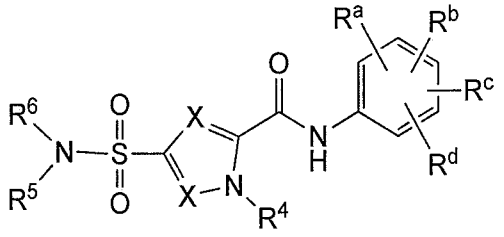
There is a need for additional HBV inhibitors that may overcome at least one of these disadvantages or that have additional advantages such as increased potency or an increased safety window.

Summary

In one aspect, there is provided a compound of Formula (ID)



(ID)

or a stereoisomer or tautomeric form thereof, wherein:

Each X independently represents CR^7;

R^a, R^b and R^c are independently selected from the group consisting of Hydrogen, Fluoro, Bromo, Chloro, $-CHF_2$, $-CF_2$-methyl, $-CH_2F$, $-CF_3$, $-OCF_3$, -CN, C_1-C_3alkyl and C_3-C_4cycloalkyl;

R^d is Hydrogen or Fluoro;

R^4 is Hydrogen, C_1-C_3alkyl or C_3-C_4cycloalkyl;

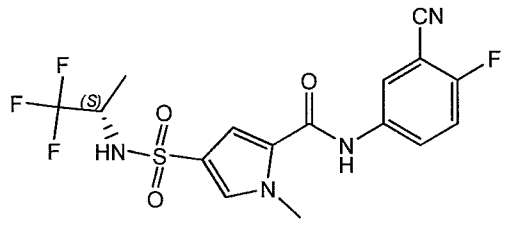
R^5 is Hydrogen;

R^6 is selected from the group consisting of C_2-C_6alkyl substituted with one or more Fluoro;

R^7 represents hydrogen, -CN, Fluoro, Chloro, Bromo, $-CHF_2$, $-CF_2$-methyl, $-CH_2F$, $-CF_3$, C_1-C_3alkyl optionally substituted with methoxy, C_2-C_3alkenyl or C_3-C_4cycloalkyl;

or a pharmaceutically acceptable salt or a solvate thereof.

In another aspect, there is provided a compound that is



or a pharmaceutically acceptable salt or a solvate thereof.

In another aspect, there is provided a compound as defined herein for use as a medicament.

In another aspect, there is provided a compound as defined herein for use in the prevention or treatment of an HBV infection in a mammal.

In another aspect, there is provided use of a compound as defined herein in the manufacture of a medicament for the prevention or treatment of an HBV infection in a mammal.

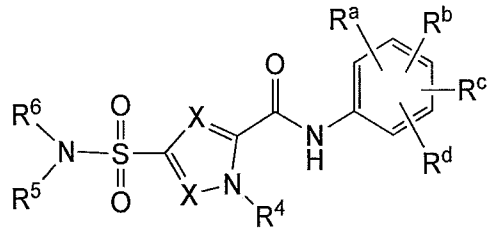
In another aspect, there is provided a pharmaceutical composition comprising a compound as defined herein, and a pharmaceutically acceptable carrier.

In another aspect, there is provided use of a pharmaceutical composition as defined herein in the manufacture of a medicament for the prevention or treatment of an HBV infection in a mammal.

In another aspect, there is provided a product containing (a) a compound as defined herein, and (b) another HBV inhibitor, as a combined preparation for simultaneous, separate or sequential use in the treatment of HBV infections.

Description of the Invention

The present invention relates to a compound of Formula (ID)



(ID)

or a stereoisomer or tautomeric form thereof, wherein:

Each X independently represents CR^7;

R^a, R^b and R^c are independently selected from the group consisting of Hydrogen, Fluoro, Bromo, Chloro, $-CHF_2$, $-CF_2$-methyl, $-CH_2F$, $-CF_3$, $-OCF_3$, -CN, C_1-C_3alkyl and C_3-C_4cycloalkyl;

R^d is Hydrogen or Fluoro;

R^4 is Hydrogen, C_1-C_3alkyl or C_3-C_4cycloalkyl;

R^5 is Hydrogen;

