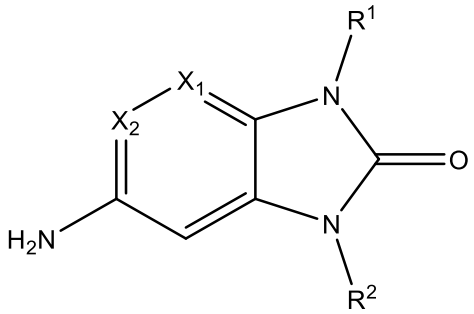
Claims

1. A compound of Formula (II), or a pharmaceutically acceptable salt or solvate thereof, as shown below:



Formula (II)

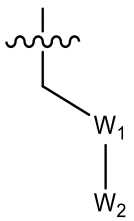
wherein:

X_1 is selected from N or CR^a, wherein R^a is selected from hydrogen, (1-2C)alkyl, halogen, hydroxy, (1-2C)alkoxy, (1-2C)haloalkyl, (1-2C)haloalkoxy, (2-4C)alkenyl, (2-4C)alkynyl, nitro, cyano, or NR^bR^c, wherein R^b and R^c are independently selected from hydrogen or (1-2C)alkyl;

X_2 is selected from N or CR^d, wherein R^d is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, bromo, hydroxy, (1-2C)alkoxy, (1-2C)haloalkyl, or (1-2C)haloalkoxy;

R^1 is methyl;

R^2 is a group of the formula:



wherein:

denotes the point of attachment;

W_1 is selected from CR^4R^5, wherein R^4 and R^5 are hydrogen,

W_2 is selected from cyano, a 5- or 6-membered heteroaryl, phenyl, $C(O)R^l$, SO_2R^l, $C(O)OCH_3$, $C(O)N(H)CH_3$, $CR^6R^7R^8$, or NR^lR^m, wherein R^l and R^m are independently selected from hydrogen or (1-4C)alkyl, and wherein:

R^6 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, bromo, hydroxy, amino, cyano, nitro, (1-2C)alkoxy, (1-2C)haloalkyl, or (1-2C)haloalkoxy;

R^7 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, bromo, hydroxy, cyano, nitro, (1-2C)alkoxy, (1-2C)haloalkyl, (1-2C)haloalkoxy, or a group of the formula:

$$-Y_2-L_2-Z_2$$

wherein:

Y_2 is absent or selected from O, $N(R^n)$, S, SO, SO_2, C(O), C(O)O, OC(O), $C(O)N(R^n)$, $N(R^n)C(O)$, $S(O)_2N(R^n)$, or $N(R^n)SO_2$, wherein R^n is selected from hydrogen or (1-2C)alkyl;

L_2 is absent or (1-2C)alkylene; and

Z_2 is hydrogen, (1-6C)alkyl, (2-4C)alkenyl, (2-4C)alkynyl, phenyl, (3-6C)cycloalkyl, 5-6 membered heteroaryl or a 4-6-membered heterocyclyl; wherein Z_2 is optionally substituted by one or more substituents selected from (1-4C)alkyl, halo, (1-4C)haloalkyl, (1-4C)haloalkoxy, (1-4C)alkoxy, (1-4C)alkylamino, amino, cyano, nitro, hydroxy, $C(O)R^o$, $C(O)OR^o$, $OC(O)R^o$, $C(O)N(R^o)R^p$, or $NR^oC(O)R^p$, wherein R^o and R^p are independently selected from hydrogen or (1-4C)alkyl; and

R^8 is selected from (1-2C)alkyl, $-C(O)OR^q$, OR^q, $-C(O)NR^q$, NR^qR^r, phenyl, or a 5-membered heteroaryl, wherein R^q and R^r are independently selected from hydrogen or (1-2C)alkyl;

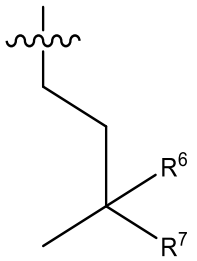
or R^6 and R^7 can be linked such that, together with the carbon atom to which they are attached, they form a 3-6-membered carbocyclic ring or a 3-6-membered heterocyclic ring, which is optionally substituted by one or more substituents selected from (1-2C)alkyl, halo, (1-2C)haloalkyl, (1-2C)haloalkoxy, (1-2C)alkoxy, (1-2C)alkylamino, amino, cyano, or hydroxy.

