

# Development of FMD vaccines

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## ABSTRACT

Foot-and-mouth disease ( FMD) is highly contagious viral disease of cloven-hoofed livestock, causing heavy economic losses. At present, several biotechnologies are used to develop novel FMD vaccines. However, these developing vaccines are not so effective. Hence, we proposed a novel FMD vaccine development plan. In this study, we used the recombinant protein technology to develop a novel O type FMD vaccine. The TR-PCR ( template-repeated polymerase chain reaction) was used to construct the multiple repeats of each of 4 FMD antigenic epitopes. Each of DNA fragments encoding multiple repeats of self-epitope was then subcloned into an expression vector for production of antigenic peptide repeats conjugated with the receptor-binding domain Ia of Pseudomonas exotoxin A as an immunogen. Four recombinant immunogens were then combined and used to immunize guinea pigs. The immunization results showed that multiple repeats of the antigenic epitope could induce higher serum neutralization titers ( SNT) than single repeat of that. These observations suggest that the new vaccine containing the increase of the copy number of antigenic epitopes and the amount of the immogens would elicit good potency.

Keywords : foot and mouth disease ( FMD ) ; epitope ; the receptor binding domain Ia of Pseudomonas exotoxin A ; TR-PCR ( template-repeated polymerase chain reaction) ; serum neutralization titers ( SNT )

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