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## THE MYCOTOXIN DEOXYNIVALENOL (DON) SUPPORTS THE DEVELOPMENT OF CD4⁺ T CELLS WITH A PRO-INFLAMMATORY CYTOKINE PROFILE IN THE LIVER

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The mycotoxin deoxynivalenol (DON) is frequently consumed by pigs via contaminated grain. DON binds to the A-site of the ribosome peptidyl transferase center which leads to activation of mitogen-activated protein kinases (MAPKs). MAPKs are central in the function of T cells, which in turn are key players in the adaptive immune system. We investigated whether long-term uptake of DON would influence cytokine production capacity and the differentiation-related phenotype of T cells.

Four groups of pigs were fed for 60 days either with a high (3 ppm) or a low dose (0.9 ppm) of DON with or without a mycotoxin deactivator (MD). Two further groups were fed a control ration ± MD. Following isolation of lymphocytes from blood, mesenteric lymph nodes, liver, and *lamina propria* from the jejunum, T cells were stimulated with phorbol 12-myristate 13-acetate and ionomycin and analysed for production of interferon-γ (IFN-γ), tumor necrosis factor-α (TNF-α), interleukin-17A (IL-17A), and IL-10 by intracellular cytokine staining.

Results indicated an enrichment of CD4⁺ T cells with the capacity for IL-17A and TNF-α production in the liver of pigs fed on high or low doses of DON compared to pigs that had received the MD or were fed the control diets. These cells had partially a CD27⁺ phenotype, indicative of an early effector stage. Differently, slightly elevated levels of IL-10 producing CD4⁺ T cells were found in the livers of all pigs on a DON-diet, regardless of the presence of MD. Such IL-10 producing CD4⁺ T cells were mainly CD25⁻, indicating that they were not classical regulatory T cells.

In summary, our results suggest that long-term uptake of DON has the capacity to drive CD4⁺ T cells in the liver into a pro-inflammatory phenotype, which may contribute to chronic inflammation. This may negatively affect the health status and performance of growing piglets.