Immunogenicity Analysis of Flagellin of Swine *Salmonella enterica* Serovar Choleraesuis

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**ABSTRACT** *Salmonella enterica* serovar Choleraesuis is one of the predominant pathogens in farms of Taiwan. Typical clinical manifestations include septicemia, diarrhea, weight loss, growth retardation, and even death. This pathogen causes a huge economic loss due to the emergence of antibiotics-resistant strains. It is important to develop a safe and more effective vaccine. In this study, FliC-F and FliC-R were used as primers to amplify flagellin gene (*fliC*). The flagellin sequences of the standard strain and those of 16 recently isolated strains were aligned, showing that the flagellin sequences of these strains were similar. The recombinant flagellin was expressed in *E. coli* BL21, purified, and used to immunize BALB/c mice at 10,20 or 50 μg via intraperitoneal route for twice at a 2-week interval. Blood samples were weekly collected by orbital bleeding and antibody responses were determined by enzyme-linked immunosorbent assay (ELISA). The mice immunized with 50 μg twice had the same magnitude of antibody response (160X) as those immunized with the commercialized attenuated vaccine, *Suisaloral*. Spleen cells of immunized mice were cultured and the amounts of cytokines such as IL-2, IFN-γ, and TNF-α in the supernatants were determined by ELISA. The levels of IL-2, IFN-γ and TNF-α were 529, 849 and 392 pg/ml, respectively, in mice immunized twice with 50 μg of flagellin, which was comparable with the result of the group immunized with the attenuated vaccine. Immunized mice were challenged with *Salmonella enterica* serovar Choleraesuis. The survival rate was 100% in mice immunized twice with either 50 μg of flagellin or the attenuated vaccine. The results suggested that the flagellin could provide protection against *Salmonella enterica* serovar Choleraesuis and had the potential as a subunit vaccine against the infection of *Salmonella enterica* serovar Choleraesuis. [Hsieh YC, Huang YL, Tsai KY, * Wu WL. Immunogenicity Analysis of Flagellin of Swine *Salmonella enterica* Serovar Choleraesuis. Vet J 36 (2): 155-165, 2010. * Corresponding author TEL: 886-6-2757575 ext 65523, FAX: 886-6-2742583, E-mail: wenluan2@mail.ncku.edu.tw]

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