

Lawrence Livermore National Laboratory
Supplement to USDA Annual Report of Research Facility – Fiscal Year 2020
Registration Number: 93-F-0018 - Customer Number: 1245

Explanation of procedures being done at Category E

Procedures:

Efficacy studies using these animals were conducted to evaluate oxime candidates. This involved challenging animals with a organophosphorous nerve agent (OPNA), followed by administration of atropine and an anticonvulsant (midazolam), and the oxime of interest to reactivate peripheral and central nervous system inhibited acetylcholinesterase (AChE).

The current standard of care for OPNA poisoning uses the AChE reactivator pralidoxime chloride (2-PAM Cl), however, this oxime does not readily cross the blood-brain barrier (BBB), limiting its ability to reactivate central nervous system AChE.

In these studies, analgesics/sedatives cannot be used as they may affect the binding of the OPNA to the cholinesterase or may bind to/affect the activity of the drugs (atropine/midazolam) and oxime. No relevant literature exists to demonstrate that an analgesic/sedative will not confound the results from this study. This study was designed with literature in mind to directly compare to other groups/oximes of interest.

66 Guinea Pigs