

**Regulation of protein related antimicrobial activity by recombinant mussel adhesive protein (fp-151) using proteome analysis**Kyung Bae Pi<sup>1</sup>, Sunhye Lee<sup>2</sup>, Sunggil Park<sup>2</sup>, Ho-Jin Kim<sup>1</sup>, Beom-Seop Rho<sup>1</sup>, Ki Beom Lee<sup>1</sup>, Yoonjin Lee<sup>3</sup> and Jung-Mo Ahn<sup>1</sup><sup>1</sup>Incheon Business Information Technopark, Korea<sup>2</sup>Kollodis Biosciences, Korea<sup>3</sup>Somang Cosmetics Corporation, Korea

In this study, the antimicrobial activity of recombinant mussel adhesive protein (fp-151) was evaluated against skin flora. The skin flora used for experiments were four Gram-positive bacteria such as *Staphylococcus aureus* (*S. aureus*), *Streptococcus pyogenes* (*S. pyogenes*), *Staphylococcus epidermis* (*S. epidermis*), *Propionibacterium acnes* (*P. acnes*) and one Gram-negative bacteria (*E. coli*). Pour plate assay was applied for determining the antimicrobial effects of recombinant MAP (fp-151). According to the result, recombinant MAP (fp-151) showed 90% of antimicrobial activity and was as good as or even better than penicillin for five skin flora. Also, we aimed to identify key proteomic changes in a HaCaT cell line grown in treated with recombinant MAP (fp-151) peptide, applying proteomic methods using nano-LC and a 4800 Plus MALDI TOF/TOF tandem mass spectrometry device. In a narrowed down and comparative data analysis of both non-treated and treated recombinant MAP (fp-151) peptide groups, differentially expressed proteins were identified as up or down-regulated. Bioinformatic analysis was used to reveal the biological functions and predict its possible mechanism. These results indicate that recombinant MAP (fp-151) has a high antibacterial effect and resistance against bacterial infection and cell damage which therefore, implies that recombinant MAP (fp-151) has its potential use in skin care products.

**Biography**

Kyung Bae Pi has completed his MS from Kyung Hee University. He is a Senior Researcher and Project Leader of Incheon Business Information Technopark. He has published more than 13 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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