

Evaluation of Humoral Responses in Mice Model After Injection the Iranian Wild Isolate of *Salmonella* Thyphimurium

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Background & Objectives: *Salmonella thyphi* which is the causative agent of typhoid fever, is a human specific pathogen, so it cannot be studied easily due to the lack of animal model. On the other hand *Salmonella thyphimurium*, which results in an acute self limited gastroenteritis in human and warm blooded animals, causes systemic typhoid like infection in mice. Here we used *Salmonella* Thyphimurium in Balb/C mice to evaluate humoral responses.

Methods: We used *Salmonellae thyphimurium* RTCC 1679 (control) and RTCC 1735 (Iranian native isolate for test). After determination of LD₅₀, we injected about 27×10⁷ CFU/ml formalin-heat killed bacterium to 8 groups of 6-8 weeks old female Balb/c mice via IP (Intra Peritoneal) or SC (Sub Cutaneous) routes. Complete Freund's adjuvant was used for the first injection and incomplete Freund's adjuvant was used in boosters. Injections were done on days: 0, 10 and 21 via IP route, and on days: 0, 14 and 28 via SC route. Blood collecting from orbital sinus on days: 0, 7, 16, 21, 28, 35 of injected mice was done and serum samples were used for ELISA technique to measure the concentration of specific IgG antibody. Between the days 28 to 35 live *S. thyphimurium* was injected for study of vaccine protectivity assay (challenge). After the day 28 we challenged 50% of vaccinated mice with .6 fold of LD₅₀ of live *S. Thyphimurium* standard and native isolates.

Results: Lethal Dose 50 of these bacteria was 36 CFU/ml. *Salmonella thyphimurium* RTCC 1735 as an Iranian native isolate, not only increased the titer of specific IgG antibody and humoral immunity, but also decreased the mortality of vaccinated mice after challenge, in comparison with RTCC 1679.

Conclusion: These results could be considered as a preliminary result for the future study of national *Salmonella* vaccine.

Keywords: *Salmonella thyphimurium*; Humoral Immunity; Mice Model