

AHCC en immuniteit

Active Hexose Correlated Compound (AHCC) promotes an intestinal immune response in BALB/c mice and in primary intestinal epithelial cell culture involving Toll-like receptors (TLR)-2 and TLR-4

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Purpose: Active Hexose Correlated Compound (AHCC[®]) is a cultured mushroom extract that is commercially available and promoted for immune support. Available data suggest that AHCC supplementation affects immune cell populations and immune outcomes, including natural killer (NK) cell response to infection. The mechanism by which AHCC exerts its effects is not well understood.

The present work aimed to characterize the immunomodulatory activity of AHCC in the gut and to study the effects of AHCC on Toll-like receptor (TLR) signaling in Intestinal Epithelial Cells (IECs).

Methods: BALB/c mice were fed AHCC by gavage. *In vivo* activities were assessed by immunohistochemistry and cytokine production. The effects of AHCC on *ex vivo* primary cell culture from IECs were examined after challenge with LPS or *E. coli*, alone or in the presence of anti-TLR-2 and TLR-4 blocking antibodies.

Results: Feeding AHCC resulted in increased IgA⁺ cells in the intestine and increased sIgA, IL-10, and IFN- γ in the intestinal fluid. In IECs, contact with AHCC increased IL-6 production but not to the pro-inflammatory level of positive controls, LPS and *E. coli*. Blocking TLR-2 and TLR-4 reduced the induction of IL-6 by AHCC, suggesting that these innate receptors are involved in generating the immune response of IECs to AHCC.

Conclusions: AHCC may play a role in the orchestration of immune response and the maintenance of immune homeostasis in part by priming the TLR-2 and TLR-4 gate at the intestinal epithelium. Such a response is likely due to the recognition of non-pathogenic food-associated molecular patterns (FAMPs) such as those found associated with other mushroom or yeast-derived compounds.