

Marine 5-thiohistidines as protective molecules from skin damage.

P-01-073

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Introduction Marine environment is a great source of bioactive molecules, whose biological properties and applications are often used especially to prevent skin diseases and aging caused by UVA-exposure. Ovoids are methyl-5-thiohistidines from marine invertebrates, bacteria, and microalgae, which protect cells from environmental stressors. Recently, we have shown that, ovoid, isolated from sea urchin eggs, exerts anti-inflammatory and antioxidant activities on human endothelial cells, and exhibits antifibrotic effect in an *in vivo* model of liver fibrosis. Thanks to their chemical properties, ovoids represent promising bioactive compounds to use as anti-inflammatory compounds in human diseases. **Material and Methods** Human keratinocytes (HaCat) and human embryonic kidney 293 cells (HEK293) were used to test the cytotoxicity of these molecules by resazurin-based assay. An *ex vivo* human skin model was used to investigate the anti-inflammatory and dermato-protective properties of these molecules. **Results and Discussion** In this preliminary study we showed that two types of 5-thiohistidines are not cytotoxic in epithelial cells, indeed the vitality is even greater than in untreated cells. In addition, using specific ELISA assays, we observed that the pre-treatment of *ex vivo* human skin tissue with ovoid A and the desmethylated form 5-thiohistidine at the concentration of 5 μ M, led to a significant decrease in IL-6 and IL-8 production, indicating an anti-inflammatory effect. Finally, pre-treatment at low concentrations with these compounds, was very efficient compared to the pre-treatment with dexamethasone, a type of corticosteroid medication, used as anti-inflammatory in the treatment of many skin diseases. **Conclusion** These findings indicate that marine 5-thiohistidines have significant anti-inflammatory and dermato-protective properties and can be considered as new marine drugs or dietary supplements for the treatment of skin damage.