

# IN VITRO & EX VIVO TESTING



stratiCell  
Testing & Beyond

## Pollution & Light Damage

### Combined *in vitro* testing for full objectivation

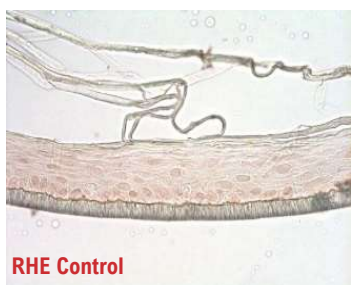
**Solar radiations and environmental pollutants** are deleterious factors impacting the skin homeostasis. Prolonged cutaneous exposition to UV light and/or pollution leads to overproduction of oxygen species (ROS), impairment in the extracellular matrix (ECM), critical DNA damage, and uncontrolled proinflammatory 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

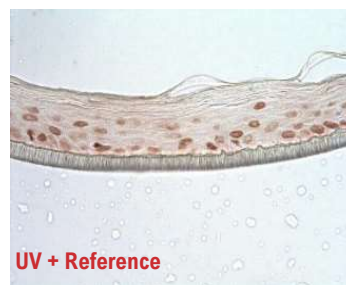
CELL SYSTEMS*	CHALLENGES	TESTING METHODS
<b>INFLAMMATORY RESPONSE</b>		
NHEK	UV-AB	<ul style="list-style-type: none"> <li>Quantification of cytokines release : IL-6, IL-8, TNF-alpha</li> <li>Activation of the NFkB transcription factor</li> </ul>
NHDF	UV-AB	<ul style="list-style-type: none"> <li>Quantification of cytokines release : PGE-2</li> </ul>
RHE	Urban Dust	<ul style="list-style-type: none"> <li>Quantification of cytokines release : IL-1-alpha, IL-8</li> </ul>
<b>OXYDATIVE STRESS</b>		
NHEK, NHDF, RHE	UV-A +/- Urban Dust	<ul style="list-style-type: none"> <li>Quantification of Reactive Oxygen Species (ROS) production</li> <li>Heme Oxygenase 1 : gene expression and protein quantification</li> </ul>
NHDF	None	
<b>EXTRACELLULAR MATRIX REMODELING</b>		
NHDF	UV-A	<ul style="list-style-type: none"> <li>Quantification of extracellular matrix components by ELISA : pro-Collagen-1 and pro-MMP-1</li> </ul>
<b>DNA DAMAGE</b>		
RHE, <i>ex vivo</i> explants	UV-AB	<ul style="list-style-type: none"> <li>Detection and quantification of cyclobutane pyrimidine dimers (CPD) by immunochemistry</li> </ul>
<b>DETOXIFICATION</b>		
NHEK	Urban Dust	<ul style="list-style-type: none"> <li>Activation of the aryl hydrocarbon receptor (AhR) through the expression of the Cytochrome P450 (CYP450) gene</li> </ul>



RHE Control



UV



UV + Reference

Cyclobutane pyrimidine dimers (CPD) staining in non-UV damaged (Control) or UV-damaged RHE without (UV) or with a UV protecting reference (+ Reference).



## Gene expression analysis

CELL SYSTEMS*	CHALLENGES	TESTING METHODS
NHEK	Urban Dust	<ul style="list-style-type: none"> <li>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 remodeling, xenobiotic response, inflammation, DNA repairing process)</li> </ul>

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