

Effects on skin of *Stichopus japonicus* viscera extracts detected with saponin including Holothurin A: Down-regulation of Melanin Synthesis and Up-regulation of Neocollagenesis Mediated by ERK Signaling Pathway

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## **Abstract**

### **Ethnopharmacological relevance**

*Stichopus japonicus* (sea cucumber), edible traditional food in Asia, and its extracts are renowned for their wound healing, pain relieving, and cosmetic effects in traditional medicine. Holothurins, toxins isolated from sea cucumber, are thought to be active components for their

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