IN VITRO & EX VIVO **TESTING**

stratiCell
Testing & Beyond

Skin Hydration and Barrier

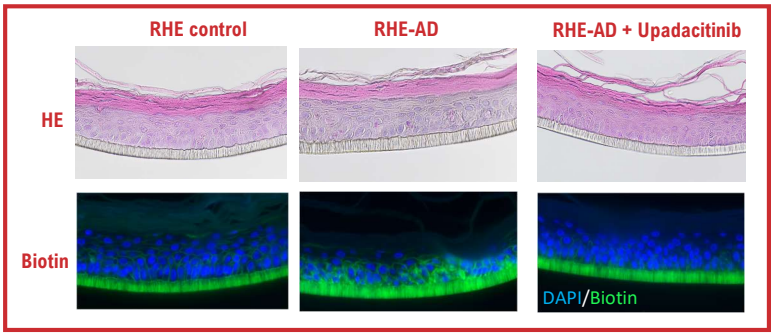
Combined *in vitro* testing for full objectivation

Skin is a chemical, physical and immune shield that protects us against aggressions from the environment and prevents loss of body water. The hydric barrier function is mainly ensured by the semi-permeable *stratum corneum* and hydrolipidic film, while intercellular tight junctions seal epidermal cells to form an efficient physical barrier. Water retention is also ensured by the extracellular matrix of the dermis.

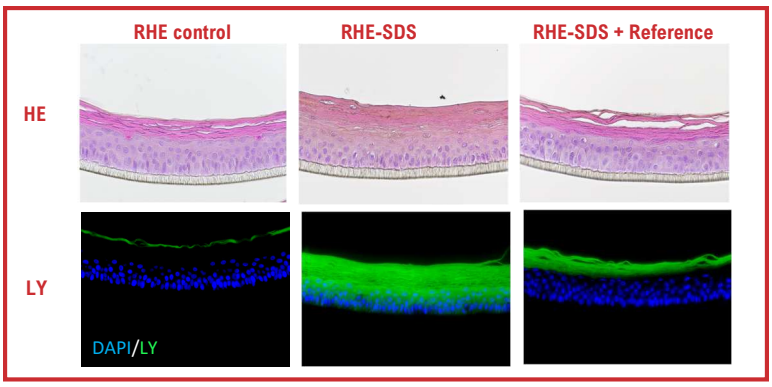
StratiCELL offers an extensive range of *in vitro* assays to explore the effectiveness of dermo-cosmetic active ingredients and skin care products to reinforce the skin barrier properties. Both functional efficacy testing and gene expression analysis are available to offer full objectivation.

Testing Methods

CELL SYSTEMS*	CHALLENGES	TESTING METHODS
EPIDERMAL BARRIER		
NHEK	None	• Detection and quantification of the epidermal structure components by immunostaining : Aquaporin-3, Caspase-14, Claudin-1, Cytokeratins, Desmoglein-1, Involucrin. *On-demand detection of new biomarkers.*
RHE	SDS	• Trans-epidermal out/in Lucifer Yellow diffusion assay
RHE	Th2-type cytokines	• Trans-epidermal in/out Biotin diffusion assay
EXTRACELLULAR MATRIX REMODELING		
NHDF	None	• Detection and quantification of extracellular matrix components by immunostaining and/or ELISA : Collagen, Hyaluronic Acid, MMP, Fibronectin and Elastin. *On-demand detection of new biomarkers.* • Quantification of the enzymatic activity of MMP-1 by ELISA
ex vivo explants	None	• Detection and quantification of ECM components by immunostaining: Collagen, Elastin. *On-demand detection of new biomarkers.*



Disrupted epidermal barrier induced in RHE control, treated with Th2-type atopic dermatitis interleukins alone (RHE-AD) or in the presence of Upadacitinib, after Hemalun/Eosin staining (HE) or biotin diffusion assay (Biotin).



Disrupted epidermal barrier induced in RHE control, treated with SDS alone (RHE-SDS) or in the presence of a positive reference, after Hemalun/Eosin staining (HE) or Lucifer Yellow diffusion assay (LY).

Gene expression analysis using StratiCELL 's TaqMan Low Density Array

CELL SYSTEMS*	CHALLENGES	TLDA DESCRIPTION
RHE	None	TLDA-epidermal lipids & corneocyte lipid envelope : 45 genes involved in the metabolism of ceramide, cholesterol, fatty acid and corneocyte-bound lipid envelope.
NHEK	None	TLDA-epidermal benefits : 93 genes involved in the epidermal biology, barrier function and response to stress.
NHDF	None	TLDA-glycosaminoglycans : 93 genes involved in glycosaminoglycans synthesis, metabolism and turnover.

* **NHEK : N**ormal **H**uman **E**pidermal **K**eratinocytes - **NHDF : N**ormal **H**uman **D**ermal **F**ibroblasts – **RHE : R**econstructed **H**uman **E**pidermis