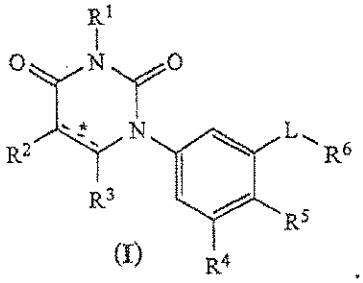
SUMMARY ~~OF THE INVENTION~~

[0009] This ~~invention~~disclosure is directed to compounds that correspond in structure to formula I:



(I)

[0010] In formula I:

$\overset{*}{---}$ is selected from the group consisting of single carbon-carbon bond and double carbon-carbon bond;

R^1 is selected from the group consisting of hydrogen, methyl, and nitrogen-protecting group;

R^2 is selected from the group consisting of hydrogen, halo, hydroxy, methyl, cyclopropyl, and cyclobutyl;

R^3 is selected from the group consisting of hydrogen, halo, oxo, and methyl;

R^4 is selected from the group consisting of halo, alkyl, alkenyl, alkynyl, nitro, cyano, azido, alkyloxy, alkenyloxy, alkynyloxy, amino, aminocarbonyl, aminosulfonyl, alkylsulfonyl, carbocyclyl, and heterocyclyl, wherein:

(a) the amino, aminocarbonyl, and aminosulfonyl optionally are substituted with:

(1) one or two substituents independently selected from the group consisting of alkyl, alkenyl, alkynyl, and alkylsulfonyl, or

(2) two substituents that, together with the amino nitrogen, form a single-ring heterocyclyl, and

(b) the alkyl, alkenyl, alkynyl, alkyloxy, alkenyloxy, alkynyloxy, and alkylsulfonyl, optionally are substituted with one or more substituents independently selected from the group consisting of halo, oxo, nitro, cyano, azido, hydroxy, amino, alkyloxy, trimethylsilyl, carbocyclyl, and heterocyclyl, wherein:

the amino optionally is substituted with:

(1) one or two substituents independently selected from the group consisting of alkyl, alkenyl, alkynyl, alkylcarbonyl, alkylsulfonyl, alkyloxycarbonyl, carbocyclyl, heterocyclyl, carbocyclylalkyl, and heterocyclylalkyl, or

(2) two substituents that, together with the amino nitrogen, form a single-

selected from the group consisting of alkyl, alkenyl, alkynyl, alkyloxy, alkenyloxy, and alkynyloxy, wherein:

the alkyl optionally is substituted with one or more hydroxy;

(c) the carbocyclyl and heterocyclyl portions of such substituents optionally are substituted with one or more substituents independently selected from the group consisting of alkyl, alkenyl, alkynyl, carboxy, hydroxy, alkyloxy, alkenyloxy, alkynyloxy, halo, nitro, cyano, azido, and amino, wherein:

the amino optionally is substituted with one or two substituents independently selected from the group consisting of alkyl, alkenyl, and alkynyl; and

each R^K is independently selected from the group consisting of aminosulfonyl, alkylsulfonyl, alkenylsulfonyl, and alkynylsulfonyl, wherein:

(a) the alkylsulfonyl, alkenylsulfonyl, and alkynylsulfonyl optionally are substituted with one or more substituents independently selected from the group consisting of carboxy, hydroxy, halo, amino, nitro, azido, oxo, aminosulfonyl, alkyloxycarbonyl, alkenyloxycarbonyl, alkynyloxycarbonyl, alkylcarbonyloxy, alkenylcarbonyloxy, alkynylcarbonyloxy, alkyloxy, alkenyloxy, alkynyloxy, carbocyclyl, heterocyclyl, cyano, and aminocarbonyl, wherein:

the amino, aminosulfonyl, and aminocarbonyl optionally are substituted with one or two substituents independently selected from the group consisting of alkyl, alkenyl, and alkynyl; and

(b) the aminosulfonyl optionally is substituted with one or two substituents independently selected from the group consisting of alkyl, alkenyl, and alkynyl.

[0011] This ~~invention~~disclosure also is directed to the salts (including pharmaceutically acceptable salts) of the compounds of the invention.

