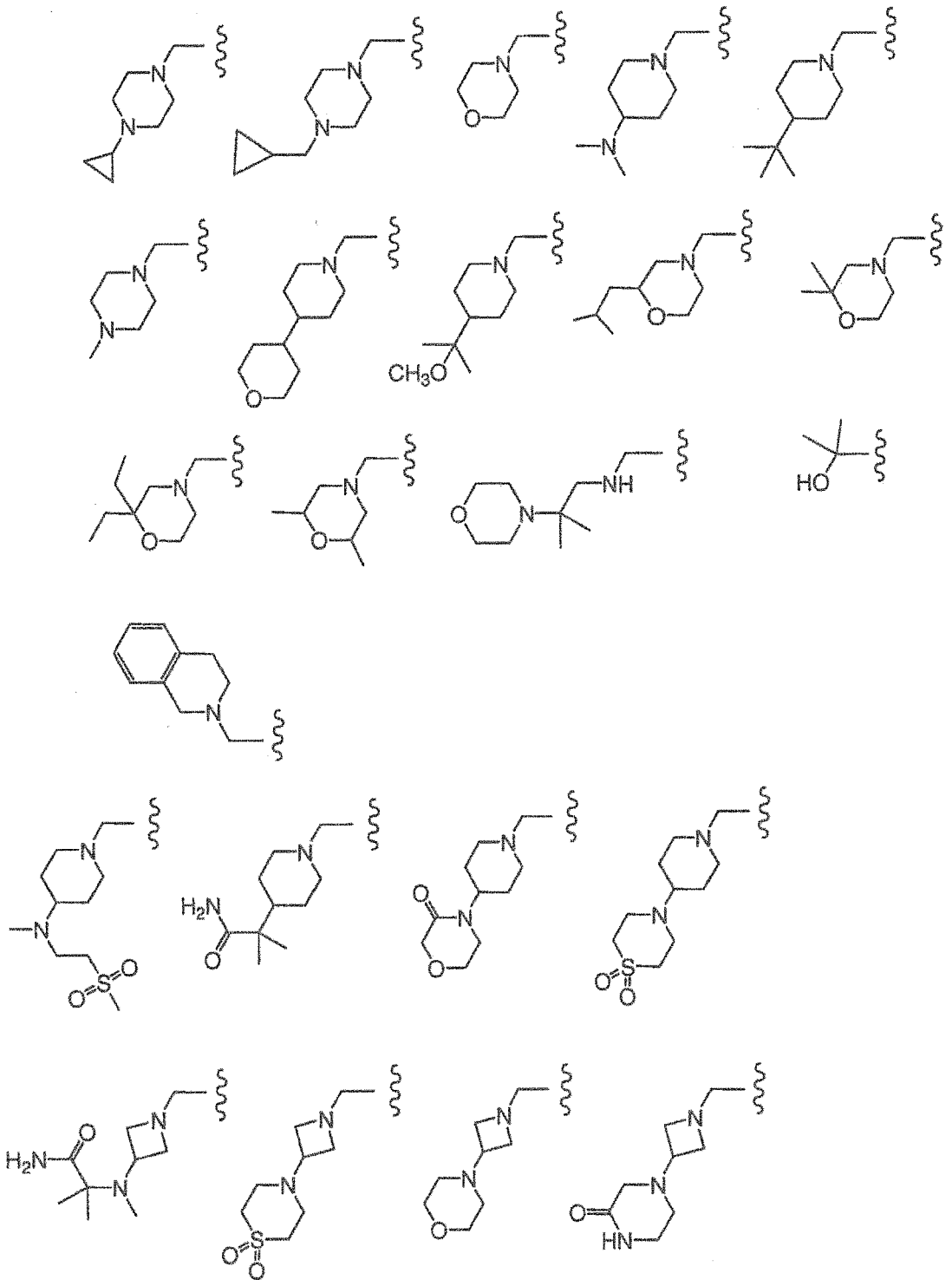
Ib

and stereoisomers, tautomers, or pharmaceutically acceptable salts thereof, wherein

