



# Acne & Pigmentation claim validation with innovative high-throughput assays

Relevant and cost-efficient bioassays using sebocytes and melanocytes from human iPSC



## Ethnic specific claim validation

Caucasian, Asian and African

### Acne-related bioassays

Name	Ref.	Endpoint	Method	Biological question
Lipid droplet maturation (PLIN2)	SEB-RNA	Relative expression level	RT-qPCR	Sebogenesis
Sebocyte maturation (MUC1)	SEB-RNA	Relative expression level	RT-qPCR	Sebogenesis
Wax ester synthesis (AWAT1)	SEB-RNA	Relative expression level	RT-qPCR	Sebogenesis
Squalene synthesis (FDFT1)	SEB-RNA	Relative expression level	RT-qPCR	Sebogenesis
Sapienic acid synthesis (FADS2)	SEB-RNA	Relative expression level	RT-qPCR	Sebogenesis
Lipoprotein lipase (LPL)	SEB-RNA	Relative expression level	RT-qPCR	Sebogenesis
Triglyceride synthesis (DGAT2)	SEB-RNA	Relative expression level	RT-qPCR	Sebogenesis
Arachidonic acid receptor (PPARG)	SEB-RNA	Relative expression level	RT-qPCR	Sebogenesis
Perilipin (gene expression)	SEB-RNA	Relative expression level	RT-qPCR	Sebogenesis
Inflammation (expression)	SEB-ICE	IL-8, IL-6 and TNF- $\alpha$ mRNA expression	RT-qPCR	PPAR stimulation, inflammation (arachidonic acid induction)
mRNA expression	SEB-RNA	Relative expression level. All genes	RT-qPCR	Sebogenesis, acne
Induction of sebogenesis by arachidonic acid	SEB-AAI	Cell ratio intensity of staining	Bodipy fluorescence	PPAR stimulation, sebogenesis (arachidonic acid induction)
Induction of sebogenesis by linoleic acid	SEB-LAI	Cell ratio intensity of staining	BODIPY fluorescence	PPAR stimulation, sebogenesis (linoleic acid induction)
Androgen receptor activation	SEB-ARS	Cell ratio intensity of staining	BODIPY fluorescence	Androgen receptor stimulation, sebogenesis

### Pigmentation-related bioassays

Name	Ref.	Endpoint	Method	Biological question
Melanin determination	MEL-MLN	Melanin concentration	OD475 reading - photometry	Pigmentation
High-throughput flow cytometry assay	MEL-HTS	Pigmentation level	Flow cytometry	Pigmentation
Melanogenesis pathway assay	Relative expression level	RT-qPCR	Pigmentation	Pigmentation
mRNA expression	MEL-RNA	Relative expression level. All genes	RT-qPCR	Expression of markers in melanogenesis pathways
Tyrosinase expression	MEL-TYR	Cell ratio intensity of staining	Fluorescence imaging	Expression of key transcription factor, melanogenesis
MITF expression	MEL-MITF	MITF immunolabeling	Fluorescence imaging	Expression of key transcription factor, melanogenesis