HEPATITIS

HCV vaccine is successful in a phase I study in healthy volunteers

Hepatitis C is a major global health issue, yet no vaccine is currently available. Findings from a recent study indicate that an adenovirus-based vaccine has prophylactic and therapeutic potential against HCV.

Around 20% of people infected with HCV clear the virus spontaneously, which is thought to be a result of CD4⁺ and CD8⁺ T-cell responses. “The key was, could we generate these responses using a vaccine in man?” says corresponding author Paul Klenerman.

The researchers created a vaccine that included two adenoviral vectors—human adenovirus 6 and chimpanzee adenovirus 3—that express nonstructural proteins of HCV. When injected into healthy volunteers, this vaccine produced a strong T-cell response against multiple HCV proteins (from genotypes 1a and 3a). The size of the response was much larger than the researchers expected, but was also of high quality as it contained both CD4⁺ and CD8⁺ T-cell responses and had

characteristics indicative of a protective response. In addition, the response could be sustained for at least 1 year following boosting with a heterologous adenoviral vector.

The researchers are already working on studies to evaluate whether this vaccine could be used therapeutically to boost immune responses in patients with chronic infection to bring the virus under control, or to keep viral levels under control after drug therapy.

The vaccine could also be used to prevent HCV infection, and trials in people at risk of HCV infection will be starting soon in the USA. “This will be the main test to see if the responses that look so good in the lab can really do the job in the field,” concludes Klenerman.

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Original article Barnes, E. *et al.* Novel adenovirus-based vaccines induce broad and sustained T cell responses to HCV in man. *Sci. Transl. Med.* 4, 115ra1 (2012)