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# Individual analysis of epidermal barrier lipids and their composition in subjects with atopic dermatitis. Investigations using Lipbarvis<sup>®</sup>, a non-invasive sampling technique, and subsequent electron microscopic (LBV TEM<sup>®</sup>) and HPTLC analysis (LBV Lip<sup>®</sup>)

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Lipbarvis<sup>®</sup> is a new, innovative analysis method for the study of the epidermal skin barrier. Using a special glue-carrier system, non-invasive skin samples are taken, analyzed and mapped in transmission-electron microscopy (TEM). Specialized software determines the length of the lipid lamellae in relation to the intercellular space. The number of lipid lamellae permits very accurate conclusions about the effectiveness of the applied drug. This is followed by a quantitative evaluation of the individual samples and thus an exact description of the skin barrier. The skin lipids from the collected samples are separated by HPTLC. A distinction is made between the lipids cholesterol, free fatty acids and the ceramides EOS, NP and NH. A densitometry analysis is used to quantify the lipids.

The results presented here show that the lipids of the epidermal barrier in subjects with atopic dermatitis can be divided into different subclasses in terms of the respective lipid ratios. For some subjects, the ratio of cholesterol to ceramide EOS reversed nearly completely for very dry skin and atopic dermatitis. However, other subjects showed different lipid ratios among each other. And the ratios of fatty acids to ceramides also changed.

Individual examples are used to demonstrate that there is a correlation between biophysical parameters and the electron microscopic analysis, as well as the changes in barrier lipids found in the individual analysis before and after the treatment.

