

“Column E Explanations” - 2014 USDA Annual Report

Registration Number: 21-R-0124

Customer ID: # 400

Species: silver-haired bat

Number of Animals: 16

Explanation of procedure(s) producing pain and/or distress: Bats collected from the wild by the investigators (investigators possesses all necessary federal & state permits) are infected with one of three different rabies virus (RABV) strains (after animal quarantine). These studies are designed to understand (a) the susceptibility of bats to RABV strains that are more frequently found in other bat species (thus, addressing if bats can transmit different virus strains as “heterologous hosts”); and (b) the effect of hibernation on RABV maintenance in bats. To address this second scientific aim, the investigator uses an artificial hibernaculum equipped with an internal camera to allow animal viewing 24 hrs/7 days per week. Additionally, an infrared thermometer is employed to measure internal body temperatures of bats in order to monitor general health status.

Bats are intentionally infected with known doses and strains of RABV, and it is recognized that they could become ill after virus inoculation. Due to variable RABV pathogenesis and the individual bat immune response, it is possible that inoculated bats will not develop rabies, as has often been observed in the lab. Regardless of the study being conducted, animals that have been inoculated with RABV will be monitored twice a day, seven days a week. Because early signs of rabies are frequently difficult to verify, it is necessary to closely observe animals during the incubation period where clinical disease is expected 7 to 45 days post inoculation. When clinical signs are first suspected (e.g. slight weight loss, minor behavioral changes), animals are monitored every three hours during the day (8:00, 11:00, 2:00, 5:00), and once during the evening (8-10:00). Bats are euthanized once signs of rabies are more strongly suspected (e.g. lack of appetite, aggression, obsessive grooming, ataxia). In the past year, all animals involved in this study that exhibited symptoms of rabies were euthanized prior to death caused by the disease.

Scientific justification for why pain and/or distress could not be relieved: The researchers are studying a bat’s response to an administered virus dose and do not want to confound data from the study by introducing drugs. Analgesics might reduce the symptoms thought to be caused by RABV infection. This would ultimately waste animals if the use of pain alleviating drugs were to bias the study’s outcome by inadvertently affecting the animals’ response to RABV infection. Allowing the animals’ immune system to react to the presence of virus without the influence of any delivered drugs is a key element of the study to understand RABV maintenance in bats.