

Title: Induction and Responses of Salmonella Enterica Serotype Typhi to Hydrogen Peroxide

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Salmonella enterica serotype (S.Typhi) become resistant to heat killing and was induced to resist previous lethal dose of hydrogen peroxide when the cells were pre-treated with non-lethal levels of hydrogen peroxide. When S. typhi cells were challenged with 50mM hydrogen peroxide, two OMPs with the molecular weight of 45 and 68 kDa were synthesized. Both these OMPs were not present in the control, untreated cell cultures.

These proteins were reactive to confirmed typhoid patient's sera as shown by immunoblotting. All 9 sera from healthy individuals showed no binding S. Typhi. Sera from patients with a definitive diagnosis of typhoid fever (TF) gave a mean absorbance reading at 414 nm, of 1.59 0.88 (mean standard deviation) as compared to 0.413 0.06 for sera from healthy individuals. This gave a positive to negative ratio of absorbance readings of approximately 3.9. The antibody response detected was predominantly IgG. Pooled TF sera gave mean absorbances of 1.22 0.63, 0.34 0.12, 0.11 0.03 for IgG, IgM and IgA respectively as compared to 0.15 0.01, 0.05 0.01 and 0.024 0.003 for sera from healthy individuals. Antigen prepared from OMPs of oxidatively-stressed S. Typhi had stronger reactivity at the binding region of 45 and 68 kDa.