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Review &gt; J Dermatol Sci. 2005 Dec;40(3):157-68. doi: 10.1016/j.jdermsci.2005.07.009.

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# Protective roles of the skin against infection: implication of naturally occurring human antimicrobial agents beta-defensins, cathelicidin LL-37 and lysozyme

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## Abstract

Beside its physical barrier against invading microorganisms, the skin has the ability to produce a number of antimicrobial peptides and proteins, including human beta-defensins, cathelicidin LL-37 and lysozyme that participate in the innate host defense. These antimicrobial agents are strongly active against a wide spectrum of various pathogens such as bacteria, viruses and fungi. Thus, antimicrobial agents are proposed to be promising candidates for innovative anti-infective drugs, and some antimicrobial peptides are currently used in clinical trials for treatment of various skin infections. In addition to their direct antimicrobial functions against invading pathogenic microorganisms, antimicrobial agents have also multiple roles as mediators of inflammation with the effects on epithelial and inflammatory cells, influencing cell proliferation, wound healing, cytokine/chemokine production and chemotaxis. This review describes the biology of these antimicrobial molecules and discusses their structure, expression and functions. Understanding the actions of antimicrobial agents in skin will provide further insight into the mechanism of innate cutaneous disease control, and yield novel therapeutic approaches to the treatment of skin disorders.

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