

MR-13, a synthetic marine-derived compound, for cosmeceutical uses in bioactive research

溫依珊

Most Asians consider fair skin to be a key element of beauty. According to market statistics (source: Euromonitor International), in 2009, cosmetics accounted for a revenue of more than NT\$9.34 billion in Taiwan. Some of these cosmetics are used for purposes other than beauty, for example, postinflammatory hyperpigmentation, which usually accompanies disorders associated with melanogenesis, caused by dermatological diseases such as contact dermatitis, atopic dermatitis, or by skin damage due to UV exposure. Some of the widely used skin-whitening agents, such as hydroquinone and arbutin, used in cosmetic products or for hyperpigmentation diseases are toxic and, hence, have their limitations. Findings of our preliminary anti-inflammatory screening procedure showed that MR-13 significantly inhibited the expression of lipopolysaccharide-induced proinflammatory protein iNOS in murine macrophage-like RAW264.7 cells. The aim of this study was to find a safer and more effective compound than those currently in use, with both anti-inflammatory and anti-melanogenic properties, for future cosmetic and medical use by using these model systems. Our results indicated that MR-13 could effectively inhibit pigmentation, most probably by the potential downregulation of tyrosinase activity and demonstrated low cytotoxic effect on B16-F10 murine melanoma cells. We also found that MR-13 could suppress melanin formation while sustained delivery treatment, without having any toxic effects. Results of our *in vitro* and *in vivo* biological assays showed that the synthetic marine-derived compound MR-13 possesses anti-inflammatory and anti-melanogenic properties and has potential application in medical cosmetology.