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Tolerogenicity, anti-melanogenicity and anti-tyrosinase effects of sericin on melanocyte and dendritic cells: A possibility to alleviate post inflammatory hyperpigmentation

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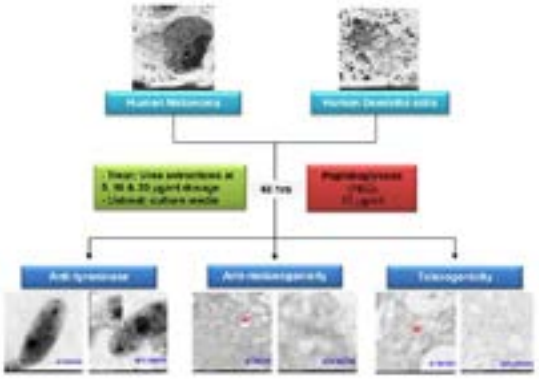
Sericin has been conducted to characterize its immunomodulatory effects especially anti pro-inflammatory activities for decades. In addition, it is also well known that hyperpigmentation disorders such as post inflammatory hyperpigmentation (PIH) and melanoma, are a major concern not only in white skin type people, but also raises in darker skin type of Asian population. Although there are many types of therapeutic products, more effective treatments still need to be evolved. The important modulators of epidermal innate immune responses are melanocytes and dendritic cells (DCs), which composed of induction, regulation, and maintenance of inflammatory responses on skin. However, the immunomodulatic role of sericin on melanocytes and DCs relate to therapeutic effect of hyperpigmentation disorders has not been well established. Moreover, sericin composes of the anti-tyrosinase property. Although the most prominent target for inhibitors of hyperpigmentation is tyrosinase, unfortunately, a little is known about its anti-melanogenic property and clinical efficacy. In this study, we conducted *in vitro* model and electron microscopic studies (immune-gold labeling) to determine (i) the tolerogenic effect sericin on melanocytes and DCs indicated by the level of IL-10 and transforming growth factor (TGF)-ß, (ii) the anti-melanogenic property of sericin characterized by tumor progressive marker (Mtif) and (iii) the anti-tyrosinase effect of sericin using tyroninase marker. The results showed that sericin (at leat 5 µg/ml) composed of tolerogenicity, anti-tyroninase and anti-melanogenicity effects on melanocytes and DCs as demonstrated by the up-regulation of IL-10 and TGF- ß in association with the down-regulation of tyrosinase and Mtif, respectively. This study provides the understanding of immunomodulatic role of silk sericin on melanocytes and DCs underlying hyperpigmentation disorders lead to the applications allowing affected people to have a better quality of life and their guidelines for therapeutic approaches.



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Biography

Supamas Napavichayanun is a PhD student, Faculty of Pharmaceutical Sciences, Chulalongkorn University, Thailand. She earned a BSc from Faculty of Pharmaceutical Sciences, Chulalongkorn University in 2010. Her research experience has ranged from protein including silk proteins and biomaterials. She also did clinical researches in the area of dermatology especially materials for wound healing application.

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