

SERVICES FOR THE PERSONAL CARE INDUSTRY



**FAST MULTITARGET SCREENING FOR COSMETICS**

.....  
**SimDerma<sup>®</sup> Platform**

## ABOUT

### SimDerma® Platform


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SimDerma® is a screening system that includes multiple laboratory assays. This tool has been developed to identify novel biological activities for cosmetic and skincare products.

The main objective of SimDerma® is to meet the needs and trends of cosmetic market according to scientific evidences. Therefore, SimDerma® is a dynamic tool that implements novel targets based on cosmetic industry requirements.

SimDerma® platform offers a wide and fast overview of ingredient activities for skin care.

*Note: SimDerma® platform is only indicated for actives, this tool is not capable of testing end products or formulations. Furthermore, the active compounds should be soluble in water or organic solvents (e.g. DMSO).*



**MANIFOLD ASSAYS -  
ONE COMPREHENSIVE  
SCREENING SYSTEM**

## **BENEFITS** SimDerma® Platform

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SimDerma® platform offers a quick behavior overview of ingredients and extracts, speeding up the time to market for cosmetic product development.

This unique screening tool allows customers to understand the potential application for cosmetic ingredients and expand their ingredient claims supported by scientific efficacy validation.

Laboratory experiments and cosmetic claims are matched based on scientific publications and bibliography, therefore translational research is applied.

FOR FURTHER INFORMATION, PLEASE VISIT US ON:  
**[EVONIK.COM/SIMDERMA](http://EVONIK.COM/SIMDERMA)**



SimDerma®

**VALUE DRIVERS:**

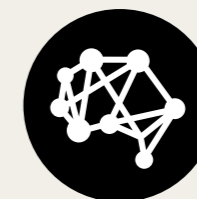
.....



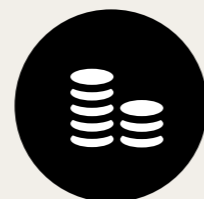
**QUICK INGREDIENT  
BEHAVIOR OVERVIEW**  
scientific evaluation in a short term



**FAST TIME TO MARKET**  
through quick screening  
for claim substantiation



**SCIENTIFIC EFFICACY  
VALIDATION**  
highly scientific efficacy evaluation



**COMPETITIVE PRICE**  
due to process standardization



**SUPERIOR CLAIM SUPPORT**  
data-driven innovation processes



**TRANSLATIONAL &  
APPLIED TECHNOLOGY**  
through the experimental targets

## SimDerma® Platform

### ASSAYS AND CELLS PORTFOLIO

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SimDerma® is an in vitro multiparametric platform that currently includes 30 experiments related to 17 key cosmetic targets and clustered in 7 skin claims, which are offered to better characterization of cosmetic active ingredients and extracts.

A large collection of proprietary cell lines are used in SimDerma® assays. Laboratory protocols developed in house have been implemented for each single assay.