[0012] This ~~invention~~disclosure also is directed to compositions (including pharmaceutical compositions) that comprise one or more compounds and/or salts of the invention, and, optionally, one or more additional therapeutic agents.

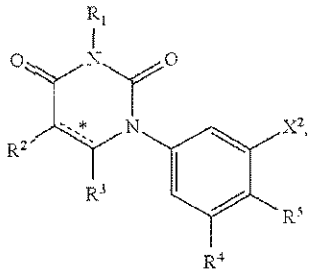
[0013] This ~~invention~~disclosure also is directed to kits that comprise one or more compounds and/or salts of the invention, and, optionally, one or more additional therapeutic agents.

[0014] This ~~invention~~disclosure also is directed to methods of use of the compounds, salts, compositions, and/or kits of the invention to, for example, inhibit replication of an RNA virus (including HCV), treat a disease treatable by inhibiting HCV ribonucleic acid (RNA) polymerase (including hepatitis C).

[0015] This ~~invention~~disclosure also is directed to a use of one or more compounds and/or salts of the invention to prepare a medicament. The medicament optionally can comprise one or more additional therapeutic agents. In some embodiments, the medicament is useful for treating hepatitis C.

[0015a] In one aspect, this disclosure is directed to a compound or salt thereof, wherein the compound corresponds in structure to formula II:

(II)



wherein

$\overset{*}{=\!=}$ is selected from the group consisting of single carbon-carbon bond and double carbon-carbon bond;

R^1 is selected from the group consisting of hydrogen, methyl, and nitrogen-protecting group;

R^2 is selected from the group consisting of hydrogen, halo, hydroxy, methyl, cyclopropyl, and cyclobutyl;

R^3 is selected from the group consisting of hydrogen, halo, oxo, and methyl;

R^4 is selected from the group consisting of alkyl, alkenyl, alkynyl, nitro, cyano, azido, alkyloxy, alkenyloxy, alkynyloxy, amino, aminocarbonyl, aminosulfonyl, alkylsulfonyl, carbocyclyl, and heterocyclyl, wherein:

(a) the amino, aminocarbonyl, and aminosulfonyl optionally are substituted with:

(1) one or two substituents independently selected from the group consisting of alkyl, alkenyl, alkynyl, and alkylsulfonyl, or

(2) two substituents that, together with the amino nitrogen, form a single-ring heterocyclyl, and

(b) the alkyl, alkenyl, alkynyl, alkyloxy, alkenyloxy, alkynyloxy, and alkylsulfonyl, optionally are substituted with one or more substituents independently selected from the group consisting of halo, oxo, nitro, cyano, azido, hydroxy, amino, alkyloxy, trimethylsilyl, carbocyclyl, and heterocyclyl, wherein:

the amino optionally is substituted with:

(1) one or two substituents independently selected from the group consisting of alkyl, alkenyl, alkynyl, alkylcarbonyl, alkylsulfonyl, alkyloxycarbonyl, carbocyclyl, heterocyclyl, carbocyclylalkyl, and heterocyclylalkyl, or

(2) two substituents that, together with the amino nitrogen, form a single-ring heterocyclyl, and

(c) the carbocyclyl and heterocyclyl optionally are substituted with up to three substituents independently selected from the group consisting of alkyl, alkenyl, alkynyl, halo, oxo, nitro, cyano, azido, hydroxy, amino, alkyloxy, trimethylsilyl, carbocyclyl, and heterocyclyl, wherein:

the amino optionally is substituted with:

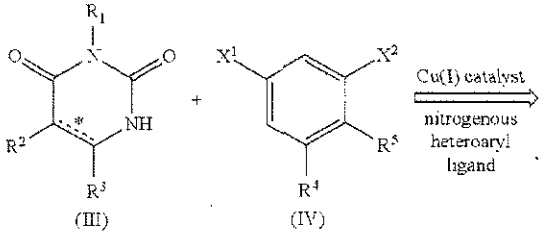
(1) one or two substituents independently selected from the group consisting of alkyl, alkenyl, alkynyl, alkylcarbonyl, alkylsulfonyl, alkyloxycarbonyl, carbocyclyl, heterocyclyl, carbocyclylalkyl, and heterocyclylalkyl, or

