

IN VITRO & EX VIVO TESTING



stratiCell
Testing & Beyond

Pollution & Light Damage

Combined *in vitro* testing for full objectivation

Solar radiations and environmental pollutants are deleterious factors impacting the skin homeostasis. Prolonged cutaneous exposition to UV light and/or pollution leads to overproduction of oxygen species (ROS), impairment in the extracellular matrix (ECM), critical DNA damage, and uncontrolled proinflammatory response. Cellular detoxification has an important function in the elimination of photodamaged cells. Despite natural cellular mechanisms of resilience, chronic exposure is associated with premature ageing, skin pigmentation and allergic reactions. Various dermo-cosmetic active ingredients have proven effective properties to repair or prevent from adverse events

StratiCELL tests the repairing and protective properties of dermo-cosmetic active ingredients and skin care products against the deleterious effects of UV light and urban pollutants, using both functional assays and gene expression analysis.



Testing Methods

CELL SYSTEMS*	CHALLENGES	TESTING METHODS
INFLAMMATORY RESPONSE		
NHEK	UV-AB	<ul style="list-style-type: none"> Quantification of cytokines release : IL-6, IL-8, TNF-alpha Activation of the NFκB transcription factor
NHDF	UV-AB	<ul style="list-style-type: none"> Quantification of cytokines release : PGE-2
RHE	Urban Dust	<ul style="list-style-type: none"> Quantification of cytokines release : IL-1-alpha, IL-8
OXYDATIVE STRESS		
NHEK, NHDF, RHE	UV-A +/- UrbanDust	<ul style="list-style-type: none"> Quantification of Reactive Oxygen Species (ROS) production
NHDF	None	<ul style="list-style-type: none"> Heme Oxygenase 1 : gene expression and protein quantification
NHDF	UV-A	<ul style="list-style-type: none"> Intracellular ATP content by bioluminescent luciferase-based assay
NHDF	InfraRed	<ul style="list-style-type: none"> Quantification of Reactive Oxygen Species (ROS) production
EXTRACELLULAR MATRIX REMODELLING		
NHDF	None	<ul style="list-style-type: none"> Detection and quantification of extracellular matrix components by immunostaining and/or ELISA : collagens, hyaluronic acid, MMP-1 and Elastin Quantification of the enzymatic activity of MMP-1 by ELISA
NHDF	UV-A	<ul style="list-style-type: none"> Quantification of pro-Collagen-1 by ELISA
DNA DAMAGE		
RHE, ex vivo explants	UV-AB	<ul style="list-style-type: none"> Detection and quantification of cyclobutane pyrimidine dimers (CPD) by immunochemistry
DETOXIFICATION		
NHEK	Urban Dust	<ul style="list-style-type: none"> Activation of the aryl hydrocarbon receptor (AhR) through the expression of the Cytochrome P450 (CYP450) gene

* NHEK : Normal Human Epidermal Keratinocytes - NHDF : Normal Human Dermal Fibroblasts – RHE : Reconstructed Human Epidermis



Gene expression analysis

CELL SYSTEMS*	CHALLENGES	TESTING METHODS
NHEK	Urban Dust	<ul style="list-style-type: none"> RT-qPCR : TaqMan Low Density Array (TLDA) to study the expression of 93 genes involved in the skin response to urban dust (skin barrier homeostasis, ECM remodelling, xenobiotic response, inflammation, DNA repairing process)

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