

Keratinocytes: innate immune cells in atopic dermatitis

Panjit Chieosilapatham¹, Chanisa Kiatsurayanon², Yoshie Umehara³, Juan Valentin Trujillo Paez³, Ge Peng³, Hainan Yue³, Le Thanh Hai Nguyen³, and Francois Niyonsaba⁴

¹Chiang Mai University Faculty of Medicine

²Institute of Dermatology

³Juntendo University School of Medicine Graduate School of Medicine

⁴Juntendo University Graduate School of Medicine

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Abstract

The skin is a unique immune organ that constitutes a complex network of physical, chemical, and microbiological barriers against external insults. Keratinocytes are the most abundant cell type in the epidermis. These cells form the physical skin barrier and represent the first line of the host defense system by sensing pathogens via innate immune receptors, initiating antimicrobial responses and producing various cytokines, chemokines and antimicrobial peptides, which are important events in immunity. A damaged epidermal barrier in atopic dermatitis allows the penetration of potential allergens and pathogens to activate keratinocytes. Among the dysregulation of immune responses in atopic dermatitis, activated keratinocytes play a role in several biological processes that contribute to the pathogenesis of atopic dermatitis. In this review, we summarize the current understanding of the innate immune functions of keratinocytes in the pathogenesis of atopic dermatitis, with a special emphasis on skin-derived antimicrobial peptides and atopic dermatitis-related cytokines and chemokines in keratinocytes. An improved understanding of the innate immunity mediated by keratinocytes can provide helpful insight into the pathophysiological processes of atopic dermatitis and support new therapeutic efforts.

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