(iii) X^1 is N and X^2 is NR^2;

R^1 is selected from

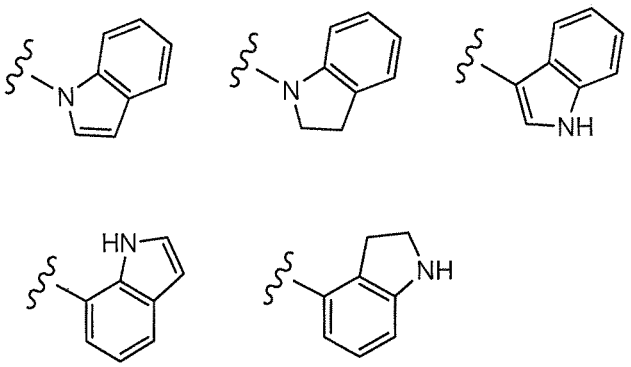




where the wavy line indicates the site of attachment to the Formula I structure;

R^2 is C_1–C_{12} alkyl, which is optionally substituted with one or more –OH;

R^3 is selected from:

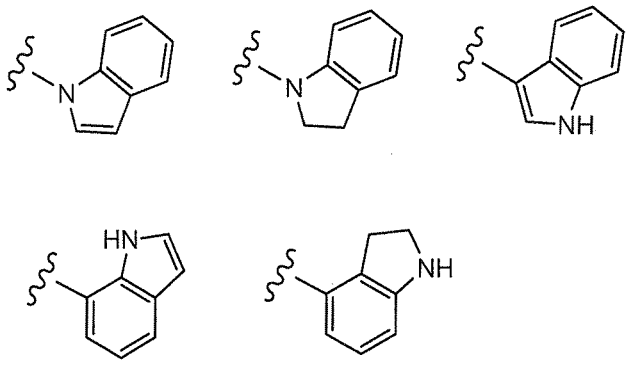


where the wavy line indicates the site of attachment;

each of which are optionally substituted with one or more groups independently selected from F, Cl, Br, I, $-CH_3$, $-CH_2CH_3$, $-CH_2CH_2CH_3$, $-CH(CH_3)_2$, $-C(CH_3)_3$, $-CH_2OCH_3$, $-CHF_2$, $-CN$, $-CF_3$, $-CH_2OH$, $-CH_2OCH_3$, $-CH_2CH_2OH$, $-CH_2C(CH_3)_2OH$, $-CH(CH_3)OH$, $-CH(CH_2CH_3)OH$, $-CH_2CH(OH)CH_3$, $-C(CH_3)_2OH$, $-C(CH_3)_2OCH_3$, $-CH(CH_3)F$, $-C(CH_3)F_2$, $-CH(CH_2CH_3)F$, $-C(CH_2CH_3)_2F$, $-CO_2H$, $-CONH_2$, $-CON(CH_2CH_3)_2$, $-COCH_3$, $-CON(CH_3)_2$, $-NO_2$, $-NH_2$, $-NHCH_3$, $-N(CH_3)_2$, $-NHCH_2CH_3$, $-NHCH(CH_3)_2$, $-NHCH_2CH_2OH$, $-NHCH_2CH_2OCH_3$, $-NHCOCH_3$, $-NHCOCH_2CH_3$, $-NHCOCH_2OH$, $-NHS(O)_2CH_3$, $-N(CH_3)S(O)_2CH_3$, =O, $-OH$, $-OCH_3$, $-OCH_2CH_3$, $-OCH(CH_3)_2$, -SH, $-NHC(=O)NHCH_3$, $-NHC(=O)NHCH_2CH_3$, $-S(O)CH_3$, $-S(O)CH_2CH_3$, $-S(O)_2CH_3$, $-S(O)_2NH_2$, $-S(O)_2NHCH_3$, $-S(O)_2N(CH_3)_2$, $-CH_2S(O)_2CH_3$; and

