

### Generation of chimeric HBc proteins carrying multiple viral epitopes in *E.coli*

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In present study, chimeric virus like particles (VLPs) displaying multiple-epitope of foreign virus were developed in *Escherichia coli* (*E. coli*) as vaccine candidate. Two recombinant plasmids encoding HBc::E1::E2 and HBc::E3::A were co-expressed in *E. coli*, and led to expression of self-assembled chimeric VLPs that are morphologically and physically similar to the wild-type ones. To determine the immunogenicity of these chimeric VLPs, 12 mice were immunized with these particles using Al(OH)<sub>3</sub>. As a result, we found that mice immunized with chimeric VLPs were capable of inducing foreign virus specific antibody. This study suggests the potential usefulness of *E. coli*-derived HBc-VLPs as a carrier for immunogenic presentation and delivery of foreign epitopes and the principal possibility of using HBc-VLPs for creation of a complex vaccine.