



Newsletter

Berlin-Brandenburg research platform BB3R – Issue 6

June 2018

BBR introduces: Molecular mechanisms and pharmacology of inflammation (AG Weindl, FU Berlin)

The research group investigates molecular mechanisms and signaling pathways involved in inflammatory and immunological processes. Current work involves the characterization of new potential anti-inflammatory drugs (e.g. Toll-like receptor modulators, synthetic anti-lipoplysaccharide peptides) and autophagy-related processes for inflammatory responses as well as the development of reconstructed tissue models as alternative test systems in pharmacology and toxicology.

In the BB3R project, we characterize reconstructed human skin with integrated immune cells focusing on dendritic cells and Langerhans cells, which are of central importance for sensitization to xenobiotics and inflammatory skin diseases. Non-animal in vitro test methods (OECD Test No. 442D, 442E) have been regulatory accepted to identify skin sensitizers. However, cell based assays in monoculture lack complex skin architecture and signaling as neither cutaneous penetration nor complete biotransformation are addressed. We aim to overcome these limitations by the integration of immune cells into skin equivalents which allows the analysis of molecular key events in the pathogenesis of allergic contact dermatitis.

In addition, we establish test protocols using immune cells generated from monocytic cell lines or primary monocytes to provide a comparative experimental setting with either reduced donor specific biological variances or high donor variability, respectively. The latter approach reflects biological diversity, thus fostering personalized approaches in basic and preclinical research.

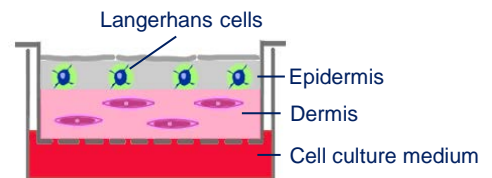


Fig. Integration of immune cells (Langerhans cells) into reconstructed human skin. Image Credit: A. Said

Upcoming Events

- September 23-26, 2018: 21st European Congress on Alternatives to Animal Testing in Linz, Austria
- October 2, 2018: 3R Symposium „Rethinking Biomedical Sciences“ in Berlin-Dahlem

New publication

Hohlbaum, K., Bert, B., Dietze, S., Palme, R., Fink, H., Thöne-Reineke, C. Systematic Assessment of Well-Being in Mice for Procedures Using General Anesthesia. J. Vis. Exp. (133), e57046

Contact: vivian.kral@fu-berlin.de

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