Comparison of innate and Th1-type host immune responses in Oesophagostomum dentatum and Trichuris suis infections in pigs - DTU Orbit (25/12/2018)

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The present study investigated details of the innate and Th1/Treg type associated host immune responses in Trichuris suis and Oesophagostomum dentatum mono- and co-infected pigs and in vitro in stimulated porcine dendritic cell cultures. Forty-eight pigs were allocated into a 2-factorial design with two groups trickle inoculated with 10 T. suis eggs/kg/day (Group T) or 20 O. dentatum L3/kg/day (O). Another group (OT) was infected with both parasites. Group C remained uninfected. Expression of innate and Th1/Treg cell associated genes in gut mucosa and associated lymph nodes was determined by qPCR at necropsy day 35 and 71. Gene expression showed suppressed/inhibited Th1 and Treg type immune reactions, in accordance with previous findings of a predominant Th2 type immune response to both nematodes. The in vitro part examined production of TNF-α in porcine dendritic cells (DC) exposed to T. suis and/or O. dentatum excretory/secretory (E/S) products. Further, binding capacity and structure of E/S products were characterized. Glycan and lectin binding capacity were generally lower in O. dentatum E/S products compared to T. suis which may explain the earlier found weaker Th2 response to the former. Surprisingly, O. dentatum E/S products induced a significant (p < 0.0001) increase in TNF-α DC production, potentially indicating a new mode of helminth-host immune response interaction.

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