MEADOWESTOLIDE® Vs. Ceramide IIIB

USA Head Office
Elementis Specialties, Inc.
P.O. Box 700
329 Wyckoffs Mill Road
Hightstown, NJ 08520 USA
Tel.: +1 609 443 2500
Fax: +1 609 443 2422

Europe
Elementis Specialties
Stolberger Straße 370
50933 Cologne, Germany

Tel.: +49 221 2923 2000
Fax: +49 221 2923 2010

Asia
Elementis Specialties, Inc.
120 Jalan Kapar 27/89
40400 Shah Alam
Malaysia
Tel.: +60 3 5192 2887
Fax: +60 3 5192 3887

Japan
Elementis Japan KK
15-14 Minaminisemba 1-Chome
Chou-Ku, Osaka
542-0081 Japan
Tel.: +81 6 6267 6211
Fax: +81 6 6267 6215

In Vivo Tissue Hydration Studies (comparative moisture retention for MEADOWESTOLIDE® and ceramide IIIB):

Methods

The Delphin Moisture Meter SC was used to quantify moisture content in the stratum corneum (SC) by an electrical capacitance method. The measurement has no units, but is proportional to the dielectric constant of the surface layers of the skin, and increases as the skin becomes more hydrated. The DMM numbers are directly related to the skin's electrical capacitance measured as picoFarads (pF).

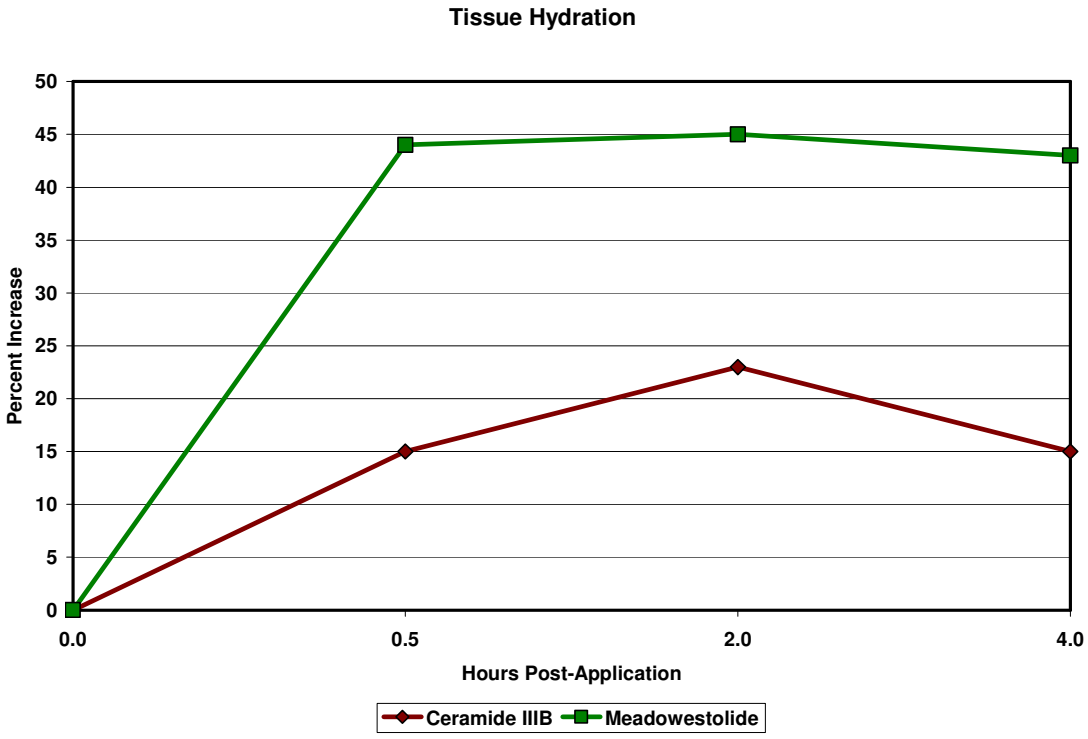
Simple creams containing 1% MEADOWESTOLIDE® or 1% ceramide IIIB were applied to the upper arm and lower forearm. Readings were taken in triplicate at 0, 0.5, 2 and 4 hours.

Results:

As can be ssen in Figure 1, there is a significant increase in the hydration of the stratum corneum following the application of both MEADOWESTOLIDE® and ceramide IIIB. However, the increase appears to be greater in the case of the MEADOWESTOLIDE® and is sustained at least until the 4 hour measurement point.