(2) two substituents that, together with the amino nitrogen, form a single-ring heterocyclyl;

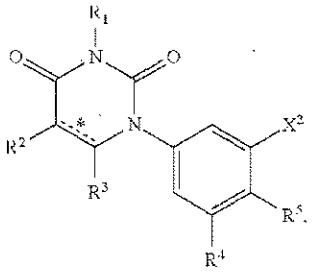
R^5 is selected from the group consisting of hydrogen, hydroxy, alkyl, alkenyl, alkynyl, alkyloxy, alkenyloxy, alkynyloxy, alkylsulfonyloxy, carbocyclylsulfonyloxy, haloalkylsulfonyloxy, and halo; and

X^2 is halo.

[0015b] In one aspect, this disclosure is directed to a process for preparing the compound or salt as defined herein, wherein the process comprises reacting a compound of formula III with a compound of formula IV in the presence of (i) copper (I) salt catalyst and (ii) nitrogenous heteroaryl ligand



(III) (IV)



(II)

wherein R^1, R^2, R^3, R^4, R^5 and X^2 are as defined herein, and X^1 is halo.

[0015c] In one aspect, this disclosure is directed to 1-(3-tert-butyl-5-iodo-4-methoxyphenyl)pyrimidine-2,4(1H,3H)-dione.

[0016] Further benefits of Applicants' ~~invention~~disclosure will be apparent to one skilled in the art from reading this patent application.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] Figure 1 shows an illustrative PXRD pattern for the ethanol solvate of compound IB-L0-2.3.

[0018] Figure 2 shows an illustrative TGA profile of the ethanol solvate of compound IB-L0-2.3.

[0019] Figure 3 shows an illustrative PXRD pattern for the acetonitrile solvate of compound IB-L0-2.3.

[0020] Figure 4 shows an illustrative PXRD pattern for the ethyl acetate solvate of compound IB-L0-2.3.

[0021] Figure 5 shows an illustrative PXRD pattern for the 2-propanol solvate of compound IB-L0-2.3.

[0022] Figure 6 shows an illustrative PXRD pattern for the methanol solvate of compound IB-L0-2.3.

[0023] Figure 7 shows an illustrative PXRD pattern for the 1-propanol solvate of compound IB-L0-2.3.

[0024] Figure 8 shows an illustrative PXRD pattern for the solvent free crystalline compound IB-L0-2.3.

[0025] Figure 9 shows an illustrative PXRD pattern for the hydrate of compound IB-L0-2.3.

[0026] Figure 10 shows an illustrative PXRD pattern for the pattern A monosodium salt of compound IB-L0-2.3.

[0027] Figure 11 shows an illustrative TGA profile of the pattern A monosodium salt of compound IB-L0-2.3.

[0028] Figure 12 shows an illustrative PXRD pattern for the pattern B monosodium salt of compound IB-L0-2.3.

[0029] Figure 13 shows an illustrative TGA profile of the pattern B monosodium salt of compound IB-L0-2.3.

[0030] Figure 14 shows an illustrative PXRD pattern for the pattern C monosodium salt of compound IB-L0-2.3.

[0031] Figure 15 shows an illustrative PXRD pattern for the disodium salt of compound IB-L0-2.3.

[0032] Figure 16 shows an illustrative TGA profile of the disodium salt of compound IB-L0-2.3.

[0033] Figure 17 shows an illustrative PXRD pattern for the monopotassium salt of compound IB-L0-2.3.

[0034] Figure 18 shows an illustrative TGA profile of the monopotassium salt of compound IB-L0-2.3.

[0035] Figure 19 shows an illustrative PXRD pattern for the pattern A monocholine salt of compound IB-L0-2.3.

[0036] Figure 20 shows an illustrative TGA profile of the pattern A monocholine salt of compound IB-L0-2.3.

[0037] Figure 21 shows an illustrative PXRD pattern for the pattern B monocholine salt of compound IB-L0-2.3.

[0038] Figure 22 shows an illustrative TGA profile of the pattern B monocholine salt of compound IB-