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Probiotics for photoprotection**Gueniche Audrey**

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Probiotics have immunomodulatory functions through their activities on immunocompetent cells. Previously it was demonstrated that supplementation with *Lactobacillus johnsonii* (La1) reinforces in human skin immune homeostasis and prevents UV-mediated immune-suppression, by promoting a faster recovery of Langerhans cells' (LC) functions and basal CD1a⁺ cells number. A new randomized, double-blind, placebo-controlled clinical trial was conducted with 54 healthy volunteers receiving either La1 (10⁹ CFU/day) or placebo, during 57 days prior to UV (2 x 1.5 MED). Blister roofs, liquid and skin biopsies were collected 1, 4 and 10 days after UV exposure from non-irradiated and irradiated skin areas and used for identification of cells involved in UV-induced immune response and quantification of inflammatory cytokines. While a similar decrease of LC for both groups was observed on day 1 after UV exposure compared to placebo, La-1 group presented an increase of a new subset of epidermal dendritic cells (DC), namely early LC precursors (CD1a^{low} CD207⁻) associated with a minor recruitment of monocytes. Concomitantly, inhibition of IL-10 stimulation and a tendency to inhibit IL-6 production was observed in La-1 group compared to placebo. On day 4, La-1 group presented significantly more early LC precursors and a trend to increase CD1a^{low} CD207⁺ LC late precursors compared to placebo. Additionally, a faster reduction of inflammatory cytokines (IL-6, TNFalpha, IL-8, and IL-10) was observed in La1 group compared to placebo. Finally, 10 days after the UV challenge, even a similar recovery of the LCs was observed in both groups, a faster normalization to pre-challenge values for TNF alpha, IL-6, IL-8, IL-10 and p53 was observed in the La1 group compared to placebo. We show that La1 limits UV-induced immune-suppression and skin inflammation thus contributes to the early recovery of the skin immune homeostasis. In a last study, we evaluate the efficacy of La1 supplementation on UV suppression of CHS response and found that La1 protect against UV suppression of skin immune response. All these studies confirm that La1 supplementation significantly protects the skin's immune system from UV-induced immunosuppression. Maintenance of the cutaneous immune response is valuable in preventing long-term effects of UV radiation, such as tumour development, which can result when there is a lack of appropriate immune-surveillance.

Biography

Audrey Gueniche obtained her Pharmacist degree and her PhD degree in skin biology more than 20 years ago. She is an expert on immunology and microbiology. Her main expertise is on skin topical treatment and food supplement for skin and hair health, especially using probiotics, natural extract and bacterial extracts. She is currently a SENIOR CLINICAL EXPERT in LOREAL RESEARCH. She has a complete experience from in vitro evaluations/ preclinical studies to clinical trials. Her passion is to always reinvent evaluation and find best fields of area in term of actives to promote. She has published over 100 papers in peer-reviewed journals, 5 chapters in books, 2 specials issues in journal where she was the invited editor. She presented in over 70 international congresses and additionally she was personally invited to give more than 35 plenary conferences.

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