

# Bivalent vaccine platform based on Japanese encephalitis virus (JEV) elicits neutralizing antibodies against JEV and hepatitis C virus

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## Bivalent vaccine platform based on Japanese encephalitis virus (JEV) elicits neutralizing antibodies against JEV and hepatitis C virus <sup>[1]</sup>

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Directly acting antivirals recently have become available for the treatment of hepatitis C virus (HCV) infection, but there is no prophylactic vaccine for HCV. In the present study, we took advantage of the properties of Japanese encephalitis virus (JEV) to develop antigens for use in a HCV vaccine. Notably, the surface-exposed JEV envelope protein is tolerant of inserted foreign epitopes, permitting display of novel antigens. We identified 3 positions that permitted insertion of the HCV E2 neutralization epitope recognized by HCV1 antibody. JEV subviral particles (SVP) containing HCV-neutralization epitope (SVP-E2) were purified from culture supernatant by gel chromatography. Sera from mice immunized with SVP-E2 inhibited infection by JEV and by trans-complemented HCV particles (HCVtcp) derived from multi-genotypic viruses, whereas sera from mice immunized with synthetic E2 peptides did not show any neutralizing activity. Furthermore, sera from mice immunized with SVP-E2 neutralized HCVtcp with N415K escape mutation in E2. As with the SVP-E2 epitope-displaying particles, JEV SVPs with HCV E1 epitope also elicited neutralizing antibodies against HCV. Thus, this novel platform harboring foreign epitopes on the surface of the particle may facilitate the development of a bivalent vaccine against JEV and other pathogens.

To read more please click [here](#) <sup>[3]</sup>

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