Evaluation of Two Nonradiolabeled Murine Local Lymph Node Assays (LLNA) for Potency Categorization of Substances Causing Allergic Contact Dermatitis in Humans

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Abstract
Nonradiolabeled murine LLNA methods have been recently adopted by the U.S. Consumer Product Safety Commission (CPSC) to classify so-called strong skin sensitizers. For substances that are correctly classified (unshaded), overclassified (yellow), or underclassified (pink) using selected cutoffs for the two LLNA tests.

Introduction
This poster examines the accuracy of two nonradiolabeled versions of the LLNA, the LLNA: BrdU-ELISA and the LLNA: DA. This poster reflects the views of the authors. The views expressed above have not been reviewed or supported this poster. Technical support was provided by ILS, Inc., under NIEHS contract N01-ES 35504.

Methods

Figure 1. LLNA: BrdU-ELISA Test Method Protocol

Figure 2. LLNA: DA Test Method Protocol

Table 1. Classification Systems for Skin Sensitizers

Note: Column headings are defined as follows: correct = correct classification; under = underclassification; over = overclassification.

Table 2. Database for Potency Analysis of Nonradiolabeled LLNA Methods

Table 3. Classification Ratios for Prediction of Human Potency

Table 3a and Table 3b: Class distribution data for the human and LLNA are presented in (a) human versus "Other" Sensitizers and (b) human versus "Strong" Sensitizers.

Results

Figure 5. Classification of "Strong" Sensitizers

Figure 6. Classification of "Other" Sensitizers

Conclusions

References

Abbreviations: CPSC = U.S. Consumer Product Safety Commission; EC3 = estimated concentration of a substance needed to produce a stimulation index of 3, which is the threshold value for a potential skin sensitizer. Sensitizers were identified using the respective EC values listed in the table for the traditional LLNA and the two nonradiolabeled LLNA assays. The cutoff for the LLNA: DA is indicated in the table (see row with bold border for EC1.8 vs. "Other" Sensitizers).

Note: Column headings are defined as follows: correct = correct classification; under = underclassification; over = overclassification.