2. A compound of Formula (II), or a pharmaceutically acceptable salt or solvate thereof, according to claim 1, wherein X_1 is selected from N or CR^a, wherein R^a is selected from hydrogen, methyl, fluoro, chloro, hydroxy, OCH_3, CH_2F, CHF_2, CF_3, OCF_3, acetylenyl, cyano, or NH_2.

3. A compound of Formula (II), or a pharmaceutically acceptable salt or solvate thereof, according to claims 1 or 2, wherein X_2 is selected from N or CH.

4. A compound of Formula (II), or a pharmaceutically acceptable salt or solvate thereof, according to any one of claims 1 to 3, wherein X_1 is CH and X_2 is CH.

5. A compound of Formula (II), or a pharmaceutically acceptable salt or solvate thereof, according to any one of claims 1 to 4, wherein R^2 is a group of the formula:

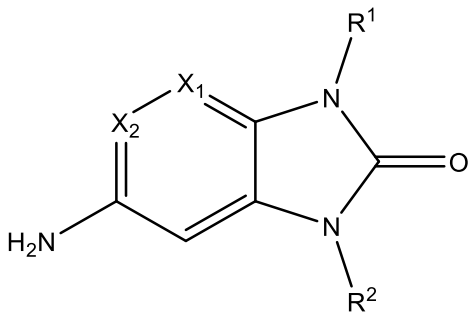


wherein:

R^6 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, hydroxy, amino, cyano, or (1-2C)alkoxy; and

R^7 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, hydroxy, cyano, (1-2C)alkoxy, (1-2C)haloalkyl, or (1-2C)haloalkoxy.

6. A compound of Formula (II), or a pharmaceutically acceptable salt or solvate thereof, as shown below:



Formula (II)

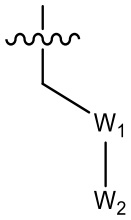
wherein:

X_1 is selected from N or CR^a, wherein R^a is selected from hydrogen, (1-2C)alkyl, halogen, hydroxy, (1-2C)alkoxy, (1-2C)haloalkyl, (1-2C)haloalkoxy, (2-4C)alkenyl, (2-4C)alkynyl, nitro, cyano, or NR^bR^c, wherein R^b and R^c are independently selected from hydrogen or (1-2C)alkyl;

X_2 is selected from N or CR^d, wherein R^d is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, bromo, hydroxy, (1-2C)alkoxy, (1-2C)haloalkyl, or (1-2C)haloalkoxy;

R^1 is methyl;

R^2 is a group of the formula:



wherein:

denotes the point of attachment;

W_1 is selected from CHR^4, wherein R^4 is selected from hydrogen, (1-2C)alkyl, fluoro, hydroxy, cyano, or (1-2C)alkoxy;

W_2 is $CR^6R^7R^8$, wherein:

R^6 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, hydroxy, amino, cyano, or (1-2C)alkoxy;

R^7 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, hydroxy, cyano, (1-2C)alkoxy, (1-2C)haloalkyl, or (1-2C)haloalkoxy; and

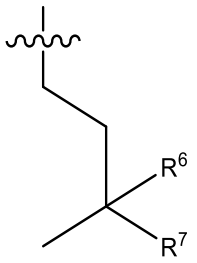
R^8 is selected from (1-2C)alkyl, $-C(O)OR^q$, OR^q, $-C(O)NR^q$, NR^qR^r, phenyl, or pyrazole, wherein R^q and R^r are independently selected from hydrogen or (1-2C)alkyl.

7. A compound of Formula (II), or a pharmaceutically acceptable salt or solvate thereof, according to claim 6, wherein X_1 is selected from N or CR^a, wherein R^a is selected from hydrogen, methyl, fluoro, chloro, hydroxy, OCH_3, CH_2F, CHF_2, CF_3, OCF_3, acetylenyl, cyano, or NH_2.

8. A compound of Formula (II), or a pharmaceutically acceptable salt or solvate thereof, according to claims 6 or 7, wherein X_2 is selected from N or CH.

9. A compound of Formula (II), or a pharmaceutically acceptable salt or solvate thereof, according to any one of claims 6 to 8, wherein X_1 is CH and X_2 is CH.

