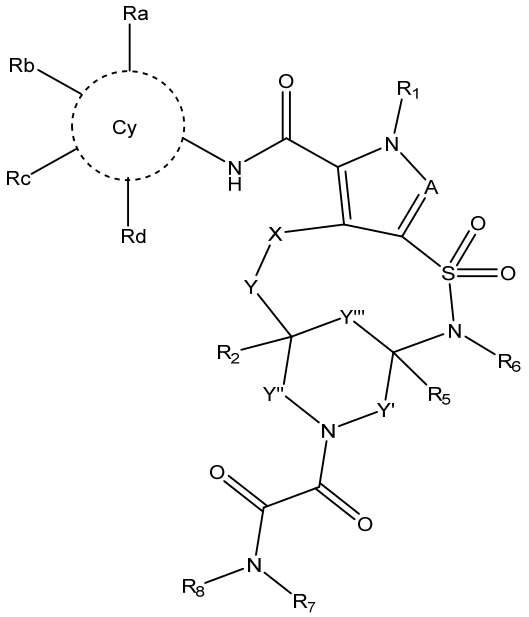
CLAIMS

1. A compound of general formula (I):



(I)

wherein:

Cy is aryl or heteroaryl;

A is C-R_3 or N;

X is O, S, NH, SO, SO_2 or a single bond;

Y, Y', Y'' and Y''' are each independently C_{1-6}alkanediyl or C_{2-7}alkenediyl, each optionally substituted with one or more R_4, or a single bond;

R_1 is H or C_{1-6}alkyl;

R_2 is selected from H, OH, halogen and C_{1-6}alkyl;

R_3 is selected from H, C_{1-6}alkyl, C_{3-8}cycloalkyl, haloC_{1-6}alkyl and halogen;

R_4 is selected from H, OH, C_{1-6}alkyl, C_{3-8}cycloalkyl and halogen or two geminal R_4 form together with the atom to which they are attached a spiro-C_{3-8}cycloalkyl or a spiro-C_{3-8}heterocycloalkyl;

R_5 is H or C_{1-6}alkyl;

or R_2 and R_5 taken together form a C_{1-6}alkanediyl bridge;

R_6 is selected from H, C_{1-6}alkyl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, C_{1-6}alkylaryl, C_{1-6}alkylheteroaryl and C_{1-6}alkyl-C_{3-8}cycloalkyl wherein each of said C_{1-6}alkyl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, C_{1-6}alkylaryl, C_{1-6}alkylheteroaryl or C_{1-6}alkyl-C_{3-8}cycloalkyl is optionally substituted with one or more substituents each independently selected from: OH, halogen, haloC_{1-6}alkyl, cyano and NH_2;

each of R_7 and R_8 are independently selected from:

- hydrogen;

- C_{1-12}alkyl optionally substituted with one or more substituents each independently selected from the group consisting of: OH, halogen, CN, NH_2, $NH(R_9)$, $N(R_9)_2$, haloC_{1-6}alkyl, aryl, heteroaryl, 3-7 membered saturated ring and 5-7 membered partially saturated ring, each of said saturated or partially saturated ring optionally containing one or more heteroatoms selected from the group consisting of O, N and S and each of said aryl, heteroaryl, 3-7 membered saturated ring or 5-7 membered partially saturated ring being optionally substituted with one or more substituents each independently selected from: OH, halogen, C_{1-6}alkyl, haloC_{1-6}alkyl, CN, haloC_{1-6}alkoxy and C_{1-6}alkoxy;
- aryl or heteroaryl, each of said aryl or heteroaryl being optionally substituted with one or more substituents each independently selected from: OH, halogen, haloC_{1-6}alkyl, CN, haloC_{1-6}alkoxy and C_{1-6}alkoxy; and
- a 3-8 membered saturated or partially saturated cyclic or bicyclic ring optionally containing one or more heteroatoms each independently selected from the group consisting of: O, S and N, the 3-8 membered saturated or partially saturated cyclic or bicyclic ring being optionally substituted with one, two or more substituents each independently selected from the group consisting of: OH, halogen, CN, C_{1-6}alkyl, hydroxyC_{1-6}alkyl, $C(O)OR_9$, $C(O)R_9$, haloC_{1-6}alkyl, haloC_{1-6}alkoxy and C_{1-6}alkoxy;

or R_7 and R_8 form together with the nitrogen atom to which they are attached a cyclic amine selected from: aziridine, azetidine, pyrrolidine, piperidine, azepane, morpholine, thiomorpholine and piperazine each of said cyclic amine being optionally substituted with one or more substituents each independently selected from the group consisting of: OH, halogen, CN, C_{1-6}alkyl, hydroxyC_{1-6}alkyl, haloC_{1-6}alkyl, haloC_{1-6}alkoxy and C_{1-6}alkoxy;

