

# Immunogenicity of High-growth EV71 B5 Vaccines in Rabbit

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## Background/Objective

Enterovirus 71 (EV71) is a non-enveloped RNA virus of the family Picornaviridae and has caused several life-threatening epidemics in children in the Asia-Pacific region. Based on phylogenetic analysis of the most variable VP1 gene, EV71 could be classified into 3 major genogroups (A, B and C) including 11 genotypes (A, B1~B5, and C1~C5). Since 1997, different EV71 genotypes have caused life-threatening epidemics with severe neurologic complications in Asian countries, including Malaysia, Taiwan, Singapore, Brunei, Vietnam, Cambodia and China. Therefore, development of EV71 vaccines is a national priority in these countries. Currently, five vaccine candidates have been evaluated in clinical trials in China (3 candidates in phase three), Singapore (1 candidate in phase one), Taiwan (1 candidate in phase one). Overall, these 5 vaccine candidates could not grow very well (~107 PFU/ml) in cells qualified for vaccine production. In addition, genotypes of these 5 candidates include B2 (Singapore), B4 (Taiwan), and three C4 (China) strains, which are different from the current predominant genotype B5 in Taiwan and South-Eastern Asia.

## Method

Therefore, we generated high-growth EV71 genotype B5 virus (HG-B5) which could grow to high titers (~108 PFU/ml) in Vero cells in spinner flasks culture platforms. Infectious HG-B5 particles were purified by continuous sucrose gradient and collected to immunize rabbits. Two groups of rabbits (two rabbits for each group) were intramuscularly immunized with two doses of purified HG-B5 at 0 and 14 day post-immunization (DPI) using two dosages (0.05 and 0.25 ug of total protein) adjuvanted with alum.

## Result

The purified HG-B5 could induce cross-reactive neutralizing antibody titers against all EV71 genogroups.

## Conclusion

The results indicate that Vero cell-derived HG-B5 vaccine candidate is immunogenic in rabbits and has potential for new EV71 vaccine development.