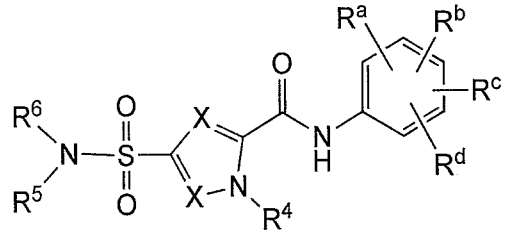
R^6 is selected from the group consisting of C_2-C_6alkyl, C_1-C_4alkyl-R^8 optionally substituted with one or more Fluoro, C_1-C_4alkyl-R^9 optionally substituted with one or more Fluoro, and a 3-7 membered mono or polycyclic saturated ring optionally containing one or more heteroatoms each independently selected from the group consisting of O, S and N, such 3-7 membered saturated ring or C_2-C_6alkyl optionally being substituted with one or more substituents each independently selected from the group consisting of Hydrogen, -OH, Fluoro, oxo, R^9, R^{10} and C_1-C_4alkyl optionally substituted with R^{10};

R^7 represents hydrogen, -CN, Fluoro, Chloro, Bromo, $-CHF_2$, $-CF_2$-methyl, $-CH_2F$, $-CF_3$, C_1-C_3alkyl optionally substituted with methoxy, C_2-C_3alkenyl or C_3-C_4cycloalkyl;

R^8 represents 3-7 membered saturated ring optionally containing one or more heteroatoms each independently selected from the group consisting of O, S and N, such 3-7 membered

Claims

1. A compound of Formula (ID)



(ID)

or a stereoisomer or tautomeric form thereof, wherein:

Each X independently represents CR^7;

R^a, R^b and R^c are independently selected from the group consisting of Hydrogen, Fluoro, Bromo, Chloro, $-CHF_2$, $-CF_2$-methyl, $-CH_2F$, $-CF_3$, $-OCF_3$, -CN, C_1-C_3alkyl and C_3-C_4cycloalkyl;

R^d is Hydrogen or Fluoro;

R^4 is Hydrogen, C_1-C_3alkyl or C_3-C_4cycloalkyl;

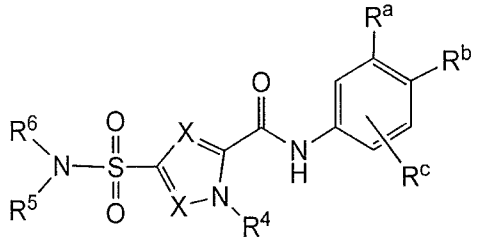
R^5 is Hydrogen;

R^6 is selected from the group consisting of C_2-C_6alkyl substituted with one or more Fluoro;

R^7 represents hydrogen, -CN, Fluoro, Chloro, Bromo, $-CHF_2$, $-CF_2$-methyl, $-CH_2F$, $-CF_3$, C_1-C_3alkyl optionally substituted with methoxy, C_2-C_3alkenyl or C_3-C_4cycloalkyl;

or a pharmaceutically acceptable salt or a solvate thereof.

2. A compound according to claim 1 with Formula (IB)



(IB)

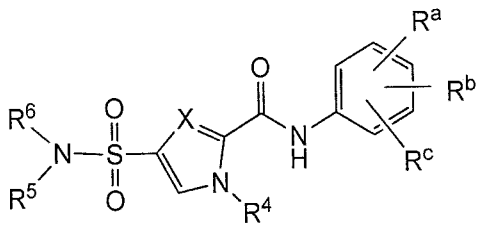
3. The compound according to any one of the previous claims wherein R^4 is methyl.

4. The compound according to any one of the previous claims wherein R^6 is a branched C_3-C_6alkyl substituted with one or more Fluoro.

5. The compound according to any one of the previous claims wherein R^b is Hydrogen or Fluoro.

6. The compound according to any one of the previous claims wherein R^a and R^c are independently selected from the group consisting of Hydrogen, Fluoro, Chloro, CN and methyl.

