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Anti-inflammatory effects of bee venom and its major component melittin on atopic dermatitis *in vitro***Kwan-Kyu Park**

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Atopic dermatitis (AD) is a multifactorial skin disease, with complex interactions of innate and adaptive immune responses based on a genetic, pharmacological and psychological predisposition. Purified bee venom (BV) and its major component melittin (Mel) has been widely used as a traditional medicine for various diseases. It has multiple effects including antibacterial, antiviral, and anti-inflammatory activities in various cell types. However, the precise mechanism of BV and Mel in ameliorating the AD is not fully understood. This study investigated the pharmacological effects of BV and Mel on AD symptoms by using tumor necrosis factor (TNF)- α -interferon (IFN)- γ -activated human keratinocyte. The human keratinocyte HaCaT cells were pretreated with BV (1, 10 and 100 ng/ml), and Mel (0.1, 0.5 and 1 μ g/ml) for 30 min and then stimulated with recombinant human TNF- α /IFN- γ (10 ng/ml) for 9 h. In order to determine whether BV and Mel inhibit thymus- and activation-regulated chemokine (TARC/CCL17) and macrophage-derived chemokine (MDC/CCL22), this study analyzed these chemokines with real-time PCR in mRNA HaCaT cells. BV and Mel inhibited the mRNA expression of TARC/CCL17 and MDC/CCL2 in TNF- α /IFN- γ -stimulated HaCaT cells. In addition, BV and Mel treatment suppressed the expression of pro-inflammatory cytokines such as IL-1 β , IL-6, and IFN- γ in protein level of TNF- α /IFN- γ -stimulated HaCaT cells. And also, BV and Mel effectively inhibited NF- κ B signaling pathway and JAK2-mediated distal signaling phospho-STAT1 and phospho-STAT3 in TNF- α /IFN- γ -stimulated HaCaT cells. In conclusion, this study provides novel insights into the pharmacological actions of BV and Mel as a potential agent for use in the treatment of AD-like skin lesions.

Biography

Kwan-Kyu Park has completed his MD and PhD. He is now a Professor of Pathology, the Chief of the Pathology Laboratory in College of Medicine, Catholic University of Daegu, based in Daegu, Republic of Korea. He has published over 300 papers about various inflammatory diseases and pathology. He is an expert in Kidney and Liver Pathology and his main research interest is inflammatory diseases including dermatitis. He is also interested in therapeutic effects of bee venom and its component on various diseases. The papers he published about bee venom are over 30. Further, he studied about gene therapy using oligodeoxynucleotide decoy and siRNA. Currently, he leads a team of 8 members in Pathology Laboratory, and works as a Specialist for Daegu Catholic University Medical Center.

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