Parasite-specific IL-4 responses in Ascaris suum and Trichuris suis-infected pigs evaluated by ELISPOT

The objective of the present study was to develop an ELISPOT method to measure parasite-specific IL-4 producing cells during experimental Ascaris suum and Trichuris suis infections in pigs. In many experimental settings it is useful to be able to measure changes in specifically induced cytokines over time at post-mRNA level; in particular, specific measurement of IL-4 is important for studies on nematodes due to the key function of IL-4 in driving the Th2 response. Two separate experiments were carried out, one with A. suum and other with T. suis infection in which we were able to measure statistically significant increases in specific IL-4 production in peripheral blood mononuclear cells over time in parallel to an increase in blood eosinophils. Furthermore, IL-4 was measured in the colon lymph node of T. suis-infected pigs. Egg excretion and worm burdens at necropsy were measured. The ELISPOT method is a valuable tool for future experimental settings as it enables repeated and parasite-specific measurement of IL-4 at protein level when investigating, for example, immunomodulatory properties of helminths. Furthermore, the method could be used to identify specific parasite antigens inducing IL-4 production.
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