mor is a morpholine group unsubstituted or substituted with one or more groups selected from F, Cl, Br, I, $-CH_3$, $-CH_2CH_3$, $-CH_2CH_2CH_3$, $-CH(CH_3)_2$, $-C(CH_3)_3$, $-CH_2OCH_3$, $-CHF_2$, $-CN$, $-CF_3$, $-CH_2OH$, $-CH_2OCH_3$, $-CH_2CH_2OH$, $-CH_2C(CH_3)_2OH$, $-CH(CH_3)OH$, $-CH(CH_2CH_3)OH$, $-CH_2CH(OH)CH_3$, $-C(CH_3)_2OH$, $-C(CH_3)_2OCH_3$, $-CH(CH_3)F$, $-C(CH_3)F_2$, $-CH(CH_2CH_3)F$, $-C(CH_2CH_3)_2F$, $-CO_2H$, $-CONH_2$, $-CON(CH_2CH_3)_2$, $-COCH_3$, $-CON(CH_3)_2$, $-NO_2$, $-NH_2$, $-NHCH_3$, $-N(CH_3)_2$, $-NHCH_2CH_3$, $-NHCH(CH_3)_2$, $-NHCH_2CH_2OH$, $-NHCH_2CH_2OCH_3$, $-NHCOCH_3$, $-NHCOCH_2CH_3$, $-NHCOCH_2OH$, $-NHS(O)_2CH_3$, $-N(CH_3)S(O)_2CH_3$, =O, $-OH$, $-OCH_3$, $-OCH_2CH_3$, $-OCH(CH_3)_2$, -SH, $-NHC(=O)NHCH_3$, $-NHC(=O)NHCH_2CH_3$, $-S(O)CH_3$, $-S(O)CH_2CH_3$, $-S(O)_2CH_3$, $-S(O)_2NH_2$, $-S(O)_2NHCH_3$, $-S(O)_2N(CH_3)_2$, $-CH_2S(O)_2CH_3$.

2. The compounds of claim 1 wherein R^3 is selected from:



where the wavy line indicates the site of attachment;each of which are optionally substituted with one or more groups independently selected from F, $-CH_3$, $-CH_2OCH_3$, –CN and –OH.

3. The compounds of any one of claims 1 or 2 wherein mor is a morpholine group which is unsubstituted or substituted with one or more $-CH_3$.

4. The compounds of any one of claims 1 to 3 which show an IC50 binding activity to p110 delta of ten or more times lower than the binding activity to p110 alpha.

5. A pharmaceutical composition comprised of a compound of any one of claims 1 to 4, and a pharmaceutically acceptable carrier, glidant, diluent, or excipient.

6. The pharmaceutical composition according to claim 5, further comprising a second therapeutic agent.

7. The pharmaceutical composition according to claim 6, wherein said second therapeutic agent is selected from an non-steroidal anti-inflammatory drug (NSAID) or a chemotherapeutic agent.

8. A process for making a pharmaceutical composition which comprises combining a compound of any one of claims 1 to 4 with a pharmaceutically acceptable carrier, glidant, diluent, or excipient.

9. Use of a compound of any one of claims 1 to 4 in the manufacture of a medicament for treating a disease or disorder selected from immune disorders, cancer, cardiovascular disease, viral infection, inflammation, metabolism/endocrine function disorders and neurological disorders, and mediated by the p110 delta isoform of PI3 kinase.

10. A kit for use in treating a condition mediated by the p110 delta isoform of PI3 kinase, comprising: a) a first pharmaceutical composition comprising a compound of any one of claims 1 to 4; and b) instructions for use, wherein such condition is selected from immune disorders, cancer, cardiovascular disease, viral infection, inflammation, metabolism/endocrine function disorders and neurological disorders, and mediated by the p110 delta isoform of PI3 kinase.

11. The compound of any one of claims 1 to 4 for use as a medicament.

12. The compound of any one of claims 1 to 4 for use as a medicament in treating a disease or disorder selected from immune disorders, cancer, cardiovascular disease, viral infection, inflammation, metabolism/endocrine function disorders and neurological disorders, and mediated by the p110 delta isoform of PI3 kinase.