Figure 1

Increase in Tissue Hydration As A Results of the Application of MEADOWESTOLIDE® or Ceramide IIIB



Discussion:

There are very sound biochemical mechanisms underlying the observed "anti-aging" effects of both MEADOWESTOLIDE® and MEADOWLACTONE®. As mentioned in the "Introduction", maintaining a physiologically correct balance of oil and water phases in our tissue is a key component to the improvement of the overall appearance and tone of the skin. Ceramides are a very important family of indigenous components within epidermal tissue. They serve several biochemical functions among which is the ability to act as an effective barrier against excessive loss of moisture. Consider the chemical structure of a ceramide, in this case Ceramide IIIB and the structure of MEADOWESTOLIDE®.

Figure 19 Chemical structure of Ceramide IIIB

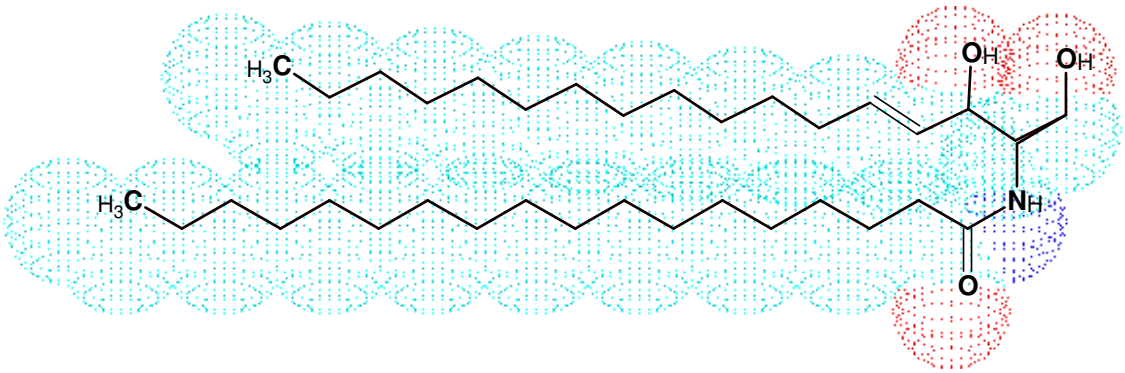
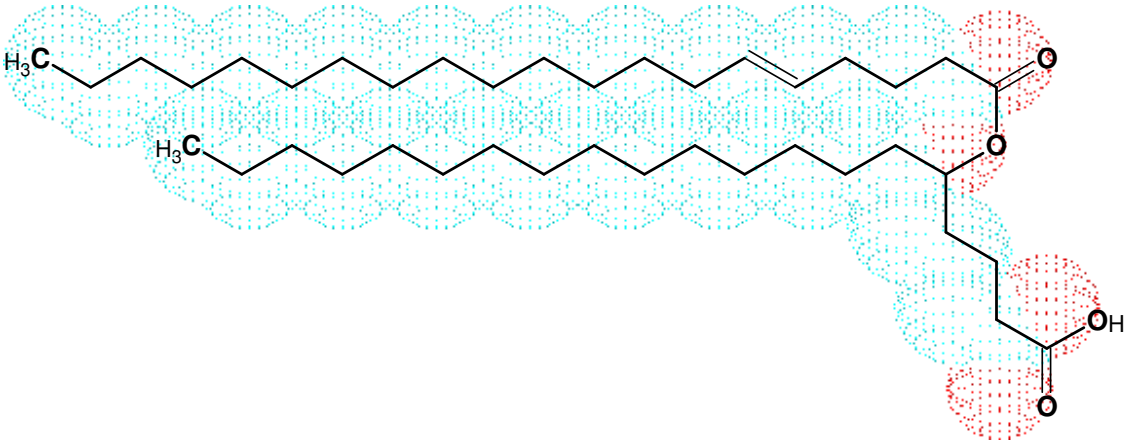


Figure 20 Chemical structure of MEADOWESTOLIDE®



There is a striking similarity between these molecules, particularly the spatial relationship between the extensive non-polar aliphatic chain and the more polar hydrophilic carboxy end. It is not surprising that the moisture retention (barrier) properties of ceramide are also evident for the MEADOWESTOLIDE®. One would expect the aliphatic portion of these molecules to be miscible in the more lipophilic aspects of the epidermis and contribute to the lipid character of this tissue while the hydrophilic end binds water and enriches the aqueous character of the skin. In both cases, the "moisturization" benefits of these compounds, which manifests itself as visual "anti-aging" effects, is derived from the dual lipophilic-hydrophilic activity within the same molecule.