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Epicutaneous sensitization with ovalbumin, staphylococcal enterotoxin B and vitamin D analogue induces atopic dermatitis in mice.

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ABSTRACT

OBJECTIVE:To illuminate a method for establishment of a cost-efficient atopic dermatitis (AD) mouse model by topical application of ovalbumin (OVA), super-antigen staphylococcal enterotoxin B (SEB), and calcipotriene ointment (CO) on the back of BALB/c mice. **Methods:** Experimental mice were topically treated with OVA/SEB or OVA/SEB/CO every other day during 15 days of induction. Clinical alterations on the skin area were monitored every other day. Epidermal thickness were measured by reflectance confocal microscope (RCM) before harvest. Inflammatory cells in skin biopsies were marked by hematoxylin-eosin (HE) staining. Blood sample and skin biopsies were measured by ELISA and quantitative real-time PCR to detect the expression of IL-2, IL-4, IL-31, interferon (IFN)- γ , tumor necrosis factor (TNF)- α , pruritus-associated nerve growth factor (NGF), and serum IgE. **Results:** Human AD-like cutaneous local inflammatory reaction was characterized by the accumulation of inflammatory cells, increased epidermal thickness and serum IgE levels as well as Th1 cell-associated cytokines (IFN- γ , TNF- α), Th2 cell-associated cytokines (IL-4, IL-31), and NGF in the OVA/SEB/CO group compared with that in the normal control group or the OVA/SEB group. **Conclusion:** OVA/SEB/CO can induce an AD-like mouse model with lower economic and time consumption.

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