Ra, Rb, Rc and Rd are each independently selected from the group consisting of: hydrogen, halogen, CN, C_{1-6}alkyl, C_{1-6}alkoxy, haloC_{1-6}alkyl, haloC_{1-6}alkoxy, $C(O)OR_9$, $C(O)R_9$, NH_2, $NH(R_9)$, $N(R_9)_2$, $C(O)N(R_9)_2$, $SO_2N(R_9)_2$, $NHCON(R_9)_2$;

each R_9 is independently selected from H, C_{1-6}alkyl, haloC_{1-6}alkyl, C_{1-6}alkylaryl, C_{1-6}alkylheteroaryl and C_{1-6}alkyl-C_{3-8}cycloalkyl;

or a pharmaceutically acceptable salt, tautomer, solvate or stereoisomer thereof.

2. The compound according to claim 1, wherein:

- Cy is aryl; and/or
- X is O or S; and/or
- Y is methanediyl, Y' and Y'' are methanediyl or ethanediyl and Y''' is a single bond;

or a pharmaceutically acceptable salt, tautomer, solvate or stereoisomer thereof.

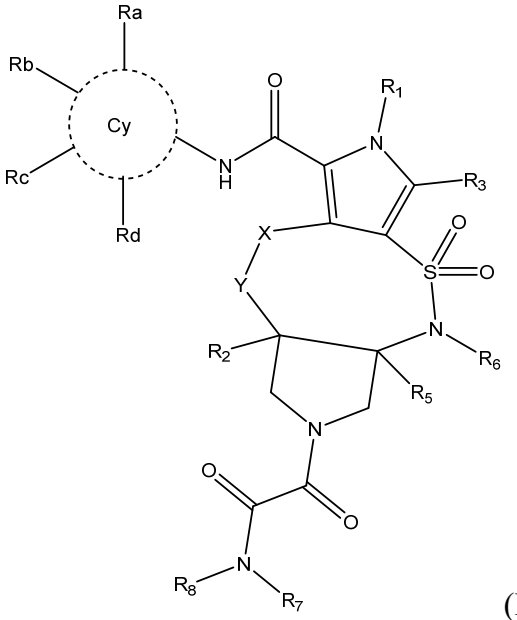
3. The compound according to claim 1 or 2, wherein:

R_2 is H, C_{1-6}alkyl or OH; and

R_3 is H, C_{1-6}alkyl or halogen;

or a pharmaceutically acceptable salt, tautomer, solvate or stereoisomer thereof.

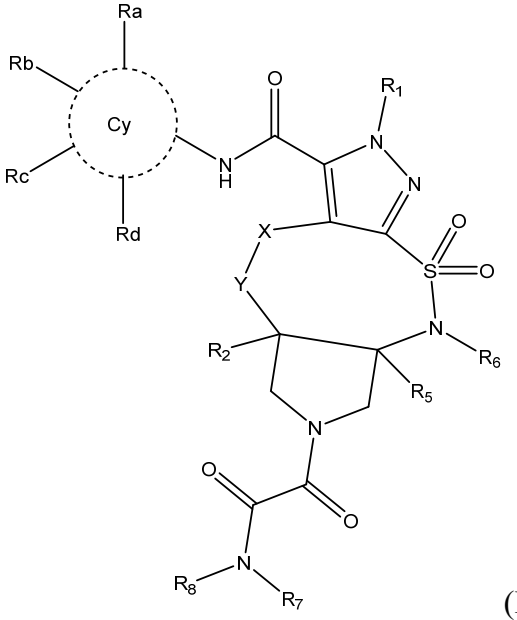
4. The compound according to any one of previous claims of Formula (I-A):



(I-A)

or a pharmaceutically acceptable salt, tautomer, solvate or stereoisomer thereof.

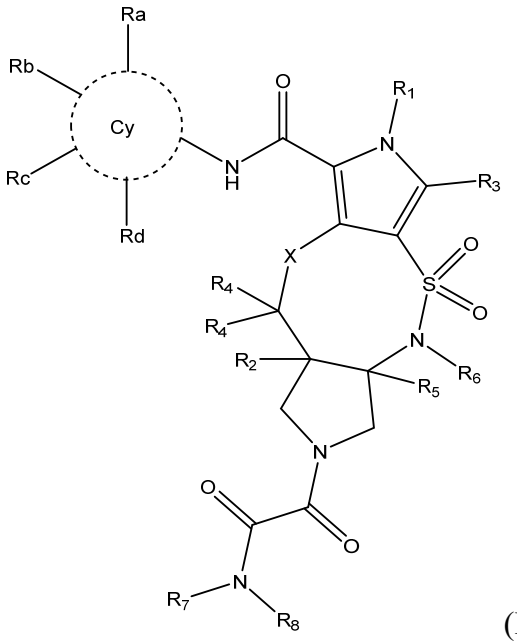
5. The compound according to claim 1 or 2 of Formula (I-B):



