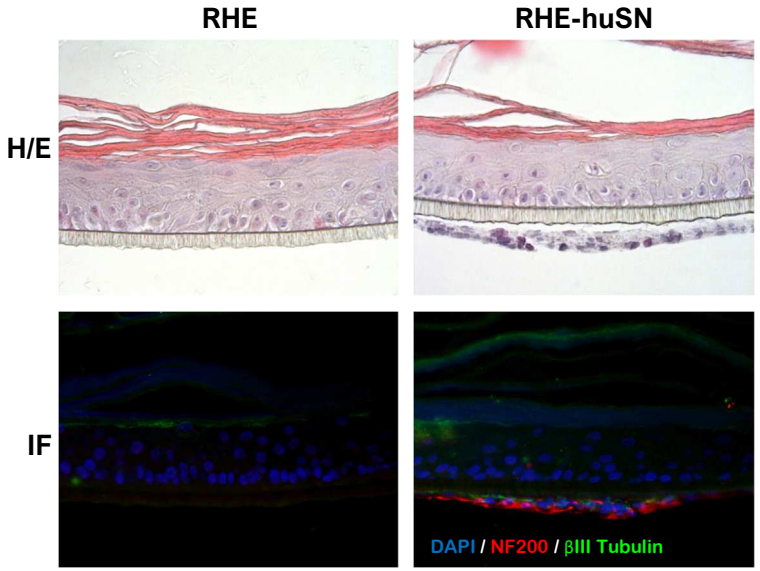
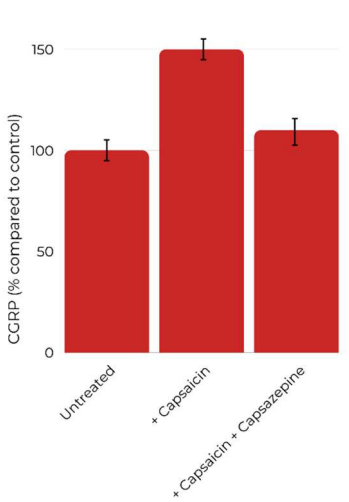
NEURO-COSMETICS : innovative 3D model combining human neurons

StratiCELL and **Neuron Experts** (FR) join forces to develop a unique model of cocultured reconstructed human epidermis and human sensory neurons (RHE-huSN), respectively. In this combined model, human sensory neurons are derived from induced pluripotent stem cells (iPSC), and are growing in the immediate vicinity of 3D reconstructed human epidermis, i.e. on the backside of the polycarbonate support. Upon capsaicin stimulation, activation of neurons is measured by the release of the neuropeptide CGRP (Calcitonin Gene Related-Peptide) through activation of the TRPV-1 (Transient Receptor Potential Vanilloid 1) cationic channel. This innovative skin model allows to study the soothing properties of dermo-cosmetic ingredients or formulated products

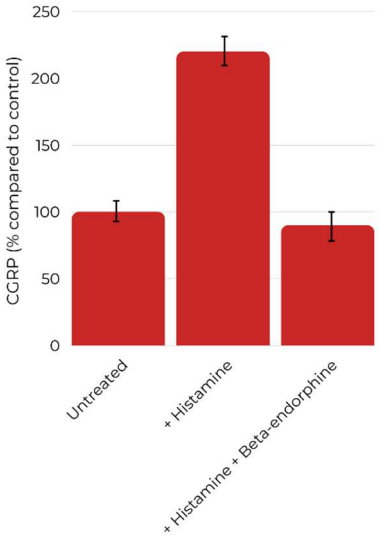
Description	Replicates the sensory function of epidermis and communication between keratinocytes and neurons through neurotransmitter secretion. Activation through Capsaicin or Histamine stimulations.
Skin model	**RHE-huSN: R**econstructed **H**uman **E**pidermis co-cultured with iPSC-derived **hu**man **S**ensory **N**eurons forming a network on the backside of the porous polycarbonate filter **NHEK-huSN: N**ormal **H**uman **E**pidermal **K**eratinocytes co-cultured with iPSC-derived **hu**man **S**ensory **N**eurons
Positive reference	Capsazepine (Capsaicin stimulation) or Beta-Endorphin (Histamine stimulation)
Endpoints	**1. Morphological analysis** by Hemalun/Eosin (H/E) and immunofluorescence (IF) staining (neuronal network: βIII-Tubulin and Neurofilament NF200)



2. Capsaicin or Histamine stimulations : quantification of **CGRP release**



Increase of CGRP release in the culture medium of neurons upon capsaicin stimulation, compared to untreated and capsazepine treatments.



Quantity of CGRP neuropeptide released by human sensitive RHE-huSN after histamine treatment, compared to untreated and beta-endorphin treatments.

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