Skin irritation: 3D-skin models

- Objective: in vitro assay based on reconstructed human skin to assess skin irritation potential of chemicals

- Principle: reconstituted human skin tissues are topically exposed to chemicals. Tissue viability is measured as well as tissue morphology and the release of pro-inflammatory mediators. Additionally gene expression can be performed.

- Development Stage: Validation/Routine/Development

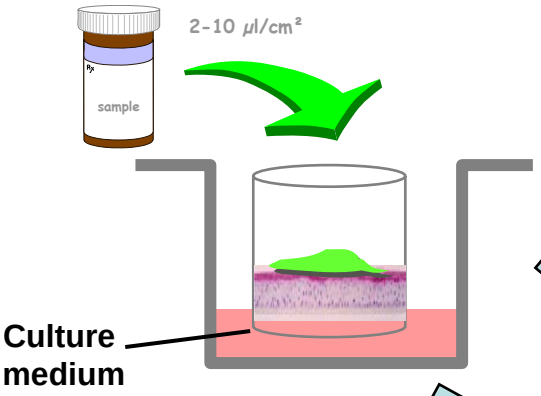
- Results / data: Data (% viability, histology, pg/ml cytokines, array data) are compared to untreated, positive and/or benchmark controls

- Applicability Domain: chemicals, drugs, cosmetics, formulations

Skin irritation: 3D-skin models

Experimental layout

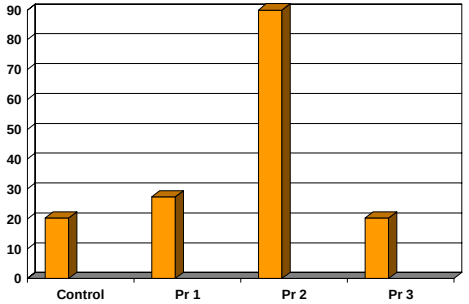
Topical application of test compound



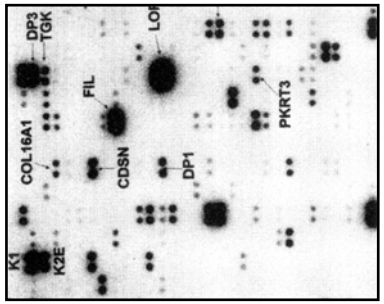
Incubation at 37°C

Multiple End-point Analysis (MEA)

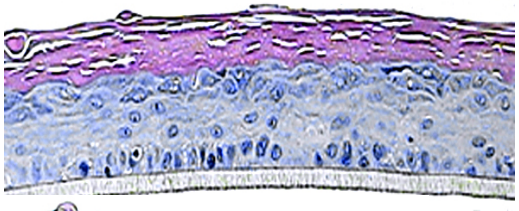
Tissue viability (MTT)



Cytokine release (IL-1a, IL-8, TNFa, ect.)



Gene expression

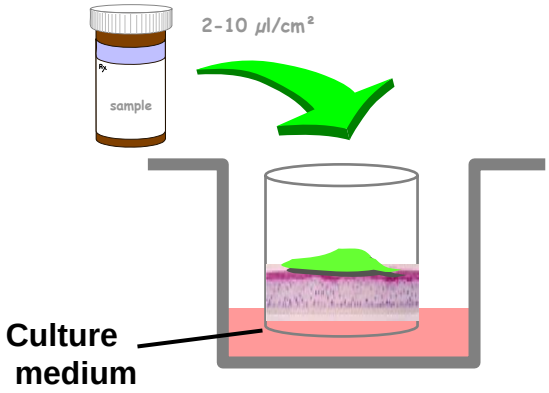


Morphology

Skin irritation: 3D-model EPISKIN™

Experiment layout of ECVAM validated protocol

Topical exposure of chemical for 15 minutes, followed by 42 hours recovery



Incubation at 37°C

Tissue viability (MTT)

in vitro result	*in vivo* prediction
mean tissue viability ≤ 50%	irritant (I), R38
mean tissue viability > 50%	non-irritant (NI)