Immunogenicity of a truncated enterovirus 71 VP1 protein fused to a Newcastle disease virus nucleocapsid protein fragment in mice.

ABSTRACT

Enterovirus 71 (EV71) is one of the viruses that cause hand, foot and mouth disease. Its viral capsid protein 1 (VP1), which contains many neutralization epitopes, is an ideal target for vaccine development. Recently, we reported the induction of a strong immune response in rabbits to a truncated VP1 fragment (Nt-VP1t) displayed on a recombinant Newcastle disease virus (NDV) capsid protein. Protective efficacy of this vaccine, however, can only be tested in mice, since all EV71 animal models thus far were developed in mouse systems. In this study, we evaluated the type of immune responses against the protein developed by adult BALB/c mice. Nt-VP1t protein induced high levels of VP1 IgG antibody production in mice. Purified VP1 antigen stimulated activation, proliferation and differentiation of splenocytes harvested from these mice. They also produced significant levels of IFN-γ, a Th1-related cytokine. Taken together, Nt-VP1t protein is a potent immunogen in adult mice and our findings provide the data needed for testing of its protective efficacy in mouse models of EV71 infections.

Keyword: Enterovirus 71; Recombinant VP1 protein; Immunogenicity.