



Two-tiered keratinocyte assay: IL-18 production by NCTC2544 cells to determine the skin sensitizing capacity and an epidermal equivalent assay to determine sensitizer potency

Teunis, Marc; Corsini, Emanuela; Smits, Mieke; Madsen, Charlotte Bernhard; Eltze, Tobias; Ezendam, Janine; Galbiati, Valentina; Gremmer, Eric; Krul, Cyrille; Landin, Annette

Published in:

The 7th meeting of the Immunotoxicology and Chemical Allergy Speciality Section ITCASS

Publication date:

2012

Document Version

Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):

Teunis, M., Corsini, E., Smits, M., Madsen, C. B., Eltze, T., Ezendam, J., ... Gibbs, S. (2012). Two-tiered keratinocyte assay: IL-18 production by NCTC2544 cells to determine the skin sensitizing capacity and an epidermal equivalent assay to determine sensitizer potency. In *The 7th meeting of the Immunotoxicology and Chemical Allergy Speciality Section ITCASS* (pp. 17). Kgs. Lyngby: Technical University of Denmark.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Two-tiered keratinocyte assay: IL-18 production by NCTC2544 cells to determine the skin sensitizing capacity and an epidermal equivalent assay to determine sensitizer potency

Marc Teunis, Emanuela Corsini, Mieke Smits, Charlotte Bernhard Madsen, Tobias Eltze, Janine Ezendam, Valentina Galbiati, Eric Gremmer, Cyrille Krul, Annette Landin, Robert Landsiedel, Raymond Pieters, Tina Rasmussen, Judith Reinders, Erwin Roggen, Sander Spiekstra, Susan Gibbs

At present, the identification of potentially sensitizing chemicals is carried out using animal models. However, it should be very important, both from ethical and economic point of view, to discriminate allergy and irritation events, and to classify sensitizers according to their potency, without the use of animals.

The aim of the EU FP6 Integrated Project *Sens-it-iv* was to develop and optimize an integrated testing strategy consisting of *in vitro*, human cell based assays which will closely mimic sensitization mechanisms *in vivo*. These assays should be an alternative approach to the LLNA.

The NCTC2544 IL-18 assay can be used to identify the sensitizing capacity of a chemical (NCTC assay, tier 1) while the Epidermal Equivalent potency assay is used to quantify the potency of the sensitizing agent (EE assay, tier 2). These assays combined, may offer an unique opportunity to provide an alternative method to the LLNA. Both assays are based on the use of human keratinocytes, which have been shown, over the last two decades, to play a key role in all phases of skin sensitization.

First, 4 known chemicals were tested during a transferability study in which 6 laboratories participated. Three sensitizers (DNCB, resorcinol, PPD) and 1 non sensitizer (lactic acid) were tested in tier 1. DNCB (extreme) and resorcinol (moderate) were ranked according to their potency in tier 2. These assays were successfully transferred to laboratories that did not perform both assays previously.

Second, the actual pre-validation was performed with 29 coded chemicals for tier 1 and 13 coded chemicals for tier 2. Currently, all chemicals have been tested and data is collected. After all data has been processed, evaluation of the proposed prediction model will be assessed.