Protectivity of OprF / OprI / PcrV recombinant chimeric protein against *Pseudomonas aeruginosa* in burned BALB/c mice model

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Abstract:

*Pseudomonas aeruginosa* is one of the deadly causes of burn infections. In this study, a chimeric vaccine harboring OprF - OprI – PcrV was designed, and the recombinant proteins including our chimer, Opr F, Opr I, PcrV were expressed in *E.coli*. The immunogenicity of recombinant chimer and OprI, OprF and PcrV were studied in the burn mouse model. Mice groups were immunized with purified recombinant proteins and the antibody titer in sera from immunized mice was estimated. Immunized and control mice were challenge with 2, 5 and 10LD\textsubscript{50} of *P. aeruginosa* and microbial counting of skin, liver, spleen and kidney were performed. The antibody titer (total IgG) was significantly raised by injection of 10 \( \mu \)g of chimeric protein compared to control groups. The antibody survival titer was up until 235 days after the second booster. The survival rate of mice infected with 10LD\textsubscript{50} was significantly increased and the number of bacteria, especially in the internal organs (kidney, spleen and liver), were reduced compared to the mice groups immunized with any of the Opr F, OprI and PcrV alone. Based on our results, chimeric protein is a promising vaccine candidate for the control of *Pseudomonas aeruginosa* infection.

Keywords: Chimeric Protein, *Pseudomonas aeruginosa*, Vaccine