

# ACNE-PRONE SKIN: combined approaches for full objectivation



Acne is a common inflammatory skin condition involving epidermis and pilosebaceous units. Increased sebum production by sebocytes and the consequent *Cutibacterium acnes* dysbiosis are considered as crucial factors in the development of acne. This anaerobic bacteria of the cutaneous flora feeds on excess of sebum, which releases short-chain fatty acids responsible for the local inflammatory state and acne spots arise. Local anti-acne treatments targeting the microflora and/or the production of sebum can reduce spots and prevent acne-prone skins. Efficacy on both aspects can be objectivated *in vitro* at StratiCELL using adapted skin models, a 3D reconstructed epidermis colonized with living *C. acnes* on one hand and culture of derived sebocytes on the other hand. Both models and associated efficacy tests are reliable tools to demonstrate the efficacy of innovative dermo-cosmetic ingredients and formulations.

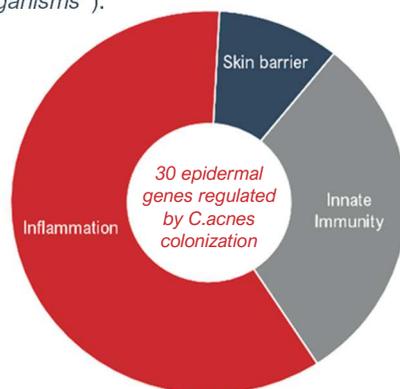
## Description

Two models related to acne-prone skin, one model replicates colonization of RHE with *Cutibacterium acnes*, and the other model replicates sebum over-production in sebocytes.

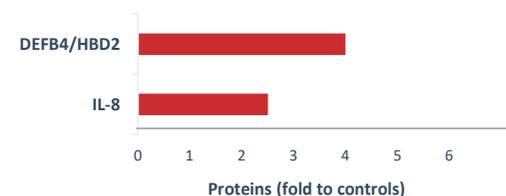
## Efficacy tests related to *Cutibacterium acnes*

**NHEK-CA or RHE-CA:** Normal Human Epidermal Keratinocytes (NHEK) or Reconstructed Human Epidermis (RHE) topically colonized by a living strain of *Cutibacterium acnes* (CA, phylotype IA1).

**1. Skin response to *C.acnes* colonization by gene expression (RT-qPCR) :** individual TaqMan probes or 93 genes TaqMan Low Density Array (TLDA – “Skin Response to Micro-organisms”).

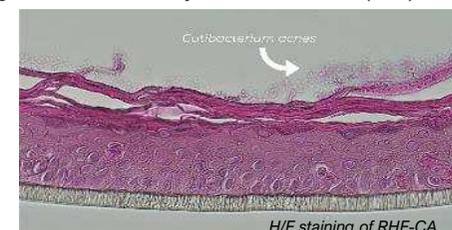


**2. Skin response to *C.acnes* colonization by quantification of biomarkers (ELISA).**



**3. Adhesion and growth of *C.acnes* on RHE by C.F.U. (Colony Forming Unit) counting.**

**4. Morphological analysis of RHE-CA by Hemalun/Eosin (H/E) and Gram staining.**



## Efficacy tests related to sebum production

**Sebocytes** derived from human induced Pluripotent Stem Cell (iPSC-SEB), induced by testosterone for lipid production

**1. Quantification of lipid production** by Nile-Red staining.  
Positive reference : finasteride

