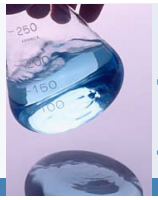

Technical Data Sheet

Tomorrow's Vision... *Today!*®

AC DermaPeptide Lightening

Code Number:	20463
INCI Nomenclature:	Lactobacillus Ferment Lysate Filtrate
INCI Status:	Approved
Suggested Use Levels:	1.0 - 5.0%
Suggested Applications:	Even out skin tone

We all have them, scars, sunspots and other unwanted dark spots that seem to have mysteriously appeared overnight. These are all caused by hyperpigmentation, which is the direct result of damage. Whether it's the scar on your knee that you've had since you fell off your bicycle at the age of 10, or freckles sprinkling the tops of your shoulders after spending a little too much time at the beach on a hot summer day, both are caused by an increase in melanogenesis.

Melanin is the compound in our bodies that is responsible for pigmentation, and it is found in our hair, skin and eyes. There are two distinct types of melanin: pheomelanin, which is typically a yellow or orange pigment, and eumelanin, which is a dark-brown pigment. Genetic and environmental factors such as hormones, food and medicine influence melanin production.

The melanogenic pathway for the production of eumelanin and pheomelanin both involve a chain of enzymatic and non-enzymatic reactions with tyrosine playing a key role. Eumelanin production begins with the enzymatic oxidation of L-tyrosine to dopaquinone to form an intermediate called an indolic monomer, which is then converted to eumelanin. Pheomelanin production begins when dopaquinone reacts with cysteine to form the intermediate precursor called cysteinyldopa, which is then converted into pheomelanin.

Melanocytes located in the basal lamina synthesize organelles called melanosomes that contain melanin. Following synthesis, the melanosome is transferred to keratinocytes. Keratinocytes that contain melanin granules then proceed along the differentiation pathway, moving up through the epidermal layers until they become part of the stratum corneum.

The melanocortin 1 receptor (MC1R), a melanocyte surface receptor, may be an effective way to alter pigment production as alpha-melanocyte stimulating hormone (α-MSH) has been shown to bind to the MC1R and induce eumelanin production. In contrast, the agouti signal protein (ASP) is capable of binding to the MC1R to prevent the formation of eumelanin by inhibiting α-MSH and in turn stimulating the production of pheomelanin. By using peptides that are capable of binding to the MC1R, much like α-MSH and ASP, we may be able to alter melanin formation to either enhance the production of one type of melanin while inhibiting the production of the other.

Derived from *Lactobacillus*, **AC DermaPeptide Lightening** is intended to prevent eumelanin synthesis while simultaneously increasing pheomelanin synthesis to improve skin tone and reduce the appearance of hyperpigmentation.

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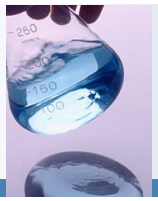

AC DermaPeptide Lightening

The efficacy of **AC DermaPeptide Lightening** was first measured using an *in-vitro* MatTek Melanoderm assay, which measures the amount of melanin content per tissue as well as per tissue weight. Compared to the positive control, the results demonstrate that **AC DermaPeptide Lightening** is capable of stimulating lower concentrations of visible melanin. The MTT assay was then performed to determine any potential immunotoxic effects; fortunately the results indicate that **AC DermaPeptide Lightening** is safe for use in cosmetic and personal care products.

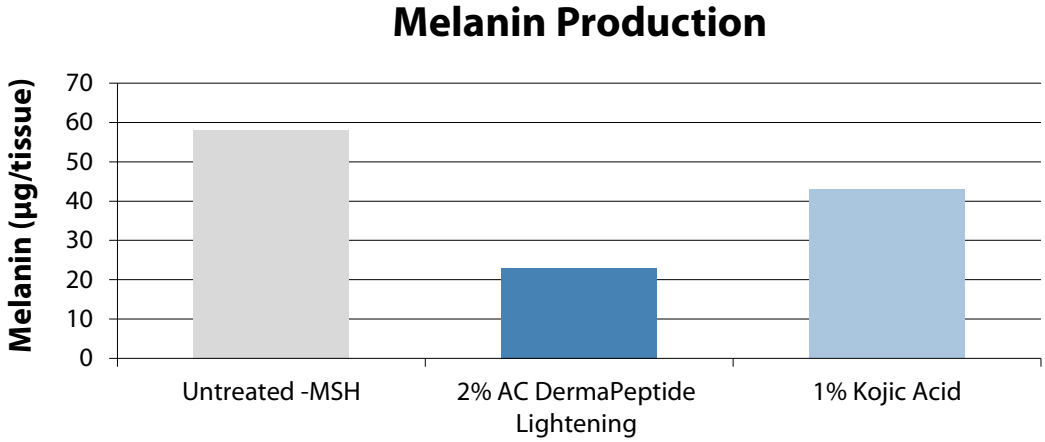

Figure 1. Reduction in the concentration of melanin following application of test materials.

AC DermaPeptide Lightening is recommended for use in long-term lightening formulas, and may allow consumers to easily lighten the skin to achieve a more even skin tone. This is a revolutionary concept that can change the skin care and cosmetics markets worldwide!

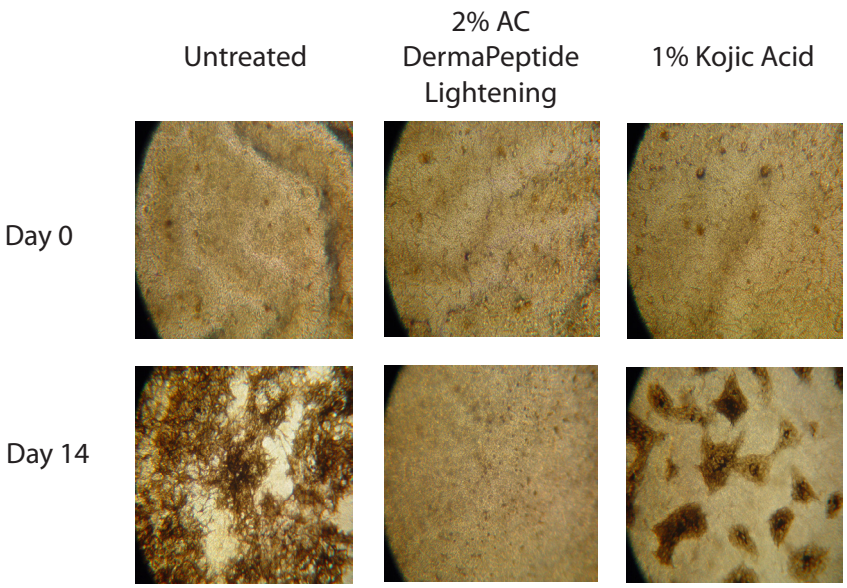

Figure 2. Melanoderm Assay Results for **AC DermaPeptide Lightening**.

References:

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3) Yaar, M. and Gilchrest, B.A. (2001) "Clinical and Experimental Dermatology" 26, 583-591, 2001
4) Slominski, A., *et al* (2004). Physiological Reviews. 84, 1155-1228, 2004

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