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Identification of an Immuno-dominant Small Antigen in *Salmonella typhimurium*

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Salmonella infects a wide-range of animals and causes enteric diseases including diarrhea and enteric fever. During courses of *Salmonella* pathogenesis, the infected host elicits immune responses against *Salmonella* antigen. In general, antigens associated in *Salmonella* envelop are targets to be recognized by cells involved in immune responses. Up to date little is known about *Salmonella* surface protein antigen inducing strong immune responses. To investigate the immuno-dominant *Salmonella* antigens, we employed immunoblot analyses with sera collected from *Salmonella* infected animals. A recombinant attenuated *S. typhimurium* strain(Δcrp) was administered into BALB/c mouse with a single 1×10^9 CFU dose through the oral route. With use of sera obtained from *Salmonella* infected animal, an immuno-reactive protein band was detected in westernblot analysis. The molecular weight of the protein was approximately 6.9 kDa. The protein was detected in the outer membrane fraction suggesting an outermembrane protein. The protein was purified and analysed by a MALDI-TOF assay system. The protein is identified as a Lpp which is major bacterial outer membrane lipoprotein component in the family *Enterobacteriaceae*. The 5'-flanking and 3'-flanking regions of *lpp* gene were amplified by PCR, joined and cloned into a recombinant suicide plasmid, resulting in a suicide plasmid pBP109. To generate a deleted *lpp* *S. typhimurium* mutant, the plasmid pBP109 was conjugally transferred from *E. coli* $\chi 7213$ to *S. typhimurium* $\chi 3339$. A mutant *S. typhimurium* CK23 was constructed by allelic exchange system. The biological properties of the mutant were under investigation.