

HCV Vaccine Development: Where Do We Stand?

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HCV therapy has improved dramatically with the advent of potent directly acting antivirals. However, numerous aspects of HCV disease make significant control of HCV a substantial challenge. An estimated 5% of HCV-infected persons are diagnosed globally. The proportion of patients who access and complete treatment remains low. HCV therapy does not provide immunity against subsequent infection or reverse severe liver disease in all. HCV transmission persists in areas with limited access to antiviral drugs and poor needle injection and blood product hygiene. Successful control of HCV infection will likely require a combination of mass screening to identify those with infection, treatment, and harm reduction strategies for uninfected people at risk, including prophylactic HCV vaccination. A prophylactic vaccine would likely prevent liver damage associated with infection and lessen the need for engagement of at-risk populations at the time of greatest risk, such as during active injection drug use. Barriers to development of a vaccine include the marked genetic diversity of HCV, the lack of immunologically competent and convenient model systems, the numerous mechanisms through which HCV evades the immune response, and the infeasibility of using live attenuated and inactivated whole virus as HCV vaccines due to limited culture capacity and risk of reversion to virulence. This talk will discuss the need for a vaccine, evidence that a vaccine to prevent chronic infection is possible, challenges to immunologic control of HCV, and the vaccine strategies tested to date.