

Protective immune responses in *Lawsonia intracellularis* infections

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Lawsonia intracellularis is the cause of porcine proliferative enteropathy, one of the major causes of antibiotics usage in modern pig production. *L. intracellularis* is an obligate intracellular bacterium preferable infecting epithelial cells of pigs intestine. We have demonstrated earlier, that a primary *L. intracellularis* experimental infection in pigs protects against re-colonisation (re-infection) with a virulent *L. intracellularis* isolate. After re-infection the animals had reduced *L. intracellularis* colonisation of the intestinal mucosa compared to controls, no bacterial shedding and no increase in acute phase response after challenge with a pathogenic isolate¹. Here we show results from measurements of serology as well as cell-mediated immune responses from this experiment. We found that *Lawsonia*-specific IgA peaked in serum around day 17-24 after a primary infection in experimentally infected piglets where after it levelled off. There was no boost in this response after re-infection, but boosting was observed with serum IgG, resulting in an increasing IgG/IgA index. Local secretory IgA, on the other hand were low following a primary infection, probably due to age-related effects, but exhibited a high, but short-lasting peak after re-infection. Specific IFN γ responses were also measured using a whole blood IFN- γ assay. These were very high in challenge infected and re-infected animals as compared to controls. These specific immune responses may contribute to the explanation of mechanisms behind the observed protection against re-infection with *L. intracellularis*.

¹ Riber et al. 2009, Primary infection protects pigs against re-infection with *Lawsonia intracellularis* in experimental infection studies, manuscript in preparation