Column E Explanation
USDA FY2018 Reporting Period

1. Registration Number: 74-R-0071

2. Number of animals used in this study. 100

3. Species (common name) of animals used in this study. Hamster

4. Explain the procedure producing pain and/or distress.

The pain and discomfort comes when the animals have been infected for 35 days. This is the time the parasites begin to produce their eggs. The animals will be kept alive another 10 days (day 45 post challenge) with the parasites. This is the minimum time needed to obtain parasite life cycle material and to access efficacy of the vaccine candidate. The efficacy is assessed by reduction in worms and reduction in eggs produced compared to control animals. The pain and discomfort experienced during this 10 day period does not prevent the animals from normal eating behavior nor visibly alter their normal behavior. However, starting at day 35 the animals will be checked daily to assess their condition.

5. Attach or include an explanation with the reason(s) for why anesthetics, analgesics and tranquilizers could not be used (for Federally mandated testing, see item 6 below)

Administration of anesthetics, analgesics or tranquilizers would potentially alter normal behavior and or physiology i.e. eating, drinking, ambulation, urination, defecation. These are known to be unaffected during the anticipated period of pain and or discomfort based on previous experience with the animal model. Any change in physical or physiologic status of the animal during this critical period of the parasite life cycle would have a negative impact on the goals of the study, thus administration of anesthetics, analgesics or tranquilizers is contraindicated.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g. APHIS, 9 CFR 113.102)

None

Agency _____ CFR _____

Column E Explanation
USDA FY2018 Reporting Period

1. Registration Number: 74-R-0071

2. Number of animals used in this study. 5

3. Species (common name) of animals used in this study. Rhesus monkey

4. Explain the procedure producing pain and/or distress.

Some animals in this study received opioid and or benzodiazepine drugs daily in doses sufficient to produce physical dependence. When the drug administration is discontinued, animals experienced mild to moderate withdrawal. Clinical signs of withdrawal include one or more of the following: body tremor (shaking or trembling), twitch (sudden movement), wet-dog shake, lying down, scratching, grimace (reveal the sides of teeth), tongue protrusion (minimum 3 sec), unusual tongue movement, salivation, vocalization, yawning, eye-closing (minimum 3 sec), emesis, holding abdomen (minimum 3 sec), head shaking, piloerection, muscle rigidity, impaired motor activity, loss of balance, and uncoordinated limb movement.

5. Attach or include an explanation with the reason(s) for why anesthetics, analgesics and tranquilizers could not be used (for Federally mandated testing, see item 6 below)

The goal of these studies is to determine the impact of withdrawal from an opioid/benzodiazepine combination on choice i.e. preference for opioid/benzodiazepine mixtures in animals that are experiencing (drug dependent) withdrawal. It compares choice of the mixture to the emergence of other signs of withdrawal. Administration of additional analgesics or sedatives to relieve the discomfort or distress associated with withdrawal is contrary to the goals of the study since these medications would alter the choice behavior for opioid/benzodiazepine mixtures and confound the data.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g. APHIS, 9 CFR 113.102)

None

Agency _____ CFR _____