

Lecture: skin models as alternatives to animal testing

Quantitation of sensitizing potential by the loose-fit co-culture-based sensitization assay (LCSA) in comparison with LLNA-data

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Our new *in vitro* assay for prediction of the sensitizing potency of xenobiotics is based on a co-culture system that integrates human keratinocytes and dendritic cell-related cells (DCrc). The animal-free assay is called LCSA. As sensitization-indicating parameters serve CD86-upregulation on DCrc and increase in cytokine IL-6 and chemokine MIP-1 β concentrations in co-culture media. The murine local lymph node assay (LLNA) is a validated sensitization assay. Provided that the LLNA correctly predicts the sensitizing potential of a substance in humans, LLNA-results may be used as a standard during development and validation of a new assay. We have tested various substances which have already been grouped by the LLNA into potency categories. We found that EC3-values of the LLNA correlate closely with concentrations of halfmaximal CD86-upregulation in the LCSA. LCSA and LLNA achieve an analogous grouping of allergens into categories like weak-moderate-strong. In conclusion, the new assay provides concentration-response information, by which the relative ability of a chemical to induce sensitization can be predicted.

References

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