Comparison of innate and Th1-type host immune responses in Oesophagostomum dentatum and Trichuris suis infections in pigs - DTU Orbit (01/04/2019)

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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.

General information
State: Published
Organisations: National Veterinary Institute, Section for Immunology and Vaccinology, University of Copenhagen, VU University Medical Centre
Pages: 53-63
Publication date: 2016
Peer-reviewed: Yes

Publication information
Journal: Parasite Immunology
Volume: 38
Issue number: 1
ISSN (Print): 0141-9838
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 2.56 SJR 1.173 SNIP 0.925
Web of Science (2017): Impact factor 2.836
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.37 SJR 1.11 SNIP 0.82
Web of Science (2016): Impact factor 2.493
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 1.97 SJR 1.054 SNIP 0.638
Web of Science (2015): Impact factor 1.917
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 2.06 SJR 0.971 SNIP 0.719
Web of Science (2014): Impact factor 2.143
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.02 SJR 0.943 SNIP 0.741
Web of Science (2013): Impact factor 1.849
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.49 SJR 0.957 SNIP 0.881
Web of Science (2012): Impact factor 2.208
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 2.24 SJR 0.95 SNIP 0.865
Web of Science (2011): Impact factor 2.601
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.087 SNIP 0.814
Web of Science (2010): Impact factor 2.357
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.807 SNIP 0.757
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.186 SNIP 0.857
Scopus rating (2007): SJR 0.935 SNIP 0.715
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.859 SNIP 0.708
Scopus rating (2005): SJR 0.615 SNIP 0.59
Scopus rating (2004): SJR 0.895 SNIP 0.761
Scopus rating (2003): SJR 0.904 SNIP 0.914
Scopus rating (2002): SJR 0.989 SNIP 0.814
Scopus rating (2001): SJR 0.988 SNIP 0.888
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.949 SNIP 0.79
Scopus rating (1999): SJR 0.914 SNIP 0.891
Original language: English
DOIs:
10.1111/pim.12296
Source: FindIt
Source-ID: 2289413948
Research output: Research - peer-review › Journal article – Annual report year: 2016