

Eliminating Pain and Distress in Ocular Safety Testing: Use of Topical Anesthetics, Systemic Analgesics, and Humane Endpoints

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Current EPA and OECD test guidelines for the rabbit eye test only allow the use of topical anesthetics when the user demonstrates that such pretreatments do not interfere with the test results. This requirement often results in topical anesthetics and other pain relieving medications not being used. ICCVAM subsequently evaluated the potential impact of using topical anesthetics, systemic analgesics, and humane endpoints to avoid or minimize pain and distress when the rabbit eye test is required for ocular safety testing. ICCVAM concluded that balanced preemptive pain management should always be provided when the rabbit eye test is conducted for regulatory safety testing. This should include pre-treatment with a topical anesthetic and a systemic analgesic, followed by post-treatment with systemic analgesia until lesions resolve or the study is terminated. ICCVAM recommended regular monitoring and recording of all clinical signs that may be indicative of pain and/or distress, as well as recording of the nature, severity, and progression of all eye injuries. ICCVAM also recommended several additional types of ocular damage that should be used as humane endpoints to end studies earlier. US agencies have endorsed these ICCVAM recommendations, which will effectively eliminate pain and distress in most *in vivo* ocular safety testing situations, thereby significantly refining animal use. These refinements should be routinely used whenever the rabbit eye test is still required. A proposal to revise OECD TG 405 with these modifications is currently under consideration.

Theme: IV-1 Indicators of animal welfare to implement refinement

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