7. A compound according to any one of the previous claims with Formula (IC)



(IC)

or a stereoisomer or tautomeric form thereof, wherein:

X represents CR^7;

R^a, R^b and R^c are independently selected from the group consisting of Hydrogen, Fluoro, Bromo, Chloro, $-CHF_2$, $-CF_2$-methyl, $-CH_2F$, $-CF_3$, $-OCF_3$, -CN, C_1-C_3alkyl and C_3-C_4cycloalkyl;

R^4 is Hydrogen, C_1-C_3alkyl or C_3-C_4cycloalkyl;

R^5 is Hydrogen;

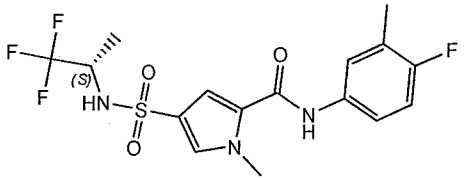
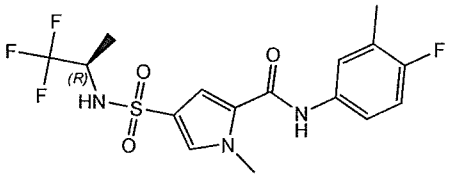
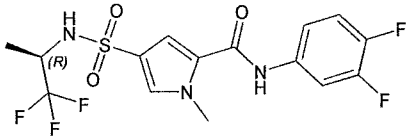
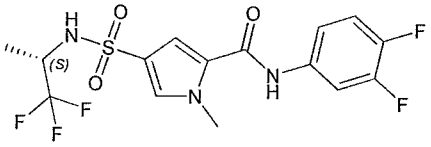
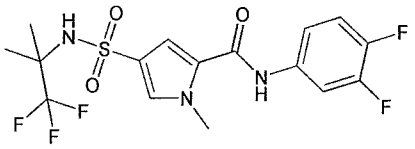
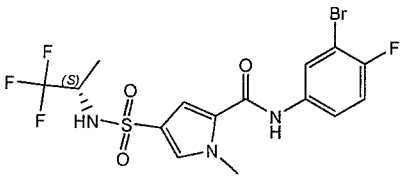
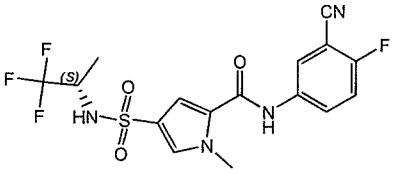
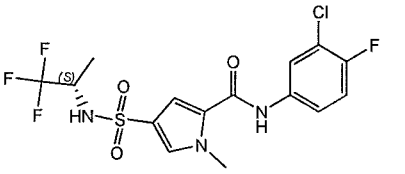
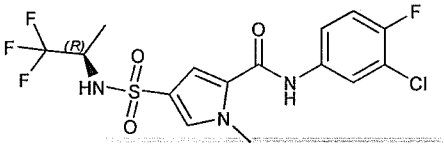
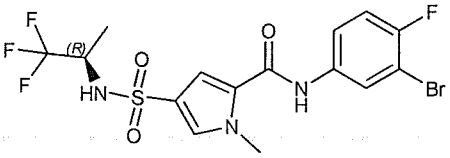
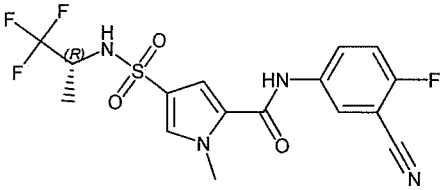
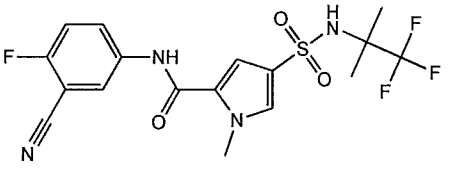
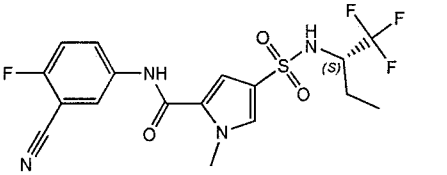
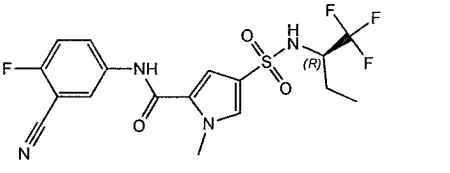
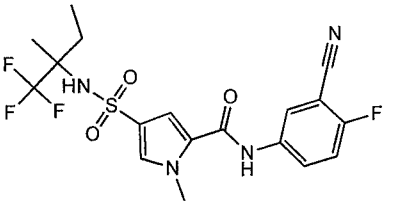
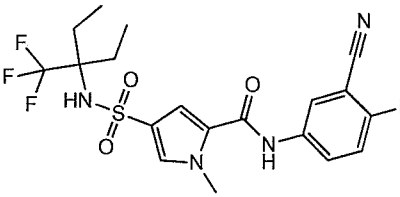
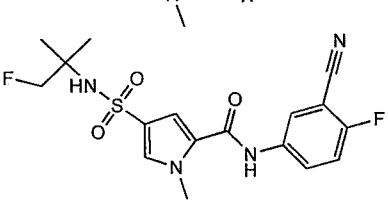
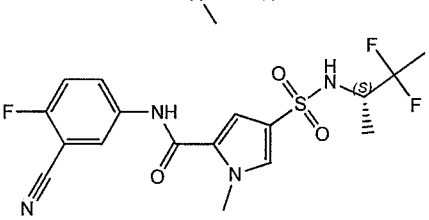
R^6 is selected from the group consisting of C_2-C_6alkyl substituted with one or more Fluoro;

