**Infection with *Campylobacter jejuni* reduces the number of muc2 and muc5ac goblet cells in the gastrointestinal tract of White Leghorn chickens**

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*Campylobacter jejuni* is highly pathogenic in people and is the most common cause of food poisoning. In contrast, *C. jejuni* is commensal in the chicken gastrointestinal tract. Understanding the properties of the chicken mucosal barrier and how it inhibits *C. jejuni* invasion may help develop interventions to reduce food poisoning. We examined whether infection with *C. jejuni* changed the number of muc2 and muc5ac goblet cells in the gastrointestinal tract in chickens.

Twenty day-old specific-pathogen-free White Leghorn chicks were housed under experimental conditions. At 21 days of age, chicks were randomly separated into control (C, n=10) and infected (I, n=10) groups and received 0.2ml of sterile media (C) or 105 cells of *C. jejuni* M1 in 0.2ml of media (I) orally. Five chicks in each group were killed at 5 and 14 days post-treatment. From each bird, tissue samples from the proventriculus, duodenum, ileum, caeca and large intestine were obtained, fixed in 4% paraformaldehyde and embedded in paraffin wax before sectioning. Sections were probed with rabbit polyclonal antibodies against chicken muc2 and muc5ac. For each tissue section, five random fields at 400x magnification were blindly assessed, a linear segment of villous and crypt epithelium was measured and within each length the number of positively stained goblet cells was counted. Data were analysed using maximum likelihood generalized mixed effects models for Poisson distributions.

The staining profile of muc2 and muc5ac differed. The anatomical location of the tissue section had a strong influence for both muc2 and muc5ac staining. *C. jejuni* infection, but not number of days post-treatment,  had a significant influence, reducing the number of muc2 stained and muc5ac stained goblet cells by 16%  and 9% respectively (both p<0.05). Further work is needed to establish if these changes are important in developing the commensal relationship between *C. jejuni* and chickens.

All work was conducted in accordance with United Kingdom legislation governing experimental animals under project license PPL 40/3652 and was approved by the University of Liverpool ethical review process prior to the award of the license.