The Effect of the NS5A 10A Protein of Hepatitis C on the Innate Immune Response

Eli Reynolds and Dr. Giridhar Akkaraju

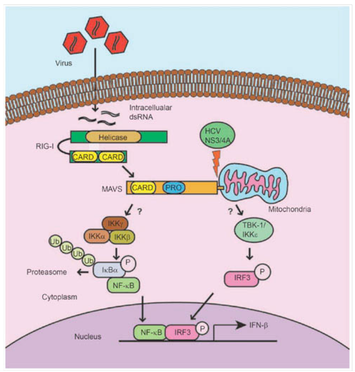
Texas Christian University, Fort Worth, TX

Abstract

Hepatitis C is a disease of the liver that is caused by the Hepatitis C virus. The Hepatitis C virus (HCV) chronically infects between 130-170 million people in the world making it a significant health burden. HCV is 9.6 kb single-stranded RNA virus and a member of the *Flaviviridae* family of viruses which includes viruses such as Zika and Dengue. It is a smaller virus with a mature virion size between 50-80 nm. With a specific tropism for liver cells, the diseases of Hepatitis C are accordingly associated with the liver. The two predominant diseases related to HCV infection are cirrhosis and hepatocellular carcinoma. These are both caused as a result of chronic infection which occurs in about 80% of cases as opposed to acute infection which composes only 20% of cases. In order to establish a chronic infection the virus has evolved the ability to inhibit the innate immune response leading to a greater likelihood of reproduction and survival. Our specific interest was the mechanism by which HCV evades the host immune response. In previous studies we have shown that NS5A 10A, a mutant protein of NS5A, inhibits the activation of the IFN-β promoter which serves a key role in the innate immune response. In this paper we investigate the specific mechanism of the ability of NS5A 10A to interfere with the activation of the IFN-β promoter.

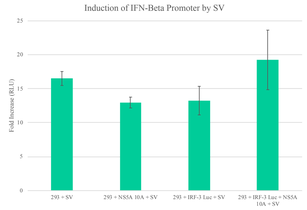
Hypothesis

Mode of Action

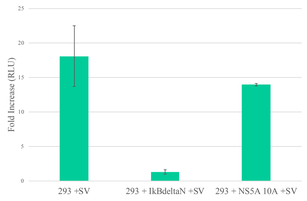


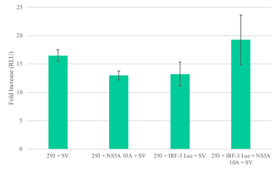
Compounds

Synthesized by Dr. Green and Marianne Burnett, Department of Chemistry



Results





Discussion

Conclusions

Future Directions