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**Non-invasive visualization of melanin and melanocytes by reflectance-mode confocal microscopy.**

*Yamashita T, Kuwahara T, González S, Takahashi M.; J Invest Dermatol. 2005 Jan;124(1):235-40.*

### ABSTRACT

**IN VIVO** visualization of epidermal melanin was performed by reflectance-mode confocal microscopy (RCM).

**FIRSTLY**, we examined the distribution of epidermal melanin in pigmented animals and compared with that of the human skin.

Melanocytes in the skin of pigmented animals were found to accumulate a large amount of melanin that can be easily visualized because of its brightness.

Their RCM images correlated well with the Fontana-Masson-stained sections for melanin.

In contrast, in the human skin, typical dendritic melanocytes were hardly observed even in pigmented lesions, although supranuclear melanin caps were easily visible.

These results suggested that human melanocytes rapidly transfer the produced melanin to keratinocytes and do not accumulate it.

**SECONDLY**, to elucidate the production of melanin by human melanocytes, we evaluated the changes of melanin after a single ultraviolet (UV) exposure.

The melanin-accumulating melanocytes were clearly visualized during the skin pigmentation process. The RCM images showed the brightness because of melanin gradually increased from day 4, then dendrite-elongated melanocytes appearing from day 8, and finally melanin caps formed from day 29.

**IN CONCLUSION:** RCM successfully evidenced the difference in melanin distribution between the pigmented animals and humans, and the UV-induced pigmentation process in vivo as well.