Cytokine gene expression profiles in chicken spleen and intestinal tissues during Ascaridia galli infection

In the poultry production industry, chickens with access to outdoor areas are exposed to a wide range of parasites e.g. the helminth Ascaridia galli. By real-time quantitative RT-PCR, the relative gene expression of the T helper 1 (Th1) cytokine IFN-gamma, the T helper 2 (Th2) cytokine IL-13, the anti-inflammatory cytokines IL-10 and TGF-beta 4 and the proinflammatory cytokine IL-17F were determined over a period of 3 weeks in A. galli and non-A. galli-infected chickens. A characteristic Th2 response was observed in the jejunum of A. galli-infected chickens with increased expression of IL-13 and decreased expression of IFN-gamma from day 14 post infection. At the putative time of larvae invasion into the intestinal mucosa (day 7), an increased expression of IFN-gamma, IL-10, and TGF-beta 4 was observed in the spleen. At the putative onset of the innate immune response (day 10), a decreased expression of jejunal IFN-gamma and IL-13 was observed. Finally, at the expected period of an adaptive immune response (days 14-21) a general decreased expression of IFN-gamma and TGF-beta 4 in spleen and IFN-gamma in jejunum was followed by a decreased expression of IFN-gamma and IL-10 at day 21 in caecal tonsils. (C) 2014 Elsevier B.V. All rights reserved.

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