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Goblet cells and Mucin Related Gene Expression in Mice Infected with Eimeria papillata

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Abstract : Coccidiosis causes considerable economic loss in the poultry industry. The current study aimed to investigate the response of goblet cells as well as the induced tissue damage during Eimeria papilata infection. Mice were infected with sporulated E. papillata oocyts. On day 5 post-infection, the fecal output was determined. Also, the jejunum was prepared for the histological, histochemical and molecular studies. Our results revealed that the intestinal coccidian infection with E. papillata induced a marked goblet cell hypoplasia and depleted mucus secretion. Also, the infection was able to alter the jejuna architecture and increased the apoptotic cells inside the villi. In addition, the real time PCR results indicated that, the inflammatory cytokines TNF-α, iNOS, IFN-y and IL-1β were significantly up-regulated. In contrast, the mRNA expression patterns of IL-6 in response to E. papillata infection did not differ significantly between control and infected mice. Moreover, the mRNA expression of TLR4 was significantly up-regulated, whereas the expression of MUC2 is significantly down-regulated upon infection. Further studies are required to understand the regulatory mechanisms of goblet cells related genes.

Keywords : goblet cells, Eimeria papillata, mice, jejunum
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