10. A compound of Formula (II), or a pharmaceutically acceptable salt or solvate thereof, according to any one of claims 6 to 9, wherein R^2 is a group of the formula:

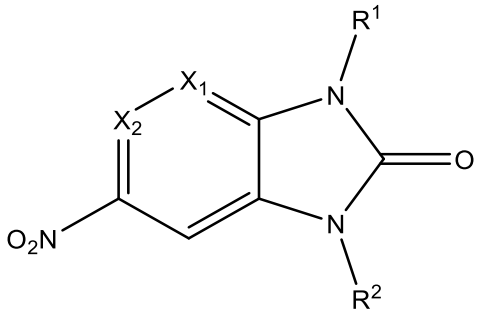


wherein:

R^6 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, hydroxy, amino, cyano, or (1-2C)alkoxy; and

R^7 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, hydroxy, cyano, (1-2C)alkoxy, (1-2C)haloalkyl, or (1-2C)haloalkoxy.

11. A compound of Formula (IV), or a pharmaceutically acceptable salt or solvate thereof, as shown below:



Formula (IV)

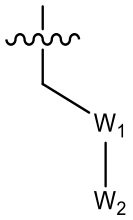
wherein:

X_1 is selected from N or CR^a, wherein R^a is selected from hydrogen, (1-2C)alkyl, halogen, hydroxy, (1-2C)alkoxy, (1-2C)haloalkyl, (1-2C)haloalkoxy, (2-4C)alkenyl, (2-4C)alkynyl, nitro, cyano, or NR^bR^c, wherein R^b and R^c are independently selected from hydrogen or (1-2C)alkyl;

X_2 is selected from N or CR^d, wherein R^d is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, bromo, hydroxy, (1-2C)alkoxy, (1-2C)haloalkyl, or (1-2C)haloalkoxy;

R^1 is methyl;

R^2 is a group of the formula:



wherein:

denotes the point of attachment;

W_1 is CR^4R^5 , wherein R^4 and R^5 are hydrogen;

W_2 is selected from cyano, a 5- or 6-membered heteroaryl, phenyl, $C(O)R^l$, SO_2R^l, $C(O)OCH_3$, $C(O)N(H)CH_3$, $CR^6R^7R^8$, or NR^lR^m, wherein R^l and R^m are independently selected from hydrogen or (1-4C)alkyl, and wherein:

R^6 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, bromo, hydroxy, amino, cyano, nitro, (1-2C)alkoxy, (1-2C)haloalkyl, or (1-2C)haloalkoxy;

R^7 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, bromo, hydroxy, cyano, nitro, (1-2C)alkoxy, (1-2C)haloalkyl, (1-2C)haloalkoxy, or a group of the formula:

$$-Y_2\text{-}L_2\text{-}Z_2$$

wherein:

Y_2 is absent or selected from O, $N(R^n)$, S, SO, SO_2, C(O), C(O)O, OC(O), $C(O)N(R^n)$, $N(R^n)C(O)$, $S(O)_2N(R^n)$, or $N(R^n)SO_2$, wherein R^n is selected from hydrogen or (1-2C)alkyl;

L_2 is absent or (1-2C)alkylene; and

Z_2 is hydrogen, (1-6C)alkyl, (2-4C)alkenyl, (2-4C)alkynyl, phenyl, (3-6C)cycloalkyl, 5-6 membered

heteroaryl, or a 4-6-membered heterocyclyl; wherein Z_2 is optionally substituted by one or more substituents selected from (1-4C)alkyl, halo, (1-4C)haloalkyl, (1-4C)haloalkoxy, (1-4C)alkoxy, (1-4C)alkylamino, amino, cyano, nitro, hydroxy, $C(O)R^o$, $C(O)OR^o$, $OC(O)R^o$, $C(O)N(R^o)R^p$, or $NR^oC(O)R^p$, wherein R^o and R^p are independently selected from hydrogen or (1-4C)alkyl; and

R^8 is selected from (1-2C)alkyl, $-C(O)OR^q$, OR^q, $-C(O)NR^q$, NR^qR^r, phenyl, or a 5-membered heteroaryl, wherein R^q and R^r are independently selected from hydrogen or (1-2C)alkyl;

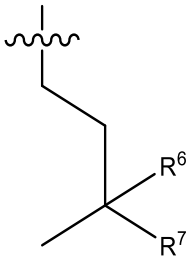
or R^6 and R^7 can be linked such that, together with the carbon atom to which they are attached, they form a 3-6-membered carbocyclic ring or a 3-6-membered heterocyclic ring, which is optionally substituted by one or more substituents selected from (1-2C)alkyl, halo, (1-2C)haloalkyl, (1-2C)haloalkoxy, (1-2C)alkoxy, (1-2C)alkylamino, amino, cyano, or hydroxy.

