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Methods and Compositions Related to Glycoprotein-Immunoglobulin Fusions

More than 170 million people worldwide are chronic carriers of Hepatitis C Virus (HCV), but there is no therapeutic vaccine currently available for treating this infection. Persistent HCV infection results in chronic active hepatitis which may lead to progressive liver disease. Current treatment strategies are expensive, have substantial side effects, and are effective in only approximately 50% of patients. Therapeutic vaccines that enhance host immune responses to eliminate chronic HCV infection would be a major advancement in the treatment of this disease.

Researchers at the Biodesign Institute at Arizona State University have developed a new strategy to produce vaccines against viruses by targeting glycoproteins present on the virus surface. By combining HCV glycoproteins, E1 and E2, with portions of human antibodies (IgG), they produced a novel fusion protein with heterodimeric structure. In addition, they have successfully expressed protein components in plants—a promising medium for high production yields.

The fusion protein system ensures correct presentation of the HCV glycoproteins in their folded states, which guarantees generation of a robust immune response.

Potential Applications

- Strategy to create vaccines against many viruses
- Synthetic vaccine for treatment against Hepatitis C Virus

Benefits and Advantages

- Targets specific functional proteins on viruses
- High yields of protein components with plant based expression
- Specific immunogenicity

For more information about the inventor(s) and their research, please see Dr. Mason's directory webpageDr. Mason's departmental webpage