



Skin penetration, dermal pharmacokinetics and efficacy on ex vivo human skin, for topical drugs, transdermal systems and medical devices.

SERVICES

Penetration (IVPT)

OECD-aligned Franz cell testing. Barrier integrity verified by TEWL before dosing. Finite or infinite dose, receptor sampling to 24 h and beyond.

Mass balance

Surface wash · tape stripping · epidermis · dermis · receptor fluid. Cumulative amount permeated, maximum flux, lag time, permeability coefficient and recovery.

Damaged skin

Barrier disruption by tape stripping, abrasion, microneedling or SDS, against the intact control from the same donor.

Disease models

Atopic dermatitis and psoriasis induced on reconstructed models, with paired controls.

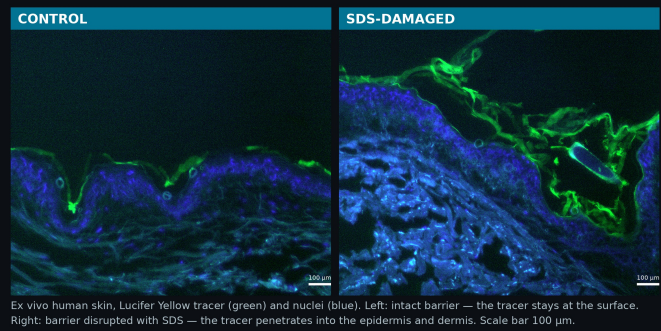
Repair

Wound healing and re-epithelialisation · barrier repair followed by TEWL, TEER and Lucifer Yellow penetration, imaged and quantified on skin sections.

Safety

Dermal absorption, irritation, cytotoxicity. Sensitisation and phototoxicity with qualified partners.

Barrier integrity — Lucifer Yellow penetration



Lucifer Yellow. Left: intact barrier. Right: barrier disrupted with SDS.

BIOLOGICAL MODELS

Ex vivo

Excised human skin, full-thickness, dermatomed or heat-separated epidermis

Reconstructed

3D epidermis and full-thickness T-Skin

2D cells

Primary keratinocytes, fibroblasts and melanocytes

REGULATORY CONTEXT

Studies are designed against OECD TG 428 and Guidance Document 28, OECD No. 156 (2nd edition, 2022), the SCCS criteria for cosmetic ingredients, the FDA draft guidance on IVPT for topical products in ANDAs, and EFSA guidance for plant protection products.

READOUTS AND TECHNIQUES

Molecular

RT-qPCR · whole-transcriptome RNA-Seq

Imaging

Histology · immunofluorescence · IHC · live-cell imaging

Quantification

ELISA and multiplex · LC-MS/MS and LSC at qualified partners

WHY PKDERM

Quantification by LC-MS/MS at qualified partner laboratories, or by liquid scintillation counting for radiolabelled test items. Our damaged-skin models are characterised in Barthe M. et al., *Frontiers in Medicine* 2024;11:1481645. More than 20 years of expertise in dermal absorption.