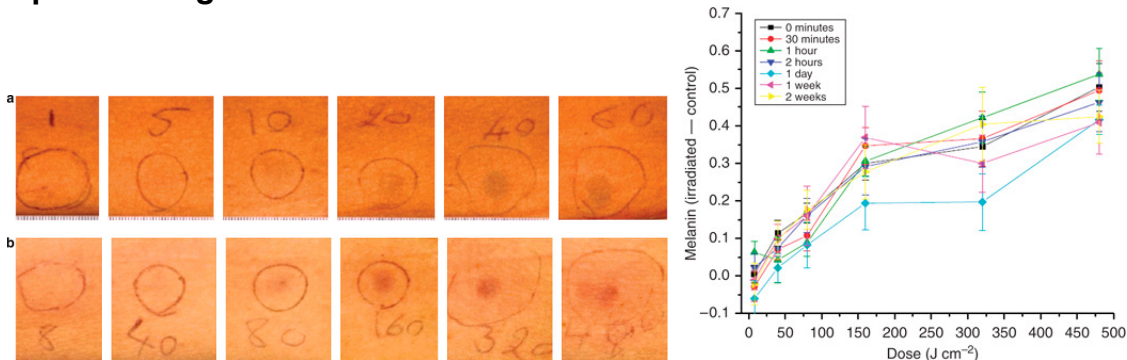


## Customer Application: Tanning of skin for sunscreen research

**Sample Type:** Human Skin types IV-VI

### Captured Images/Data:



**Clinical appearance of irradiated sites immediately after exposure. (a)** UVA1 doses **(b)** visible light doses; Melanin concentration as measured at sites irradiated with visible light radiation (graph c)

### Technique/Settings of application use:

Customer is using multispectral and hyperspectral imaging to assess skin response under a variety of conditions. OneLight Spectra is being used both in *in vitro* and for *in vivo* trials of skin response to visible and UVA light. Specifically, diffuse reflectance spectroscopy (DRS) measurements are correlated to Melanin concentration as a function of dose and exposure time.

### Improvement over Conventional Systems

The conventional technique is measuring spectra with a spectrophotometer with a white light source, and associating chromameter color data, processed by a reflectance model to calculate melanin concentration. The correlation and measurement sensitivity is challenging at low melanin concentrations. Precisely controlling spectral band illumination with OneLight, gives more accurate characterization of the scattering properties and improved correlation, essential in the study of conditions such as hyperpigmentation or hypopigmentation, morphology and architecture of skin, and assessment of skin appearance.

### Utility of OneLight and results to Customer

Results showed that although both UVA1 and visible light can induce pigmentation in skin types IV-VI, pigmentation induced by visible light was darker and more sustained. No pigmentation was observed in skin type II. The quality and quantity of pigment induced by visible light and UVA1 were different. These findings are useful for evaluation and QA of sunscreen products, management of photo-aggravated pigmentary disorders, and the treatment of de-pigmented lesions.

### Significance of the technique to Life Sciences:

Improving correlation and enhancement of tissue scattering models and characterization of key chromophores is extensible to products for characterizing a wide range of skin sensitive conditions as well as specific chromophores present in pathological conditions for analytic diagnostics.