

ANTIVIRAL COMPOUNDS

This application claims priority to U.S. Application No. 13/831,116, filed on March 14, 2013, and U.S. Provisional Application No. 61/647,966, filed on May 16, 2012, both of which are hereby incorporated by reference in their entirety.

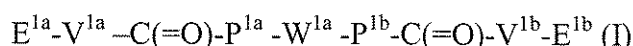
BACKGROUND

Hepatitis C is recognized as a chronic viral disease of the liver which is characterized by liver disease. Although drugs targeting the liver are in wide use and have shown effectiveness, toxicity and other side effects have limited their usefulness. Inhibitors of hepatitis C virus (HCV) are useful to limit the establishment and progression of infection by HCV as well as in diagnostic assays for HCV.

There is a need for new HCV therapeutic agents. In particular, there is a need for HCV therapeutic agents that have broad activity against HCV genotypes (e.g. genotypes 1a, 1b, 2a, 3a, 4a). There is also a particular need for agents that are less susceptible to viral resistance. Resistance mutations to inhibitors have been described for HCV NS5A for genotypes 1a and 1b in Antimicrobial Agents and Chemotherapy, September 2010, Volume 54, p. 3641-3650.

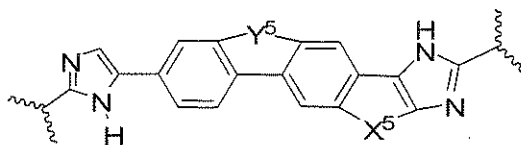
SUMMARY

In one embodiment the disclosure provides a compound of formula (I):



wherein:

W^{1a} is



and W^{1a} is optionally substituted with one or more groups independently selected from halo, alkyl, haloalkyl, optionally substituted aryl, optionally substituted heterocycle, and cyano;

Y^5 is $-O-CH_2-$, $-CH_2-O-$, $-O-C(=O)-$, or $-C(=O)-O-$; X^5 is $-CH_2-CH_2-$ or $-CH=CH-$;

E^{1a} is $-N(H)(\text{alkoxycarbonyl})$, $-N(H)(\text{cycloalkylcarbonyl})$ or $-N(H)(\text{cycloalkyloxycarbonyl})$; or $E^{1a}-V^{1a}$ taken together are R^{9a} ;

ANTIVIRAL COMPOUNDS INHIBITORS OF HCV NS5B

This application claims priority to U.S. Application No. 13/831,116, filed on March 14, 2013, and U.S. Provisional Application No. 61/647,966, filed on May 16, 2012, both of which are hereby incorporated by reference in their entirety.

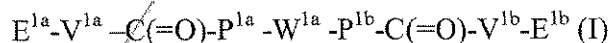
BACKGROUND

Hepatitis C is recognized as a chronic viral disease of the liver which is characterized by liver disease. Although drugs targeting the liver are in wide use and have shown effectiveness, toxicity and other side effects have limited their usefulness. Inhibitors of hepatitis C virus (HCV) are useful to limit the establishment and progression of infection by HCV as well as in diagnostic assays for HCV.

There is a need for new HCV therapeutic agents. In particular, there is a need for HCV therapeutic agents that have broad activity against HCV genotypes (e.g. genotypes 1a, 1b, 2a, 3a, 4a). There is also a particular need for agents that are less susceptible to viral resistance. Resistance mutations to inhibitors have been described for HCV NS5A for genotypes 1a and 1b in Antimicrobial Agents and Chemotherapy, September 2010, Volume 54, p. 3641-3650.

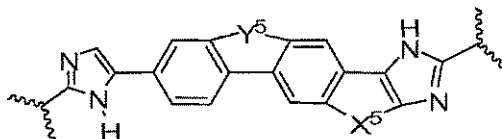
SUMMARY

In one embodiment the disclosure provides a compound of formula (I):



wherein:

W^{1a} is



and W^{1a} is optionally substituted with one or more groups independently selected from halo, alkyl, haloalkyl, optionally substituted aryl, optionally substituted heterocycle, and cyano;

Y^5 is $-O-CH_2-$, $-CH_2-O-$, $-O-C(=O)-$, or $-C(=O)-O-$; X^5 is $-CH_2-CH_2-$ or $-CH=CH-$;

E^{1a} is $-N(H)(alkoxycarbonyl)$, $-N(H)(cycloalkylcarbonyl)$ or

$-N(H)(cycloalkyloxycarbonyl)$; or $E^{1a}-V^{1a}$ taken together are R^{9a} ;