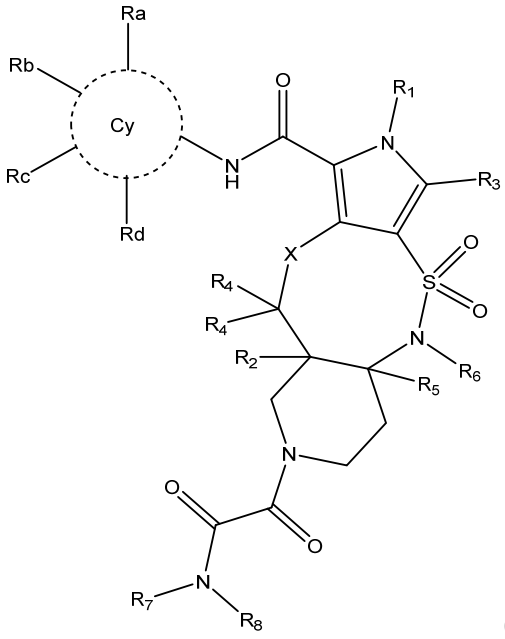
(I-B)

or a pharmaceutically acceptable salt, tautomer, solvate or stereoisomer thereof.

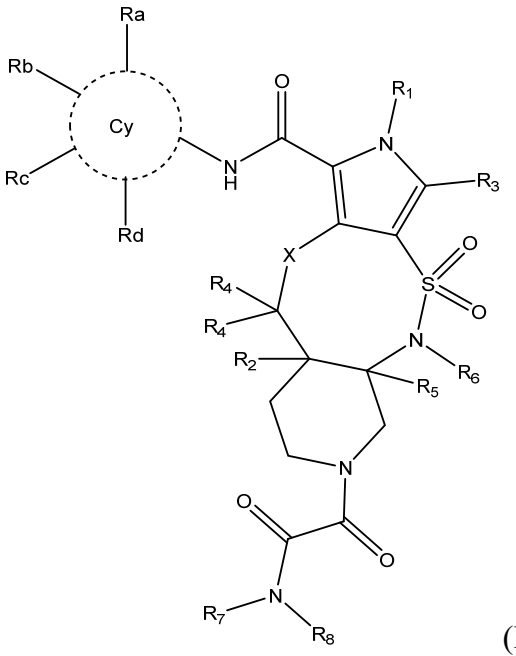
6. The compound according to claim 4 of Formula (II-A), Formula (III-A) or Formula (III-B):



(II-A)



(III-A)



(III-B)

wherein:

X is O, S, NH, SO, SO_2;

R_2 is H, C_{1-6}alkyl or OH;

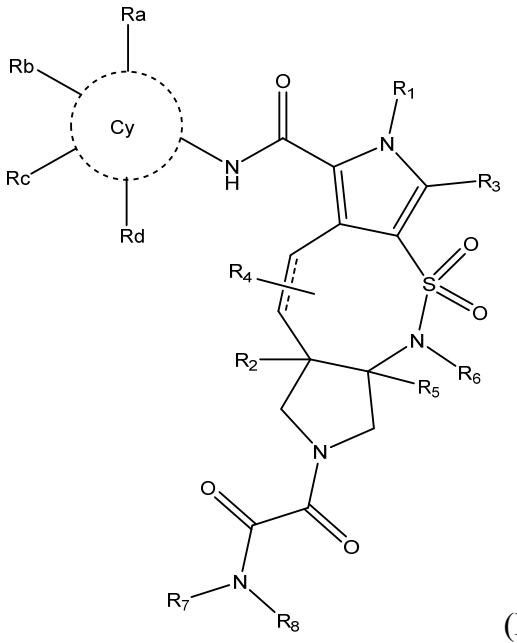
R_3 is H, C_{1-6}alkyl or halogen;

each R_4 is independently selected from H, OH, C_{1-6}alkyl, C_{3-8}cycloalkyl and halogen or two R_4 form together with the atom to which they are attached a spiro-C_{3-8}cycloalkyl or a spiro-C_{3-8}heterocycloalkyl;

and wherein the remaining substituents are as defined in claim 1;

or a pharmaceutically acceptable salt, tautomer, solvate or stereoisomer thereof.

