REAL-TIME STABILITY OF A HEPATITIS E VACCINE (HECOLIN®) DEMONSTRATED WITH POTENCY ASSAYS AND MULTIFACETED PHYSICOCHEMICAL METHODS

Xiao Zhang, Xiamen University, China
Minxi Wei, Xiamen Innovax Biotech Co., Ltd, China
Guang Sun, Xiamen Innovax Biotech Co., Ltd, China
Xin Wang, Xiamen University, China
Min Li, Xiamen University, China
Zhijie Lin, Xiamen Innovax Biotech Co., Ltd, China
Zhongyi Li, Xiamen Innovax Biotech Co., Ltd, China
Yufang Li, Xiamen University, China
Mujin Fang, Xiamen University, China
Jun Zhang, Xiamen University, China
Shaowei Li, Xiamen University, China
Ningshao Xia, Xiamen University, China
Qinjian Zhao, Xiamen University, China

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The first prophylactic vaccine against hepatitis E virus (HEV), Hecolin®, was licensed in China. Recombinant p239 virus-like particle (VLP) is its active component with dimeric protein as the basic building block harboring the immuno dominant and neutralizing epitopes. The real time and real condition stability of the prefilled syringes for the vaccine was demonstrated using both in vivo mouse potency and in vitro antigenicity assays. A total of 12 lots of Hecolin® were assessed with a set of assays after storage at 2-8 °C for 24 months. The particle characteristics of p239 VLP recovered from the aluminum-containing adjuvant was assessed with different methods including analytical ultracentrifugation, high performance size exclusion chromatography and transmission electron microscopy. The thermal and conformational stability of the adsorbed antigen was assessed using differential scanning calorimetry. The protein integrity of the recovered p239 antigen was demonstrated using SDS-PAGE with silvering staining, LC-MS and MALDI-TOF MS. Most importantly, the binding activity to the neutralizing antibody or vaccine antigenicity was measured using an epitope-specific and real-time SPR assay and a monoclonal antibody-based sandwich ELISA. Taken together, the overall good stability of the Hecolin® prefilled syringes was demonstrated with unaltered molecular and functional attributes after storage at 2-8 °C for 24 months.