

AOP SKIN UVA

Measure of anti-UVA effect in human skin cells



ASSAY TYPE

Cell-based efficacy assay

SPECIFICITY

Evaluation of the effect by measurement of the neutralization of the cytotoxicity induced by UVA.

STUDY SPECIFICATIONS

- Full dose-effect study (7 doses)
- Calculation of a cell viability index for each dose after UVA exposure
- Evaluation of viability improvement
- At least two independent experiments
- Three end-point measurements (triplicate) for each dose
- Analytical report and monographs

ASSAY PRINCIPLE

The ultraviolet (UV) portion of the sun's radiation can permanently affect skin tissue. It contributes to skin aging and can induce various skin diseases, including inflammation, degenerative aging and cancer. The longest and most abundant UV rays are UVA (320–400 nm). They can penetrate deep into the dermis and induce the formation of intracellular reactive oxygen species (ROS), leading to oxidative damage in the cells of the epidermis and dermis.

In the SKIN UVA assay, epidermal cells in culture are treated 1h with the product/extract of interest and expose to a dose of UVA that recreates 30 minutes of exposure under the sun of Malaga (Spain) in July (1). The consequences of the UVA exposure on cell viability are revealed 24h after irradiation by a resazurin assay. The reduction of resazurin (non fluorescent dye) in resorufin (fluorescent) reveals the metabolic activity of the living cells. This measure allows for viability improvement calculation (% of protection against UVA exposure in presence of test sample versus absence of test sample).

DETECTION METHOD

Fluorescence (exc/em 560–590 nm)

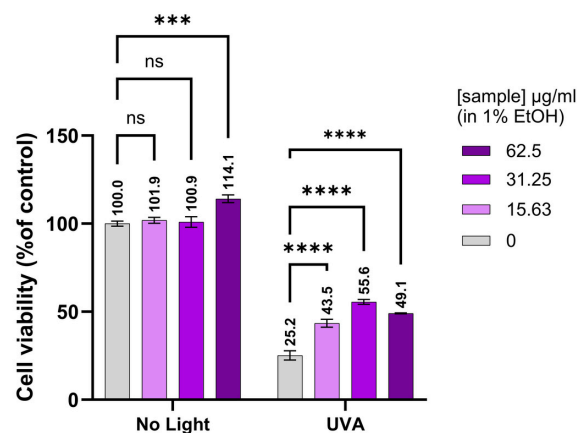
ASSAY FORMAT

96-well cell culture plates

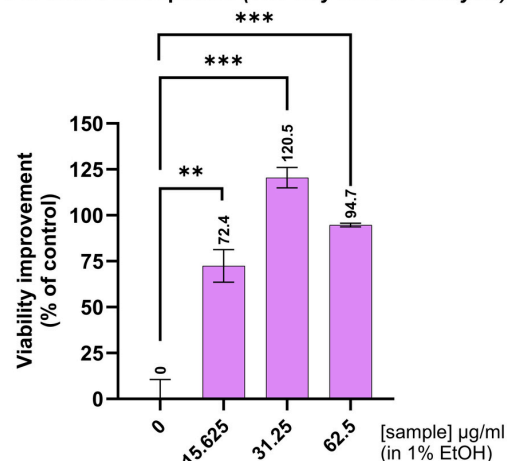
CELL MODEL

Human immortalized keratinocytes (HaCat)

Effect of a Resveratrol treatment on keratinocytes viability 24h after UVA exposure (2way ANOVA analysis)



Effect of a Resveratrol treatment on keratinocytes viability 24h after UVA exposure (one-way ANOVA analysis)



1. Gálvez, E. N. et al. The potential role of UV and blue light from the sun, artificial lighting, and electronic devices in melanogenesis and oxidative stress. J Photochem Photobiol B 228 (2022).