7. The compound according to claim 4 of Formula (II-B):



(II-B)

wherein:

------ represents a single or double bond;

R_2 is H or $C_{1\text{-}6}$alkyl;

R_3 is H, $C_{1\text{-}6}$alkyl or halogen;

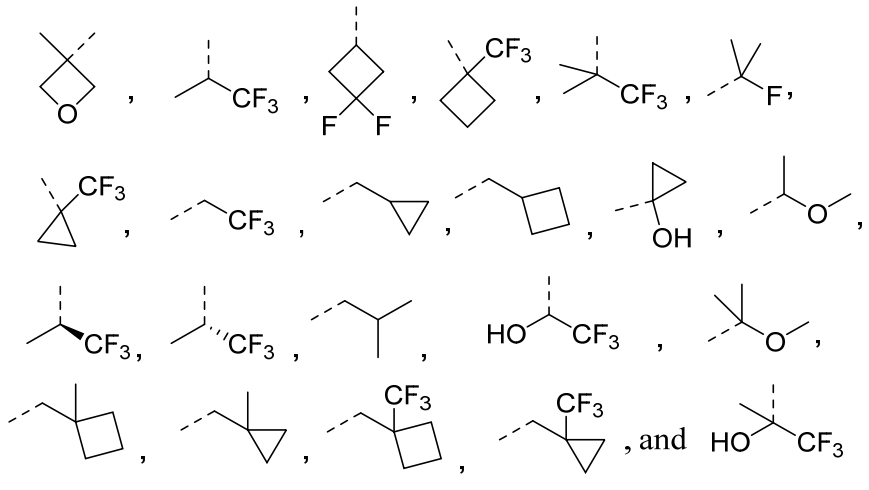
and wherein the remaining substituents are as defined in claim 1;

or a pharmaceutically acceptable salt, tautomer, solvate or stereoisomer thereof.

8. The compound or the pharmaceutically acceptable salt, tautomer, solvate or stereoisomer thereof according to any one of previous claims wherein Cy is phenyl, R_1 is CH_3, R_3 is H, methyl, chlorine or bromine, R_5 is hydrogen or methyl and R_6 is hydrogen.

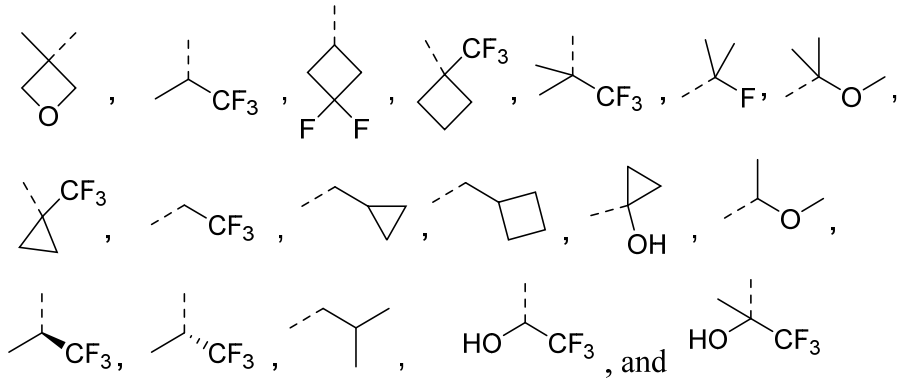
9. The compound or the pharmaceutically acceptable salt, tautomer, solvate or stereoisomer thereof according to any one of previous claims wherein:

R_7 is selected from the group consisting of hydrogen, methyl, ethyl, isopropyl, *tert*-butyl, cyclopropyl, cyclobutyl,



; and/or

R_8 is selected from the group consisting of hydrogen, methyl, ethyl, isopropyl, *tert*-butyl, cyclopropyl, cyclobutyl,



.

10. The compound of general formula (I) according to claim 1 being selected from the group consisting of:

- cis- 2-(2-(dimethylamino)-2-oxoacetyl)-7-methyl-N-(3,4,5-trifluorophenyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- cis-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-((3-methyloxetan-3-yl)amino)-2-oxoacetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-((3-methyloxetan-3-yl)amino)-2-oxoacetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-7-methyl-2-(2-((3-methyloxetan-3-yl)amino)-2-oxoacetyl)-N-(3,4,5-trifluorophenyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;

- (3aR,10aR)-N-(3-chloro-4-fluorophenyl)-7-methyl-2-(2-((3-methyloxetan-3-yl)amino)-2-oxoacetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(3-cyano-4-fluorophenyl)-7-methyl-2-(2-((3-methyloxetan-3-yl)amino)-2-oxoacetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-2-(2-(tert-butylamino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-2-(2-(cyclopropylamino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- cis N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-(methylamino)-2-oxoacetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- cis-2-(2-amino-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- cis-7-methyl-2-(2-(methylamino)-2-oxoacetyl)-N-(3,4,5-trifluorophenyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- cis-2-(2-amino-2-oxoacetyl)-7-methyl-N-(3,4,5-trifluorophenyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-2-(2-((3,3-difluorocyclobutyl)amino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-oxo-2-(((S)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-2-(2-(isobutylamino)-2-oxoacetyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;

- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-oxo-2-((2,2,2-trifluoroethyl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-((1-methylcyclopropyl)amino)-2-oxoacetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-oxo-2-((1-(trifluoromethyl)cyclopropyl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-2-(2-((cyclopropylmethyl)amino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-2-(2-(isopropylamino)-2-oxoacetyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-2-(2-(cyclobutylamino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-2-(2-(cyclopropylamino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-c:3',4'-g][1,6,2]dithiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-c:3',4'-g][1,6,2]dithiazocine-8-carboxamide 5,5-dioxide;
- cis-2-(2-(cyclopropylamino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7,10a-dimethyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- cis-N-(4-fluoro-3-methylphenyl)-7,10a-dimethyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- cis-N-(4-fluoro-3-methylphenyl)-3a,7-dimethyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;

- cis-2-(2-(cyclopropylamino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-3a,7-dimethyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-2-(2-(3,3-difluoroazetidin-1-yl)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- Trans-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- Trans-2-(2-(cyclopropylamino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-oxo-2-((1,1,1-trifluoro-2-methylpropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-oxo-2-((1-(trifluoromethyl)cyclobutyl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-2-(2-amino-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-c:3',4'-g][1,6,2]dithiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-(methylamino)-2-oxoacetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-c:3',4'-g][1,6,2]dithiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-2-(2-(3,3-difluoroazetidin-1-yl)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-c:3',4'-g][1,6,2]dithiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-oxo-2-(((S)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-c:3',4'-g][1,6,2]dithiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-oxo-2-((2,2,2-trifluoroethyl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-c:3',4'-g][1,6,2]dithiazocine-8-carboxamide 5,5-dioxide;

- (3aR,10aR)-2-(2-((cyclopropylmethyl)amino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-c:3',4'-g][1,6,2]dithiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-((1-methylcyclopropyl)amino)-2-oxoacetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-c:3',4'-g][1,6,2]dithiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-2-(2-((3,3-difluorocyclobutyl)amino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-7-methyl-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-c:3',4'-g][1,6,2]dithiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-((3-methyloxetan-3-yl)amino)-2-oxoacetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-c:3',4'-g][1,6,2]dithiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(3-chloro-4-fluorophenyl)-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(3,4-difluorophenyl)-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(3-(difluoromethyl)-4-fluorophenyl)-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-(trifluoromethyl)phenyl)-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-6-chloro-N-(3-chloro-4-fluorophenyl)-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-6-chloro-N-(3,4-difluorophenyl)-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-6-chloro-N-(3-(difluoromethyl)-4-fluorophenyl)-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;

- (3aR,10aR)-6-chloro-N-(4-fluoro-3-(trifluoromethyl)phenyl)-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-6-chloro-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-6-bromo-N-(4-fluoro-3-methylphenyl)-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-6,7-dimethyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;
- trans- 8-(2-(cyclopropylamino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-2-methyl-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[4,3-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- trans-8-(2-(3,3-difluoroazetidin-1-yl)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-2-methyl-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[4,3-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- trans- N-(4-fluoro-3-methylphenyl)-2-methyl-8-(2-oxo-2-(((S)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[4,3-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- trans- N-(4-fluoro-3-methylphenyl)-2-methyl-8-(2-oxo-2-((2,2,2-trifluoroethyl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[4,3-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- trans - N-(4-fluoro-3-methylphenyl)-2-methyl-8-(2-oxo-2-((1,1,1-trifluoro-2-methylpropan-2-yl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[4,3-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- trans - N-(4-fluoro-3-methylphenyl)-2-methyl-8-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[4,3-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- cis- N-(4-fluoro-3-methylphenyl)-2-methyl-7-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[3,4-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;

