

# Chemical analysis of secondary metabolites of *Propionibacterium acnes*

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*Propionibacterium acnes* is a Gram-positive anaerobic rod-shaped bacteria found on the skin and in the intestinal tract. It is widely known as the causative agent of acne vulgaris, but has recently attracted attention for its involvement in pustulosis, prostatitis, hyperostosis, synovitis, sarcoidosis (granuloma), and implant-related infections. Therefore, it is an important issue to clarify what mechanisms influence pathogenesis. In this study, we investigated the cytotoxicity of culture extracts obtained under various culture conditions together with *Staphylococcus aureus* against human skin-derived fibroblast cell line KMST-6. The results showed that the cytotoxicity of the culture extracts varied depending on the culture medium. For example, *S. aureus* was active in LB and MH media, but not in GAM and BHI media, which suggests that the culture conditions, including the culture medium, are important in the study of metabolites. As no significant differences were observed in TLC and LC-MS analyses, it is possible that the compounds that are primarily responsible for the activity are trace amount that is difficult to isolate and purify, or that the difference in activity is not dependent on a specific compound but on the overall activity of various compounds such as lipids that have weak activity. However, as observed in the co-culture in LB medium, the activity was stronger in the co-culture than in the monoculture, this observation may provide an interesting feature for future research on the interaction of these indigenous skin bacteria.