

A safety and immunogenicity field trial to evaluate a live recombinant human adenovirus (serotype 5)-rabies glycoprotein vaccine (ONRAB®) in raccoons and skunks was conducted in the U.S. in 2011. Approximately 80,000 Ultralite baits (Artemis Technologies, Guelph, ON, CAN) were distributed at 75 baits/km² along 750m flight lines in 4, 127 km² study areas in southeastern West Virginia, U.S. The bait was composed of a small blister pack that contained the ONRAB® vaccine with a waxy coating matrix of attractants impregnated with tetracycline biomarker, and camouflaged by a green dye. No phone calls from human or pet bait contacts were reported through a toll-free phone number provided on each bait. Low human population density may largely account for no reported bait contacts. No tissue abnormalities were observed in captive cottontail rabbits, opossums, fox squirrels, eastern wild turkeys, and woodrats at a 10x ONRAB® dose, and field histopathology results should be available in December 2012. Rabies virus neutralizing antibody (RVNA) was higher among raccoons ($P < 0.05$) in post-ONRAB® samples (49.4%, $n=296$) than in naïve pre-ORV samples (9.6%, $n=395$). Biomarker was higher ($P < 0.05$), among post-ONRAB® raccoons sampled, an indication of vaccine-induced RVNAs. The 49.4% RVNA population level in raccoons is the highest observed in the U.S. for a first time oral rabies vaccine distribution event. Skunk sample size was inadequate to assess ONRAB® effects. Field trial results warranted replication and expansion in 2012 to assess raccoon population immunity from a second ONRAB® trial in four more states, including Ohio urbansuburban habitats. These collaborative trials, which will continue to bring together multiple disciplines from county, state, federal and international jurisdictions in the spirit of One Health, should provide a basis to determine if ONRAB® is suited to achieve raccoon rabies management goals.

CO.57 PREFERENCES OF SELECT ATTRACTANTS IN THE COATING OF ONRAB VACCINE BAITS BY RABIES RESERVOIR SPECIES

Johnson SR¹, Berentsen AR¹, Leland B², Oertli E³, VerCauteren K¹ – ¹USDA-APHISWS- National Wildlife Research Center, ²USDA-APHIS-Wildlife Services, ³Texas Department of State Health Services

Rabies control managers and researchers in the United States are assessing how the Canadian vaccine ONRAB® may perform if integrated into the United States oral rabies vaccination (ORV) program. A measurement of success of any ORV program is bait uptake by target species. The attractant used in the bait matrix surrounding a vaccine influences bait uptake and vaccination rate. Our objective is to determine which flavor of attractant in the ONRAB® coating is the most preferred by rabies reservoir species in the field. In Texas (TX) we are evaluating four attractants (sweet, fish, egg, and cheese) in areas inhabited by raccoons (*Procyon lotor*), skunks (*Mephitis mephitis*), foxes (*Urocyon cinereoargenteus*), and coyotes (*Canis latrans*). In Puerto Rico (PR), we are comparing the preference of mongoose (*Herpestes auropectatus*) for cheese, coconut, and fish attractants. We monitored bait stations with animal-activated cameras and regular checks of bait status (untouched, disturbed, and removed). In TX, we offered 540 baits of which 102 were removed, with cheese and fish most often removed (both 25%) followed by egg (21%) and then sweet (15%) and unflavored controls (14%). Image scoring from camera data is underway. In PR, mongoose removed baits on 38 of 343 occasions. Though all data are not yet fully analyzed, it appears mongoose prefer cheese, followed closely by fish. Findings in both TX and PR are suggesting that sweet flavors are least attractive to rabies reservoir species. To confidently state which attractants will likely perform the best, we need to complete the analyses of these data and do more extensive trials, especially in raccoon habitat in the eastern United States.

CO.58 EVALUATION OF NON-TARGET ANIMAL EXPOSURE TO HUMAN ADENOVIRUS RECOMBINANT ORAL RABIES VACCINE- OHIO 2012

Wallace R¹, Blanton J¹, Vora N¹, Dyer J¹, Smith K¹, Chipman R², Rupprecht C¹ – ¹US Centers for Disease Control and Prevention, ²US Centers for Disease Control and Prevention

Oral Rabies Vaccination (ORV) is the primary management practice for controlling wildlife rabies in the United States, particularly among raccoons and foxes. Two ORV bait designs are primarily utilized for the distribution of vaccinia rabies glycoprotein (VRG) vaccine: a fish meal polymer block and a coated sachet. A primary public health concern related to ORV bait distribution is non-target contact between the ORV and humans and domestic pets. The VRG virus strain used in ORV is attenuated in mice, but human percutaneous exposure to ruptured sachets has resulted in localized vaccinia virus infection in very rare cases. Recently, a new recombinant human adenovirus ORV (AdRG) has been developed. This vaccine is incorporated in ultralight bait which has not previously been used in the United States. Surveillance for human contact is important, particularly among young children that may have contact with the bait, due to their lower prevalence of prior exposure and immunity to human adenoviruses. To evaluate potential differences in contact rates between the VRG and AdRG bait types CDC, the Ohio Department of Health, and USDA/WS will conduct an investigation during ORV baiting in Northeastern Ohio in August 2012. The focus of this investigation will be to ensure that public health programs are in place to capture events of human and domestic animal bait contact, ensure appropriate protocols are in place in case of a severe adverse event from a bait contact, and evaluate whether the AdRG vaccine bait matrix is associated with a different human detection rate compared to bait types used for distributing VRG. Updated guidelines related to appropriate management of potential contacts with AdRG baits during ORV activities may be developed based on findings from this investigation.

CO.59 MULTIDISCIPLINARY APPROACH TO EPIZOOTIOLOGY AND PATHOGENESIS OF BAT RABIES VIRUSES IN THE UNITED STATES

Ellison JA¹, Johnson SR², Kuzmina NK³, Gilbert AT³, Carson WC³, Blanton JD³, VerCauteren K², Rupprecht C³ – ¹Centers for Disease Control and Prevention, Atlanta, Georgia, USA – Division of High-Consequence Pathogens and Pathology, ²National Wildlife Research Center, United States Department of Agriculture – Wildlife Services, Fort Collins, Colorado, USA, ³CDC

Zoonotic disease surveillance is typically initiated after an animal pathogen has caused disease in humans. Early detection of potentially high-risk pathogens within animal hosts may facilitate medical interventions to cope with an emerging disease. To effectively spillover to a novel host, a pathogen may undergo genetic changes resulting in varying transmission potential in the new host and potentially to humans. *Rabies virus* (RABV) is one model pathogen to consider for studying the dynamics of emerging infectious diseases under both laboratory and field conditions. The evolutionary history of RABV is characterized by regularly documented spillover infections and a series of notable host-shifts. Within this context, enhanced field surveillance to improve detection of spillover infections will require validated techniques to non-invasively differentiate infected from non-infected individuals. In this