**Cytotoxicity**  
Modified Fibroblast cell line;  
Modified Keratinocyte cell line;  
Melanocyte cell line

**Proliferation**  
Modified Fibroblast cell line;  
Modified Keratinocyte cell line

**Wound healing**  
Modified Fibroblast cell line;  
Modified Keratinocyte cell line

**NF-κB inhibition**  
Modified Fibroblast cell line;  
Modified Keratinocyte cell line

**IL-6 inhibition**  
Modified Macrophage cell line

**Nrf2 induction:**  
Modified Keratinocyte cell line

**Antioxidant activity**  
Cell free system

**Cellular antioxidant activity**  
Modified Fibroblast cell line

**Elastase inhibition**  
Cell free system

**CB1 antagonism:**  
Modified Epithelial cell line

**CB1 agonism:**  
Modified Epithelial cell line

**CB2 agonism:**  
Modified Epithelial cell line

**Collagenase inhibition**  
Cell free system

**TRPV1 antagonism**  
Modified Epithelial cell line

**Tyrosinase inhibition**  
Melanocyte cell line

**Melanin inhibition**  
Melanocyte cell line

**Autophagy induction**  
Modified Keratinocyte cell line

**PPARγ agonism**  
Modified Epithelia cell line

**PPARα agonism**  
Modified Epithelial cell line

**HIF-1α induction**  
Modified Fibroblast cell line;  
Modified Keratinocyte cell line

**Collagen induction**  
Modified Fibroblast cell line

**Filaggrin induction:**  
Modified Keratinocyte cell line

**Hyaluronidase inhibition**  
Cell free system


















**AP-1 inhibition**  
Modified Macrophage cell line

SimDerma®

## CLAIMS & TARGETS

The assays included in SimDerma® platform are focused on the main biological activity areas for cosmetic ingredient discovery. The 30 experiments included in SimDerma® are matched in 17 cosmetic targets and included in 7 different claim groups.

\*Cytotoxicities are required to perform the rest of the assays.

	AGE-DEFYING			SENSITIVE SKIN		NOURISHING		SKIN EVENNESS		SKIN DEFENSE			BARRIER FORTIFY			HAIR CARE	
																	
	Rejuvenation	Anti-wrinkle	Firming	Itching	Soothing	Skin renewal	Hydrating	Anti-hyperpigmentation	Blemished skin	Photoprotection	Anti-pollution	Anti-inflammatory	Anti-oxidative stress	Atopic skin	Skin barrier repair	Tissue regeneration	Anti hair loss
1. Cytotoxicity in fibroblasts*																	
2. Cytotoxicity in keratinocytes**																	
3. Cytotoxicity in melanocytes***																	
4. Proliferation in fibroblasts	•	•				•				•						•	
5. Proliferation in keratinocytes	•					•				•	•					•	
6. Wound healing in fibroblasts	•					•										•	
7. Wound healing in keratinocytes	•					•									•	•	
8. NF-κB inhibition in fibroblasts	•					•		•	•		•	•	•	•	•		
9. NF-κB signalling in keratinocytes						•			•		•	•	•	•	•		
10. IL-6 inhibition in macrophages						•			•	•	•	•		•	•		
11. Nrf2 induction in keratinocytes	•	•				•		•		•		•	•	•	•	•	
12. Antioxidant activity	•	•			•	•		•	•	•	•	•	•	•	•		
13. Cellular antioxidant activity	•	•			•	•		•	•	•	•	•	•	•	•		•
14. Elastase inhibition	•	•	•							•	•						
15. CB1 antagonism										•							•
16. CB1 agonism				•	•							•			•		
17. CB2 agonism				•			•					•					
18. Collagenase inhibition	•	•	•							•	•		•				
19. TRPV-1 antagonism	•	•		•	•	•	•			•	•	•		•	•		•
20. Tyrosinase inhibition in melanocytes	•							•									
21. Melanin inhibition in melanocytes	•							•									
22. Autophagy induction in keratinocytes	•					•		•		•		•	•		•		
23. PPARγ agonism	•	•				•		•		•		•	•		•		•
24. PPARα agonism	•	•				•				•		•	•	•			•
25. HIF-1α induction in fibroblasts						•									•	•	
26. HIF-1α induction in keratinocytes	•					•			•						•	•	
27. COL1A2 induction in fibroblasts	•	•	•			•				•						•	
28. Filaggrin induction in keratinocytes	•					•	•			•	•			•	•		
29. Hyaluronidase inhibition	•	•				•	•		•	•				•	•	•	
30. AP-1 inhibition in macrophages	•	•				•			•	•		•		•	•	•	

\*Required before targets: 4, 6, 8, 13, 25 and 27

\*\*Required before targets: 5, 7, 9, 11, 22, 26 and 28

\*\*\*Required before targets: 20 and 21

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Active Ingredients | BL Evonik Care Solutions

**Evonik Operations GmbH | Nutrition & Care**

Scientific Park of Madrid, C / Faraday 7

28049, Madrid / Spain

[simderma@evonik.com](mailto:simderma@evonik.com)

[evonik.com/simderma](https://www.evonik.com/simderma)