

ATOPIC ECZEMA/DERMATITIS

AVÈNE THERMAL SPRING WATER: ANOTHER WAY TO HARNESS DENDRITIC CELL FUNCTION

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Introduction: Hydrotherapy appears as a valuable therapeutic tool in the management of patients suffering from chronic inflammatory diseases such as psoriasis or atopic dermatitis. Nevertheless, the underlying immune mechanisms of these beneficial effects remain poorly understood.

Objective: In this study, we investigated the effects of Avène thermal spring water (ATSW) on human dendritic cells (DCs) phenotype and functions.

Materials and Methods: DC were generated from human monocytes and matured with LPS in ATSW-based culture medium. The phenotype and the ability of these DCs to produce cytokine and induce allogeneic naive CD4⁺ T cell response was next assessed. Dexamethazone was used as control in all experiments.

Results: We showed that ATSW modulated the differentiation of monocytes into DCs and impacted the DC maturation upon LPS priming. Upon ATSW treatment, we notably observed a reduction of the CD83, CD86, CD1a and HLA-DR molecule expression on the DC surface and a decrease of the production of IL-12 and IL-23 and an increase of IL-10 production. LPS-primed-DCs generated in presence of ATSW exhibited a reduced capacity to induce the proliferation of naive CD4⁺ T cells. Moreover, the CD4⁺ T cells generated showed a reduced production of IFN- γ and IL-17, indicating that ATSW reduced the ability of DC to prime an inflammatory T helper cell response.

Conclusions: ATSW limits the DC stimulatory capacity on TH1 and TH17 cell responses by impairing their maturation, IL-12 and IL-23 production and accessory cell function. All in all, we showed that ATSW is endowed with an immunomodulatory potential.