- cis - N-(4-fluoro-3-methylphenyl)-2-methyl-7-(2-oxo-2-((2,2,2-trifluoroethyl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[3,4-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- cis - N-(4-fluoro-3-methylphenyl)-2-methyl-7-(2-oxo-2-((1,1,1-trifluoro-2-methylpropan-2-yl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[3,4-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- cis -7-(2-(3,3-difluoroazetidin-1-yl)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-2-methyl-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[3,4-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- cis -7-(2-(cyclopropylamino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-2-methyl-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[3,4-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- cis -N-(4-fluoro-3-methylphenyl)-2-methyl-7-(2-oxo-2-(((S)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[3,4-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- trans -N-(4-fluoro-3-methylphenyl)-2-methyl-7-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[3,4-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- trans-7-(2-(cyclopropylamino)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-2-methyl-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[3,4-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- trans- N-(4-fluoro-3-methylphenyl)-2-methyl-7-(2-oxo-2-((2,2,2-trifluoroethyl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[3,4-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- trans- N-(4-fluoro-3-methylphenyl)-2-methyl-7-(2-oxo-2-((1,1,1-trifluoro-2-methylpropan-2-yl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[3,4-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- trans- 7-(2-(3,3-difluoroazetidin-1-yl)-2-oxoacetyl)-N-(4-fluoro-3-methylphenyl)-2-methyl-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[3,4-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- trans- N-(4-fluoro-3-methylphenyl)-2-methyl-7-(2-oxo-2-(((S)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[3,4-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;

- cis - N-(4-fluoro-3-methylphenyl)-2-methyl-8-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[4,3-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- cis - N-(4-fluoro-3-methylphenyl)-2-methyl-8-(2-oxo-2-((2,2,2-trifluoroethyl)amino)acetyl)-5,5a,6,7,8,9,9a,10-octahydro-2H-pyrido[4,3-f]pyrrolo[3,4-b][1,4,5]oxathiazocine-1-carboxamide 4,4-dioxide;
- (3aR,10aR)-N-(4-fluoro-3-methylphenyl)-7,10a-dimethyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide; and
- (3aS,10aS)-N-(4-fluoro-3-methylphenyl)-10a-hydroxy-7-methyl-2-(2-oxo-2-(((R)-1,1,1-trifluoropropan-2-yl)amino)acetyl)-2,3,3a,4,10,10a-hexahydro-1H,7H-dipyrrolo[3,4-b:3',4'-f][1,4,5]oxathiazocine-8-carboxamide 5,5-dioxide;d

or a pharmaceutically acceptable salt, tautomer, solvate, or stereoisomer thereof.

11. The compound or the pharmaceutically acceptable salt, tautomer, solvate, or stereoisomer thereof as defined in any one of previous claims for medical use.

12. The compound or the pharmaceutically acceptable salt, tautomer, solvate, or stereoisomer thereof for use as defined in claim 11, wherein said use is in the treatment and/or prevention of an HBV infection and/or a condition related to an HBV infection.

13. Use of the compound or the pharmaceutically acceptable salt, tautomer, solvate, or stereoisomer thereof according to any one of claims 1 to 10, in the preparation of a medicament for use in the treatment and/or prevention of an HBV infection.

14. The compound or the pharmaceutically acceptable salt, tautomer, solvate, or stereoisomer thereof for the use according to claim 12, wherein said condition related to an HBV infection is selected from the group consisting of: chronic hepatitis B, HBV/HDV co-infection, HBV/HCV co-infection, HBV/HIV co-infection, inflammation, necrosis, cirrhosis, hepatocellular carcinoma, hepatic decompensation and hepatic injury from an HBV infection.

15. The compound or the pharmaceutically acceptable salt, tautomer, solvate, or stereoisomer thereof for use according to any one of claims 11-12, 14 or the use according to claims 13-14, wherein said use is in treating, eradicating, reducing, slowing or inhibiting an HBV infection in an individual in need thereof, and/or in reducing the viral load associated with an HBV infection in an individual in need thereof, and/or in reducing reoccurrence of an HBV infection in an individual in need thereof, and/or in inducing remission of hepatic injury from an HBV

infection in an individual in need thereof, and/or in prophylactically treating an HBV infection in an individual afflicted with a latent HBV infection.

16. The compound or the pharmaceutically acceptable salt, tautomer, solvate, or stereoisomer thereof for use according to any one of claims 12, 14-15, or the use according to any one of claims 13-15, wherein said HBV infection and/or condition related to an HBV infection is caused by HBV of any genotype, including genotype A, B, C, D or E, and/or said HBV infection or condition is caused by a drug-resistant HBV mutant.

17. The compound or the pharmaceutically acceptable salt, tautomer, solvate, or stereoisomer thereof for use according to any one of claims 11-12, 14-16 or the use according to any one of claims 13-16, wherein said use is in combination with at least one further therapeutic agent.

