Serum cytokine modulation after *Staphylococcus hyicus* infection in BALB/c mice

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**ABSTRACT.** Staphylococcal infection is a severe bacterial infection. Finding satisfactory predictable biological markers is essential for the treatment of this condition. In this study, we applied a 32-marker sandwich ELISA-based antibody array to evaluate cytokine changes in *Staphylococcus hyicus*-inoculated BALB/c mice at 24 and 48 h post infection. Among the cytokines detected, the expression levels of granulocyte colony stimulating...
factor (G-CSF), interleukin 6 (IL-6), macrophage inflammatory protein 2, and keratinocyte chemoattractant (KC) were increased to levels more than twice higher than those in the control group 24 h after infection, while the expression of interleukin 12p40p70 (IL-12p40p70) was decreased to less than half the level measured in the controls. The expression of G-CSF, IL-6, monocyte chemoattractant protein-1, chemokine ligand 11, and KC was upregulated 48 h post infection, whereas IL-12p40p70 expression was still significantly lower (P < 0.05). Among the detected cytokines, the expression levels of G-CSF, IL-6, and KC were constantly upregulated, while IL-12p40p70 was downregulated. This result was then validated by an ELISA assay analysis, which confirmed that G-CSF, IL-6, KC, and IL-12p40p70 expression levels were specifically modulated after an *S. hyicus* bacterial infection, while granulocyte colony-stimulating factor, IL-12, and IFNγ levels were significantly increased after a viral infection. Our study indicated the potential of cytokines G-CSF, IL-6, KC, and IL-12p40p70 as markers for detecting *S. hyicus* infection. The results of this study may provide useful data for the appropriate use of medication following *S. hyicus* infection.

**Key words:** *Staphylococcus hyicus*; Cytokine; Antibody array; Mice; Disease marker