Hepatitis C Virus Helicase Inhibitors and Methods of Use Thereof

Summary:
The invention consists of new DAA compounds that act against the HCV replicon and inhibit HCV helicase activity without inhibiting normal cellular helicases.

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Benefits:
- Specific HCV helicase inhibitors
- Directly attack HCV enzymes
- Capable of inhibiting HCV NS3 protease activity

Overview:
The hepatitis C virus (“HCV”) infects about 170 million people worldwide causing profound morbidity and mortality. HCV needs a functional helicase to replicate in cells. While helicases have been widely studied as possible drug targets, progress has been slow compared to other viral enzymes because the most potent compounds are non-specific, i.e. they also inhibit normal healthy cellular processes.

HCV is typically treated with various combinations of the nucleoside analog ribavirin combined with one of several recombinant human alpha interferons. Though such treatments are effective, therapy is poorly tolerated, expensive, and not equally effective against all HCV genotypes.

“Direct acting antivirals” (DAAs) typically are small molecules that inhibit viral enzymes. DAAs are considered better HCV treatments because, unlike interferon and ribavirin, DAAs directly attack proteins that HCV synthesizes in human cells.

Two HCV protease inhibitors, telaprevir and boceprevir, were recently approved for use in HCV patients, but neither alone eradicates HCV infection because HCV rapidly evolves to become resistant to them.

Protease inhibitors need to be administered with interferon and ribavirin, and as a consequence many patients still poorly tolerate the new therapies.

Therefore, new DAAs for HCV are needed that might be used with telaprevir, boceprevir or similar drugs to replace interferon and ribavirin in HCV therapy.

Patents:
Patent pending.

Additional Web Content:
Contact the inventor, Frank Schoenen, Brian Blagg, Jeffrey Aube.