Zoio et al.: Open-source Human Skin Model with an In Vivo-like Barrier for Drug Testing

Supplementary Data

Fig. S1: AutoCaD designs of the tailor-made full thickness skin model (FTSm) adapter to correctly seal and place the tissue in the centre of a Franz Cell

The Adapter consists of 2 parts and is designed to fit exactly in a 16 mm Franz Cell. The lower part has as a small cavity to take up the FTSm. The upper part tightly fixes the margin of the skin model while leaving open an exposure area of 9 mm in diameter. The design facilitates dermal absorption assays under standardized conditions. Dimensions are in mm. Different views: isometric, top and front.
Fig. S2: AutoCaD designs of the tailor-made adaptor for reconstructed skin models (RHEm) grown in Millicell® Standing cell culture inserts to correctly seal and place the tissue in the centre of a Franz Cell. The Adapter consists of 1 part and is designed to fit exactly in a 16 mm Franz Cell. The lower part has as a central cavity to take up the insert well. An O-ring is fitted of the cell culture insert. The Franz cell upper part tightly fixes the margin of the skin model while leaving open an exposure area of 9 mm in diameter. The design facilitates dermal absorption assays under standardized conditions. Dimensions are in mm. Different views: isometric, top and front.
Fig. S3: Experimental setup of the permeation testing using Franz cells
Top: Photograph of fabricated tailor-made full thickness skin model (FTSm) adapters using 3D printing. The adaptor’s lower part has a small cavity to take up the FTSm. The upper part tightly fixes the margin of the skin model while leaving open an exposure area of 9 mm in diameter. The design facilitates dermal absorption assays under standardized conditions. Dimensions are in mm. Different views: isometric, top and front.
Fig. S4: Alvetex inserts showing at the centre an extreme defect
In this area no epidermis is present, resulting in low TEER values compared to a non-defective model.

Fig. S5: Scaffold disc with a full-thickness skin model (FTSm) cultured for 12 days at ALI
The effective culture area is preserved, showing no signs of contraction. The outer, sealing area does not fully prevent PBS leakage.