

# IMMUNOLOGY AND CANCER THERAPY

Accepted Abstract

May 22-23, 2019 | Rome, Italy

Immunol Case Rep 2019, Volume 3 | DOI: 10.4066/2591-7366-C2-006

## EFFECTS OF FOOD BORNE MYCOTOXINS ON TOLL LIKE RECEPTOR

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**M**ycotoxins are structurally diverse toxic secondary metabolites produced by the organisms of the Fungus kingdom. Due to the widespread presence of fungi in the environment, mycotoxins are regarded as an unavoidable contaminant in food products. Mycotoxins can cause mycotoxic nephropathy, hepatotoxicity, cytotoxicity, genotoxicity and induce dysregulation of the immune response and are able to either enhance or suppress resistance to pathogens. Toll-like receptors (TLRs) are a class of proteins that play a key role in the innate immune system. Once microbes have breached physical barriers such as the skin or intestinal tract mucosa, they are recognized by TLRs which activate immune cell responses. In the present study, the effects of food borne mycotoxins on TLRs have investigated in the female BALB/c mice. Mycotoxins (citrinin, deoxynivalenol and zearalenone) were orally administered to seven weeks old female BALB/c mice at different dose rate for 14 days, and several immunotoxicity tests were performed. Normalized fold expression of TLRs in immune organs were differentially expressed. After priming of RAW 264.7 macrophage cell line by different TLR ligands, it was observed that mycotoxins differentially modulated TLR signalling by increased or decreased production of IL-1 $\beta$ , IL-10 and TNF- $\alpha$ . These results indicate that mycotoxins have multiple immune modulatory effects on TLRs in mice that may alter normal functions of immune system.



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