12. A compound of Formula (IV), or a pharmaceutically acceptable salt or solvate thereof, according to claim 11, wherein X_1 is selected from N or CR^a, wherein R^a is selected from hydrogen, methyl, fluoro, chloro, hydroxy, OCH_3, CH_2F, CHF_2, CF_3, OCF_3, acetylenyl, cyano, or NH_2.

13. A compound of Formula (IV), or a pharmaceutically acceptable salt or solvate thereof, according to claims 11 or 12, wherein X_2 is selected from N or CH.

14. A compound of Formula (IV), or a pharmaceutically acceptable salt or solvate thereof, according to any one of claims 11 to 13, wherein X_1 is CH and X_2 is CH.

15. A compound of Formula (IV), or a pharmaceutically acceptable salt or solvate thereof, according to any one of claims 11 to 14, wherein R^2 is a group of the formula:

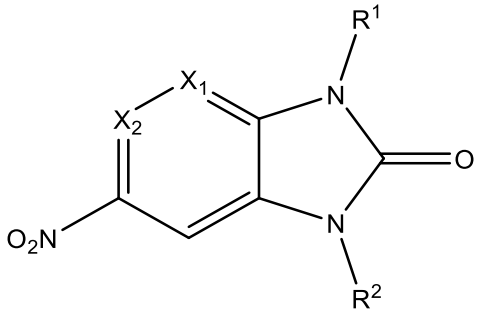


wherein:

R^6 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, hydroxy, amino, cyano, or (1-2C)alkoxy; and

R^7 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, hydroxy, cyano, (1-2C)alkoxy, (1-2C)haloalkyl, or (1-2C)haloalkoxy.

16. A compound of Formula (IV), or a pharmaceutically acceptable salt or solvate thereof, as shown below:



Formula (IV)

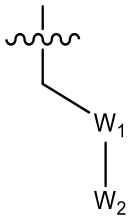
wherein:

X_1 is selected from N or CR^a, wherein R^a is selected from hydrogen, (1-2C)alkyl, halogen, hydroxy, (1-2C)alkoxy, (1-2C)haloalkyl, (1-2C)haloalkoxy, (2-4C)alkenyl, (2-4C)alkynyl, nitro, cyano, or NR^bR^c, wherein R^b and R^c are independently selected from hydrogen or (1-2C)alkyl;

X_2 is selected from N or CR^d, wherein R^d is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, bromo, hydroxy, (1-2C)alkoxy, (1-2C)haloalkyl, or (1-2C)haloalkoxy;

R^1 is methyl;

R^2 is a group of the formula:



wherein:

denotes the point of attachment;

W_1 is selected from CHR^4, wherein R4 is selected from hydrogen, (1-2C)alkyl, fluoro, hydroxy, cyano, or (1-2C)alkoxy;

W_2 is $CR^6R^7R^8$, wherein:

R^6 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, hydroxy, amino, cyano, or (1-2C)alkoxy;

R^7 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, hydroxy, cyano, (1-2C)alkoxy, (1-2C)haloalkyl, or (1-2C)haloalkoxy; and

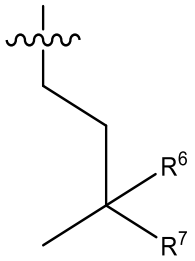
R^8 is selected from (1-2C)alkyl, $-C(O)OR^q$, OR^q, $-C(O)NR^q$, NR^qR^r, phenyl, or pyrazole, wherein R^q and R^r are independently selected from hydrogen or (1-2C)alkyl.

17. A compound of Formula (IV), or a pharmaceutically acceptable salt or solvate thereof, according to claim 16, wherein X_1 is selected from N or CR^a, wherein R^a is selected from hydrogen, methyl, fluoro, chloro, hydroxy, OCH_3, CH_2F, CHF_2, CF_3, OCF_3, acetylenyl, cyano, or NH_2.

18. A compound of Formula (IV), or a pharmaceutically acceptable salt or solvate thereof, according to claims 16 or 17, wherein X_2 is selected from N or CH.

19. A compound of Formula (IV), or a pharmaceutically acceptable salt or solvate thereof, according to any one of claims 16 to 18, wherein X_1 is CH and X_2 is CH.

20. A compound of Formula (IV), or a pharmaceutically acceptable salt or solvate thereof, according to any one of claims 16 to 19, wherein R^2 is a group of the formula:



wherein:

R^6 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, hydroxy, amino, cyano, or (1-2C)alkoxy; and

R^7 is selected from hydrogen, (1-2C)alkyl, fluoro, chloro, hydroxy, cyano, (1-2C)alkoxy, (1-2C)haloalkyl, or (1-2C)haloalkoxy.