18. The compound or the pharmaceutically acceptable salt, tautomer, solvate, or stereoisomer thereof for use or the use according to claim 17, wherein said at least one further therapeutic agent is selected from the group consisting of: a therapeutic vaccine; an RNA interference therapeutic/antisense oligonucleotide; an immunomodulator; a STING agonist; a RIG-I modulator; a NKT modulator; an IL agonist; an interleukin or another immune acting protein; a therapeutic and prophylactic vaccine; an immune checkpoint modulator/inhibitor; an HBV entry inhibitor; a cccDNA modulator; an inhibitor of HBV protein espression; an agent targeting HBV RNA; a capsid assembly inhibitor/modulator; a core or X protein targeting agent; a nucleotide analogue; a nucleoside analogue; an interferon or a modified interferon; an HBV antiviral of distinct or unknown mechanism; a cyclophilin inhibitor; a sAg release inhibitor; an HBV polymerase inhibitor; a dinucleotide; a SMAC inhibitor; a HDV targeting agent; a viral maturation inhibitor; a reverse transcriptase inhibitor; an HBV RNA destabilizer or another small-molecule inhibitor of HBV protein expression; or a combination thereof.

19. The compound or the pharmaceutically acceptable salt, tautomer, solvate, or stereoisomer thereof for use or the use according to claim 18, wherein said therapeutic vaccine is selected from: HBsAG-HBIG, HB-Vac, ABX203, NASVAC, GS-4774, GX- 110 (HB-110E), CVI-HBV-002, RG7944 (INO-1800), TG-1050, FP-02 (Hepsyn-B), AIC649, VGX-6200, KW-2, TomegaVax-HBV, ISA-204, NU-500, INX-102-00557, HBV MVA and PepTcell; wherein said RNA interference therapeutic is selected from: TKM-HBV (ARB-1467), ARB-1740, ARC-520, ARC-521, BB-HB-331, REP-2139, ALN-HBV, ALN-PDL, LUNAR-HBV, GS3228836 and GS3389404; wherein said immunomodulator is a TLR agonist; wherein said RIG-I modulator is SB-9200; wherein said IL agonist or other immune acting protein is INO-9112 or recombinant

IL12; wherein said immune checkpoint modulator/inhibitor is BMS-936558 (Opdivo (nivolumab)) or pembrolizumab; wherein said HBV entry inhibitor is Myrcludex B, IVIG-Tonrol or GC-1102; wherein said cccDNA modulator is selected from: a direct cccDNA inhibitor, an inhibitor of cccDNA formation or maintenance, a cccDNA epigenetic modifier and an inhibitor of cccDNA transcription; wherein said capsid assembly inhibitor/modulator, core or X protein targeting agent, direct cccDNA inhibitor, inhibitor of cccDNA formation or maintenance, or cccDNA epigenetic modifier is selected from: BAY 41-4109, NVR 3-778, GLS-4, NZ-4 (W28F), Y101, ARB-423, ARB-199, ARB-596, AB-506, JNJ-56136379, ASMB-101 (AB-V102), ASMB-103, CHR-101, CC-31326, AT-130, EP-027367 and RO7049389; wherein said interferon or modified interferon is selected from: interferon alpha (IFN-α), pegylated interferon alpha (PEG-IFN-α), interferon alpha-2a, recombinant interferon alpha-2a, peginterferon alpha-2a (Pegasys), interferon alpha-2b (Intron A), recombinant interferon alpha-2b, interferon alpha-2b XL, peginterferon alpha-2b, glycosylated interferon alpha-2b, interferon alpha-2c, recombinant interferon alpha-2c, interferon beta, interferon beta-la, peginterferon beta-la, interferon delta, interferon lambda (IFN-λ), peginterferon lambda-1, interferon omega, interferon tau, interferon gamma (IFN-γ), interferon alfacon-1, interferon alpha-nl, interferon alpha-n3, albinterferon alpha-2b, BLX-883, DA-3021, PI 101 (also known as AOP2014), PEG-infergen, Belerofon, INTEFEN-IFN, albumin/interferon alpha 2a fusion protein, rHSA-IFN alpha 2a, rHSA-IFN alpha 2b, PEG-IFN-SA and interferon alpha biobetter; wherein said HBV antiviral of distinct or unknown mechanism is selected from: AT-61 ((E)-N-(1 -chloro-3-oxo-1-phenyl-3-(piperidin-1-yl)prop-1-en-2-yl)benzamide), AT130 ((E)-N-(1-bromo-1-(2-methoxyphenyl)-3-oxo-3-(piperidin-1-yl)prop-1-en-2-yl)-4-nitrobenzamide), analogues thereof, REP-9AC (REP-2055), REP-9AC' (REP-2139), REP-2165 and HBV-0259; wherein said cyclophilin inhibitor is selected from: OCB-030 (NVP-018), SCY-635, SCY-575 and CPI-431-32; wherein said HBV polymerase inhibitor is selected from: entecavir (Baraclude, Entavir), lamivudine (3TC, Zeffix, Heptovir, Epivir, and Epivir-HBV), telbivudine (Tyzeka, Sebivo), clevudine, besifovir, adefovir (hepsera), tenofovir, tenofovir disoproxil fumarate (Viread), tenofovir alafenamide fumarate (TAF), tenofovir disoproxil orotate (DA-2802), tenofovir disopropxil aspartate (CKD-390), AGX-1009, and CMX157; wherein said dinucleotide is SB9200; wherein said SMAC inhibitor is Birinapant; wherein said HDV targeting agent is Lonafamib; wherein said HBV RNA destabilizer or other small-molecule inhibitor of HBV protein expression is RG7834 or AB-452.

