

**P035** Nitric Oxide Detoxification in *Salmonella enterica* serovar Typhimurium

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The genus *Salmonella* is clinically important due to its ability to cause wide ranging diseases, from gastroenteritis to typhoid fever. *S. typhi* colonises macrophages during infection, a property confiners to intracellular pathogens, and this can be investigated using *S. typhimurium* in a mouse model. Macrophages eradicate pathogens by bombardment with superoxide and nitric oxide (NO). *S. typhimurium* is able to protect itself from macrophage related nitric oxide killing, and possesses two enzymes which are able to detoxify NO – flavorubredoxin (*norV*) and cytochrome c nitrite reductase (*nrfA*). In this report, the genes encoding these enzymes have been disrupted and their *in vitro* sensitivity to NO determined by growth curves. Their ability to consume NO was also characterised by using an NO electrode. Growth curves ascertained that both *norV* and *nrfA* mutants were sensitive to NO during anaerobic growth, implying that they are both employed by *Salmonella* to degrade NO. NO electrode work showed that *nrfA* was able to consume NO anaerobically at a higher rate than *norV*, suggesting that *nrfA* has a higher NO detoxifying capacity *in vitro*. This works suggests that *Salmonella* can employ numerous enzymes to detoxify NO which could enable it to survive in the macrophage.