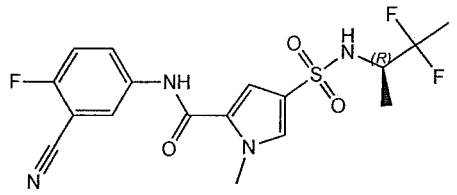
R^7 represents hydrogen, -CN, Fluoro, Chloro, Bromo, $-CHF_2$, $-CF_2$-methyl, $-CH_2F$, $-CF_3$, C_1-C_3alkyl or C_3-C_4cycloalkyl;
or a pharmaceutically acceptable salt or a solvate thereof.

8. The compound according to claim 7, wherein
R^4 is C_1-C_3alkyl;
R^6 is selected from the group consisting of C_2-C_6alkyl substituted with one or more Fluoro; and
R^7 represents hydrogen, Fluoro, Chloro or C_1-C_3alkyl.

9. The compound according to any one of the previous claims wherein R^4 represents methyl, R^6 is C_2-C_6alkyl substituted with one or more fluoro, R^7 represents Hydrogen and R^a, R^b and R^c are independently selected from the group consisting of Hydrogen, Fluoro, Chloro, methyl and –CN.

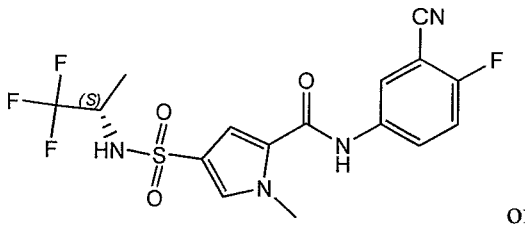
10. The compound according to claim 1 that is selected from the group



or a pharmaceutically acceptable salt or a solvate thereof.

11. A compound that is



or a pharmaceutically acceptable salt or a solvate thereof.

12. A compound according to any one of the previous claims for use as a medicament.

13. A compound according to any one of claims 1 to 11 for use in the prevention or treatment of an HBV infection in a mammal.

14. Use of a compound according to any one of claims 1 to 11 in the manufacture of a medicament for the prevention or treatment of an HBV infection in a mammal.

15. A pharmaceutical composition comprising a compound according to any one of claims 1 to 11, and a pharmaceutically acceptable carrier.

16. Use of the pharmaceutical composition according to claim 15 in the manufacture of a medicament for the prevention or treatment of an HBV infection in a mammal.

17. A product containing (a) a compound as defined in any one of claims 1 to 11, and (b) another HBV inhibitor, as a combined preparation for simultaneous, separate or sequential use in the treatment of HBV infections.