

The development of whitening peptide with peptide percutaneous drug delivery system

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Topical therapy is the most favored form of treatment for whitening against hyperpigmentation and sunburn. However, high-molecular-weight, hydrophilic chemicals are difficult to use as transdermal delivery drugs and the use of topical drugs has been highly limited. We applied 11-arginine peptide (11R), a cell-membrane-permeable peptide, as a transdermal delivery system with a skin delivery enhancer, pyrenbutyrate. We performed intracellular peptide screening for melanogenesis inhibitors with several kinds of tyrosinase inhibitory peptides from natural sources. Next, we performed daily repetitive topical application of this LILVLLAI peptide found in gliadin protein, a wheat component, for two weeks against a UV-induced sun-tanning guinea pig model and confirmed significant melanogenesis inhibition in model skin. We showed that 11R using a transdermal drug delivery system with melanogenesis inhibitory peptide is a very safe and promising method for applications from cosmetics to the pharmaceutical industry.