

Dermatotoxicological and other Safety Testing Methods without Animals -
State November 2013

Session 2: Susceptibility factors and disease models in reconstructed human skin

3D wound healing models

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3D organotypic skin equivalents for long-term culture enable demtotoxicological testing methods including wound healing studies. Punch biopsies and couter are not suitable to produce standardized injuries in 3D skin models. A comparison of substances that enhance wound healing is difficult. Using ultrapulsed fractionated CO2 laser multiple standardized injuries with defined dimensions can be set in 3D skin models. Investigation of wound healing on histological and molecular level is possible. In further studies 3D skin models could be used to examine the influence of different lasersystems on epidermal and dermal structures in vitro. This new laser technology is useful to find biomarkers for wound healing in skin as well as to investigate cellular events associated with abnormal wound healing (chronic, nonhealing wounds) and also to test wound healing potential of new approaches in this field.

