Skin applications of Atomic Force Microscopy

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The skin surface can be observed with different methods more or less invasive. Atomic Force Microscopy (AFM) in vitro or ex-vivo allows a good resolution of the morphology of skin , not limited by the wavelength of light. In addition mechanical and chemical information is possible thanks to the physical interaction of a small nanometric probe on the surface.

This presentation will show some of our recent studies on skin applications using this technology. In particular we will comment experimental aspects that are critical for performing this type of experiments from sample preparation to protocols of measurements (ambient, water, dry conditions, etc.).

We will comment the specific morphological aspects like the micro topography of skin, the influence of age, the visualization of skin components. A special consideration will be given to the mechanical characterization of corneocytes, main constituents of the stratum corneum (outermost layer of skin). Their physical characterization from a elastic Young modulus determination to friction studies

Finally we will show our current efforts to have access to chemical information by the use of modified AFM tips for protein recognition.

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