


Determination of free fatty acids of different chain length in the *stratum corneum* as a biomarker of skin barrier

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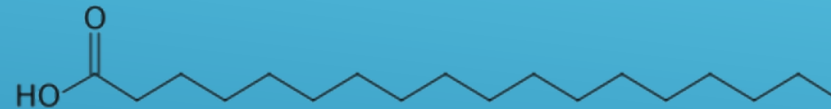
Free fatty acids (FFAs):

- important constituents of SC lipids
 - skin barrier function:
 - e.g. regulation of permeability barrier, desquamation
 - maintenance of pH
 - antimicrobial defense
- 
- A decorative graphic consisting of several parallel white lines of varying lengths, slanted diagonally from the bottom right towards the top right, set against a blue background.

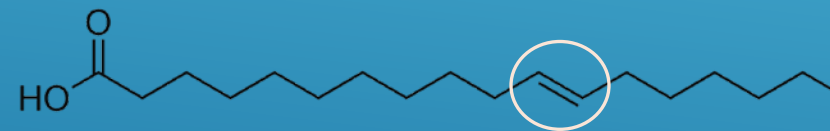
Free fatty acids (FFAs):

- varying chain lengths (14 to 36 C-atoms)

- saturated



- mono-unsaturated



- poly-unsaturated



Free fatty acids (FFAs):

- exposure to:
wet work/organic solvents
- genetic factors
- inflammation

alteration of skin lipid
composition and organization



relative composition of FFAs
possible biomarker of the skin barrier function



Analysis of FFAs in the SC

1. tape stripping of the SC
2. liquid chromatography-mass spectrometric detection (LC-ESI-MS)

Interferences from the adhesive tapes

presence of short chain length fatty acids in the tapes
(C12:0, C16:0 and C18:0)



Correlation of C12:0 with C16:0 and C18:0



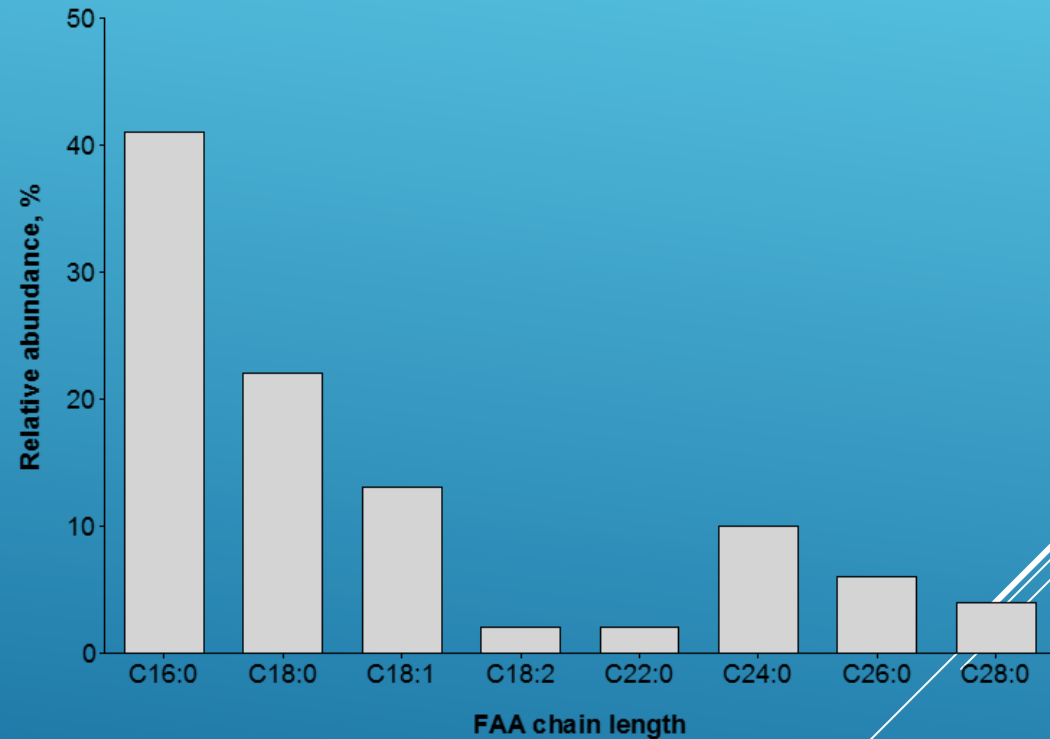
Preliminary data

FFA in upper layers of the SC (3rd layer which corresponds to the depth of approximately 3-5 μm) collected from healthy subjects.

The largest proportions



shorter chain length FFAs.



Lampe et al. (*J Lipid Res*, 1987)
Bonte et al. (*Arch Dermatol Res*, 1997).