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Topographic variations in normal skin, as viewed by in vivo reflectance confocal microscopy.

Huzaira M, Rius F, Rajadhyaksha M, Anderson RR, González S.; J Invest Dermatol. 2001 Jun;116(6):846-52.

ABSTRACT

Near-infrared confocal microscopy is a new tool that provides skin images in vivo, with high resolution and contrast at a specific depth.

Regional variations in live human skin viewed by confocal microscope have not been studied so far.

In vivo reflectance confocal microscopy was performed in 10 adults (eight males, two females) of various skin phototypes.

Six topographic sites were studied in each subject: forehead, cheek, inner and outer forearm surfaces, lower back and leg.

Epidermal thickness at suprapapillary epidermal plates and rete pegs was measured during real-time imaging and the number and diameter of epidermal keratinocytes in each epidermal cell layer as well as the characteristics of dermal papillae were defined from the grabbed images.

Stratum corneum appeared brighter in sun-exposed than in sun-protected areas and particularly pronounced in heavily pigmented individuals.

The epidermal thickness at rete pegs, but not the suprapapillary epidermal plate, was greater in sun-exposed areas than in sun-protected sites except forearm flexor surface.

The en face numerical density of granular keratinocytes is greater on the face as compared with all other sites, whereas the surface density of spinous keratinocytes is greater on sun-protected sites.

Additionally, the number of basal keratinocytes per millimeter length of dermoepidermal junction is greater in sun exposed areas. Interestingly, the dermal papillae shape varies and their sizes increase in circumference from sun-exposed to sun-protected sites, as observed at a specific depth below the stratum corneum.

In summary, our results demonstrate that near infra-red reflectance confocal microscopy is a feasible tool for microscopic analysis of skin morphometry in vivo.