Reference Chemical Potency List

RCPL

Ian Kimber

What is skin sensitisation potency?

The ease with which a chemical (contact allergen) is able to induce skin sensitisation

A reflection of the local concentration of the chemical that will be required to initiate the process of skin sensitisation

The more potent the contact allergen, the lower will be the concentration required for the acquisition of skin sensitisation

Why is measurement of skin sensitising potency important?

- *It builds upon the significant achievements that have been made in the development, validation and deployment of non-animal methods for skin sensitisation hazard identification*

- *In the absence of effective and validated methods for the measurement of skin sensitising potency based on NAMs (or combinations of NAMs) then hazard-based, rather than risk-based, regulation will be encouraged.*

Assessment of skin sensitising potency

The challenges:

The identification of assay endpoints that reflect qualitative and quantitative aspects of skin sensitisation

What is/are the event(s) that correlate quantitatively with the effectiveness/potency of sensitisation?

Reference Chemical Potency List (RCPL): A new tool for evaluating the accuracy of skin sensitisation potency measurements by New Approach Methodologies (NAMs)

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RCPL Characteristics

- *33 readily available chemicals comprising a wide range of chemistry, and skin sensitising potency*
- *Includes direct haptens and indirect [both pre- and pro-] haptens*
- *Potency expressed as a Potency Value (PV) derived from the best available human and animal (LLNA) data*
- *PVs do not include consideration of in vitro or in silico data*
- *Chemicals ranked according to PV without the use of potency categories*

PV: a definition

The PV provides an estimate of the lowest concentration of chemical (measured as µg/cm2 of skin) that is necessary to initiate the development of skin sensitisation

(an inflection point for the initiation of skin sensitisation)

Issues and Questions

- *How best to deploy the RCPL for evaluation of the ability of NAMs (combinations of NAMs) to measure skin sensitising potency?*
- *Are there any improvements, modification that could be considered to improve the performance of the RCPL?*
- *What are the next steps?*