

Diagnostic Marker for Improving Treatment Outcomes of Hepatitis C

Summary

NCI Researchers have discovered Interferon-lambda 4 (IFNL4), a protein found through analysis of genomic data. Preliminary studies indicate that this protein may play a role in the clearance of HCV and may be a new target for diagnosing and treating HCV infection. The National Cancer Institute (NCI) Division of Cancer Epidemiology and Genetics (DCEG) Immunoepidemiology Branch is seeking statements of capability or interest from parties interested in in-licensing or collaborative research to further co-develop a gene-based diagnostic for Hepatitis C virus (HepC, HCV).

NIH Reference Number

E-217-2011

Product Type

- Diagnostics

Keywords

- Hepatitis C virus
- HepC
- HCV
- interferon
- IL28B
- IFN L4
- Interferon-lambda 4

Collaboration Opportunity

This invention is available for licensing and co-development.

Contact

- Kevin Chang
NCI TTC

kevin.chang@nih.gov (link sends e-mail)

Description of Technology

The National Cancer Institute (NCI) [Division of Cancer Epidemiology and Genetics \(DCEG\)](#) Immunoepidemiology Branch is seeking statements of capability or interest from parties interested in collaborative research to further co-develop a gene-based diagnostic for

Hepatitis C virus (HepC, HCV).

NCI Researchers have discovered Interferon-lambda 4 (IFNL4), a protein found through analysis of genomic data. Preliminary studies indicate that this protein may play a role in the clearance of HCV and may be a new target for diagnosing and treating HCV infection.

One of the unfortunate aspects of (HCV) infection is that the majority of infected individuals will develop a chronic HCV infection. Not all patients respond to current treatments, which themselves can cause severe adverse effects. *IFNL4-ΔG* is a novel genetic polymorphism in the newly discovered gene that is a better predictor of clinical outcome for treatment in people of African descent than the currently available diagnostic test, while the predictive value in HCV-infected Caucasians and Asians is comparable to current diagnostics. In addition, *IFNL4-ΔG* can predict the likelihood of a whether a person who is acutely infected with HCV infection will spontaneously clear the infection or develop chronic infection.

Potential Commercial Applications

- Novel target for treatment of HCV infection
- Diagnostics for detection of IFNL4 mRNA or protein
- Biological reagents for detection of IFNL4 – expression assays, antibodies and protein.

Competitive Advantages

- IFNL4 is not an essential protein and its functional inactivation may be well-tolerated.
- Better than current 'IL28B' based diagnostics for predicting response to current HCV treatments for people of African descent.
- Comparable predictive capabilities to current 'IL28B' based diagnostics for response to current HCV treatments in Caucasians and Asians.

Inventor(s)

[Ludmila Prokunina \(NCI\)](#), [Thomas R O'Brien \(NCI\)](#), [Brian P. P Muchmore \(NCI\)](#), [Raymond P. P Donnelly \(FDA\)](#)

Development Stage

- Pre-clinical (in vivo)

Publications

Prokunina-Olsson L, et al. A variant upstream of IFNL3 (IL28B) creating a new interferon gene IFNL4 is associated with impaired clearance of hepatitis C virus [[PMID: 23291588](#)]

Patent Status

- **Foreign Filed:** - Patent Application
- **U.S. Patent Filed:** U.S. Patent Application Number

Related Technologies

- [E-217-2011 - Diagnostic Marker for Improving Treatment Outcomes of Hepatitis C](#)

Therapeutic Area

- Infectious Diseases

Updated

Thursday, April 13, 2023

Source URL:<https://techtransfer.cancer.gov/availabletechnologies/e-217-2011>