20. A pharmaceutical composition comprising the compound or the pharmaceutically acceptable salt, tautomer, solvate, or stereoisomer thereof as defined in any one of claims 1-10,

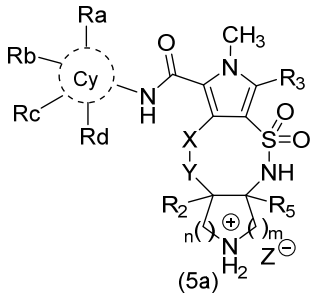
alone or in combination with at least one further therapeutic agent, and at least one pharmaceutically acceptable excipient.

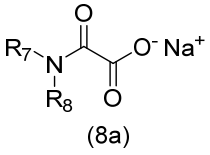
21. The pharmaceutical composition according to claim 20, wherein said at least one further therapeutic agent is as defined in claim 18 and/or 19.

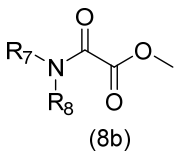
22. The pharmaceutical composition according to claim 20 or 21, for use as defined in any one of claims 12, 14-16.

23. Use of the pharmaceutical composition according to any one of claims 20-21, in the preparation of a medicament for the treatment and/or prevention of an HBV infection.

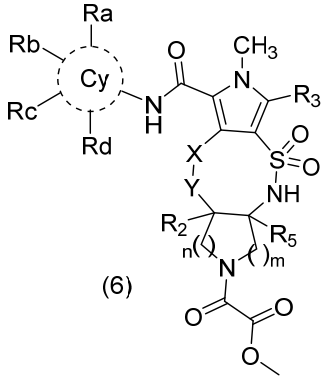
24. A process for the synthesis of the compound of general formula (I) or the pharmaceutically acceptable salt, tautomer, solvate or stereoisomer thereof as defined in claim 1, wherein A is C-R_3, Y' and Y'' are both methanediyl, Y''' is a single bond, R_1 is methyl, R_6 is H, and Cy, X, Y, R_2, R_5, R_7, R_8, Ra, Rb, Rc and Rd are as defined in claim 1, said process comprising at least one of the following steps:



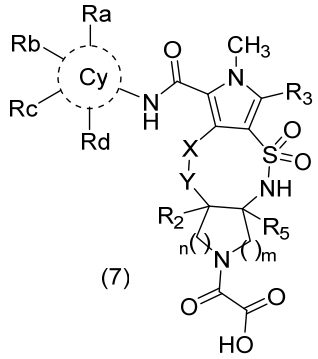




- reacting a compound of formula (5a), wherein m and n are each independently 1 or 2, with a compound of formula (8a) or with a compound of formula (8b);



- reacting a compound of formula (6), wherein m and n are each independently 1 or 2, with an amine of formula NHR_7R_8;



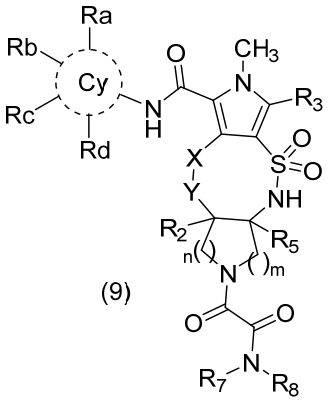
(7)

- reacting a compound of formula (7), wherein m and n are each independently 1 or 2, with an amine of formula NHR_7R_8;

said process optionally further comprising at least one of the following steps:

- reacting a compound of formula (5a) with methyl 2-chloro-2-oxoacetate to obtain a compound of formula (6);

- hydrolyzing a compound of formula (6) in the presence of a base to obtain a compound of formula (7);



(9)

- reacting a compound of formula (9) wherein m and n are each independently 1 or 2 and R_3=H with sulfuryl dichloride in a solvent like dichloromethane to afford a compound of formula (9) wherein R_3=Cl;

- reacting a compound of formula (9) wherein m and n are each independently 1 or 2 and R_3=H with N-bromosuccinimide in a solvent like chloroform to afford a compound of formula (9) wherein R_3=Br.