

# Structure of Hepatitis C Envelope Protein An Early Step Toward Vaccine & Therapies

## Scientific Achievement

Determined the molecular structure of an envelope protein on the hepatitis C virus (HCV) bound to a host antibody component called an antigen-binding fragment

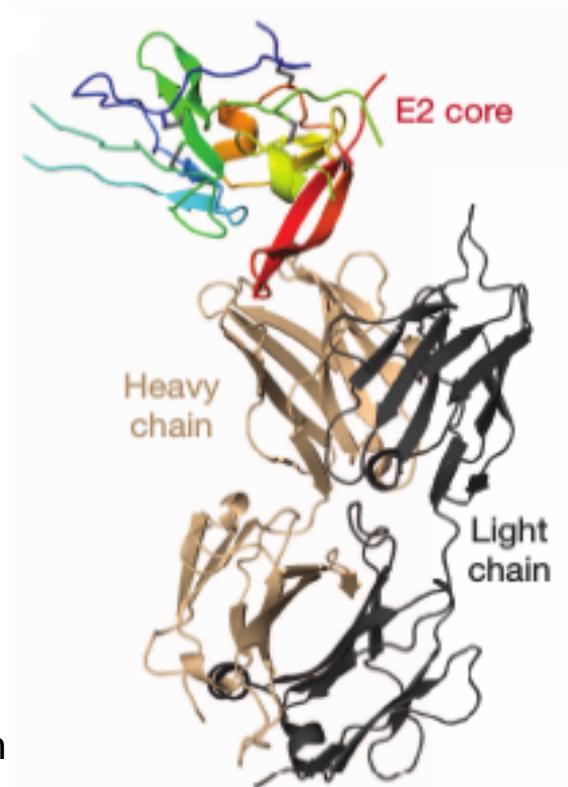
## Significance and Impact

The structure will aid the development of therapies and a vaccine for HCV

## Research Details

- Using x-ray crystallography at NSLS beamline X25 and small-angle x-ray scattering at ALS, researchers determined structure of an HCV envelope protein, E2, in complex with an antigen-binding fragment
- HCV envelope helps the virus enter the host cell and evade its immune response; E2 binds to host cell and thus plays a direct role in the infection, making it a logical target for potential drugs to treat HCV
- E2 structure consists of novel structure not seen in other viral proteins
- These data will help define role of E2 in HCV infection

AG Khan, J Whidby, MT Miller, H Scarborough, AV Zatorski, A Cygan, AA Price, SA Yost, CD Bohannon, J Jacob, A Grakoui, J Marcotrigiano, *Nature*, **509**, 381-384 (2014)



A ribbon diagram of the E2 core in complex with the antigen-binding fragment

Work was performed at Brookhaven National Laboratory and Lawrence Berkeley National Laboratory