

Cosmetic & Pharmaceutical Research > Cosmetic & Pharmaceutical Research > Thickness

7

In vivo confocal microscopy of human skin: a new design for cosmetology and dermatology.

Corcuff P, Gonnord G, Piérard GE, Lévêque JL.; Scanning. 1996 Aug;18(5):351-5.

ABSTRACT

In-depth exploration of cellular structures in living human skin in situ is possible with the tandem scanning microscope (TSM).

However, the rigid design of the microscope limited observations to the arms, hands, and fingers.

A mobile version allowing the investigation of any parts of the body has been designed.

The head containing the Nipkow disk and the optical path were the only part saved from the original TSM.

This prototype can be used to observe, in real time, the different skin structures down to a depth of 200 microns and to measure the thickness of the different layers with micron precision level.

The hydration of the stratum corneum (SC) could be assessed. For example, lengthy immersion of the hand in water led to an increase in SC thickness without affecting that of the living epidermis.

Occlusive patch tests also showed that water and, even more so, propylene glycol, led to transient swelling of the SC. In dermatology, the example of psoriasis illustrated the value of the TSM for describing, measuring, and assessing pathologic skin changes.

The availability of this noninvasive method for observing changes with time in a given skin site should prove useful for monitoring treatment efficacy. This tool opens up new insight for the investigation of cutaneous pathophysiology.