

Deletion of a prophage-like element causes attenuation of *Salmonella enterica* serovar Enteritidis and promotes protective immunity

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Salmonella enterica serovar Enteritidis (*S. Enteritidis*) is a wide host range serovar belonging to the *S. enterica* genus. Worldwide, it is one of the most frequent causes of food borne disease. Similar to *S. Typhimurium*, some virulence genes of *S. Enteritidis* are located in pathogenicity islands and prophages. In this study we have generated a mutant strain of *S. Enteritidis* lacking a prophage-like element, denominated ϕ SE12. The resulting mutant strain was attenuated and promoted protective immunity in infected mice. Although *S. Enteritidis* strains lacking the complete prophage ϕ SE12 remained capable of surviving inside phagocytic cells, they showed a significantly reduced capacity to colonize internal organs and failed to cause lethal disease in mice. Consistent with these data, infection with *S. Enteritidis* strains lacking prophage ϕ SE12 promoted the production of anti-*Salmonella* IgG antibodies and led to protection against a challenge with virulent strains of *S. Enteritidis*. These