

## **Cryptosporidium Parvum oocytic Antigen Induced a Pro-Inflammatory DC Phenotype**

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**Abstract :** Cryptosporidium parvum is an opportunistic intracellular parasite that causes mild to severe diarrhea in human and animal populations and is an important zoonotic disease globally. In immunocompromised hosts, infection can be life-threatening as no effective treatments are currently available to control infection. To increase our understanding of the mechanisms that play a role in host-parasite interactions at the level of the immune response, we investigated the effects of Cryptosporidium parvum antigen (CPA) on bone marrow-derived (DCs). Herein we examined cytokine secretion and cell surface marker expression on DCs exposed to CPA. We also measured cytokine production in CD4+ cells co-cultured with CPA primed DCs in the presence of anti-CD3. CPA induced a significant increase in the production of interleukin(IL)-12p40, IL-10, IL-6, and TNF- $\alpha$  by DCs and enhanced the expression of the cell surface markers TLR4, CD80, CD86, and MHC11. CPA primed DC co-cultured in the presence of anti-CD3 with CD4+ T-cells inhibited the secretion of Th2 associated cytokines, notably IL-5 and IL-13, with no effects on the secretions of interferon (IFN)- $\gamma$ , IL-2, IL-17, and IL-10. These findings support studies in the literature that CPA can induce the full maturation of DCs that subsequently initiate Th1 immune responses critical to the resolution of C. parvum infection.

**Keywords :** cryptosporidium parvum, dendritic cells, IL-12 p70, cell surface marker

**Conference Title :** ICVTAHW 2022 : International Conference on Veterinary Technology, Animal Health and Welfare

**Conference Location :** Amsterdam, Netherlands

**Conference Dates :** September 15-16, 2022