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Estimated Likelihood for Under- and Over-Classification for a Sequential Draize Rabbit Eye Test

N.Y. Choksi^{1,2}; J.K. Haseman²; D.G. Allen¹; R.R. Tice²; W.S. Stokes²

1. Integrated Laboratory Systems, Inc., RTP, NC, USA.

2. Consultant, Research Triangle Park, NC, USA.

3. NICEATM, NIEHS/NIH/DHHS, Research Triangle Park, NC, USA.

Recently, the ICCVAM evaluated four *in vitro* test methods for their ability to identify ocular corrosives/severe irritants. Ideally, these evaluations would have included an assessment of the ability of the Draize rabbit eye test to correctly identify human ocular corrosives/severe irritants, but comparative human and rabbit data are not available. Therefore, using an *in vivo* rabbit eye test database of 181 studies, the estimated likelihood of underpredicting a corrosive/severely irritating response as a nonsevere response was determined to evaluate the performance of the Draize test according to the UN Globally Harmonized ocular hazard classification system. The distribution of individual rabbit responses within each severity class was used to estimate the likelihood of under- and/or over-classification for a sequential 1 to 3 rabbit testing strategy. Based on three assumptions about the variability in individual rabbit responses among substances within each classification category, the estimated likelihood for underclassifying corrosives/severe irritants as nonsevere irritants or nonirritants ranged from 4% to 13%. Analyses based on test substance physical form suggested that the underclassification likelihoods for solids were lower than liquids (2.9%-8.3% vs. 5.4%-15.8%, respectively), although these differences were not statistically significant. Estimated likelihoods for underclassification were higher when corrosive/severe irritant classification was based solely on persistent lesions present at observation day 21. By chemical class, carboxylic acids had the highest underclassification likelihood (16.64%). Likelihoods for overclassification of substances as corrosive/severe irritants, based on 596 studies, were estimated to be 7%-8% for Category 2A, 1% for Category 2B, and 0% for nonirritant substances. The overall likelihood of overclassifying a nonsevere/nonirritant, based on prevalence, was <1%. Supported by NIEHS contract N01-ES 35504.

SOT Itinerary Information:

ID# 907
Location: Exhibit Hall (Convention Center)
Date/Time: March 7, 2006 / 9:00 am – 12:00 noon
Category: Regulatory/Policy, (Alternatives to Mammalian Models)