

Main Campus IACUC Meeting Minutes for Thursday, August 16, 2018

Meeting Place – [REDACTED]

Meeting time – 12:10 pm-1:21 pm

Members Present

Attending Veterinarian
Castetter Hall ARF Rep (NV)
EOHS Representative (NV)
Environmental Health Manager (NV)
IACUC Administrator (NV)
IACUC Chair
Logan Hall ARF Rep (NV)
Member #10, Vice-Chair
Member #14
Member #16
Member #21
Member #22
Member #23
Member #24
Member #25
OACC Operations Manager (NV)
Radiation Safety Representative (NV)

Members Absent

BHC Representative (NV)
Chemical Safety Representative (NV)
Member #26

NV= non-voting members, consultant or staff

Per the request of the Chair, the Recording Secretary noted a quorum was present.

Total voting members for the quorum = 10 (member #21 joined the meeting at 12:15)

Item # 1: Approval of Agenda:

A motion to approve the agenda was made and carried. Item c. “IPRA”, item d. “Committee constitution”, and item e. “4% Paraformaldehyde disposal” were all added to general business. The agenda was approved as amended.

Decision: Approved: Yes=9 No=0 Abstained=0 Recused=0

Item # 2: Approval of Minutes

A motion to approve the minutes from July 19, 2018 meeting was made and carried. The minutes were approved as presented.

Decision: Approved: Yes=9 No=0 Abstained=0 Recused=0

Item # 3: Old Business:

200540 Major DMR - "A Rat Model of Memory Impairment in Prenatal Ethanol Exposure."

Reviewers: *2I, 16, AV*

Summary: In this protocol amendment, we request additional animal numbers (n = 128), and a change in procedures which would allow us to assess changes in neuroanatomical connectivity that corresponds to memory impairment in the rat model of prenatal ethanol exposure.

The procedural changes are two-fold:

First, we wish to add microinjection surgical procedures involving the infusion of microliter quantities of a neuroanatomical tracer. The microinjections, under anesthesia surgery, would target hippocampal and limbic system brain regions allowing a histological assessment (following euthanasia) of connectivity between brain regions.

Second, for this aim we have amended our euthanasia procedures and now include a sequence of rapid isoflurane anesthesia followed by a rapid decapitation. This method allows for quick tissue collection which is necessary given that histological markers of neuroanatomical connectivity (i.e., immediate early genes) have a narrow time course of maximal expression following behavioral testing (typically 5 or 20min after behavioral testing).

Approved as a DMR by Sub-committee on 7/23/2018.

200552 with Minor DMR - "Resource partitioning among small mammal communities at the Sevilleta Long-Term Ecological Research site in the northern Chihuahua desert."

Reviewers: *Chair*

Summary: Add/remove staff

Recommended for approval as a DMR by Chair on 7/6/18 but pending completion of medical clearance for staff.

Item # 4 New Protocols:

200732 Tissue - "Mesoporous silica nanoparticle optimization for targeted drug delivery and imaging in Chick Embryo Model."

Reviewers: *Chair, AV*

Summary: Successfully systemic treatment of cancer is often limited due to high non-specific toxicity and the resulting side effects that accompany most currently available systemic therapies. Targeted drug nanocarriers have the potential to improve cancer treatment outcome while simultaneously decreasing toxicity by sequestering therapeutic cargo until internalized specifically by target cells (ie. cancer cells). Targeted drug delivery is also important in infectious disease and the use of nanocarriers could improve treatment outcomes. However, a better understanding of how nanoparticles behave in a complex in vivo environment is required to engineer nanoparticle to interact specifically with cancer cells or bacteria. Here we propose use of an ex ovo chick embryo model in order to image, characterize and optimize organ and tumor distribution of mesoporous silica nanoparticles for cancer and infectious agent treatment. Goals and aims: Mesoporous silica nanoparticles can be modified to control size, shape, pore and surface chemistry (including targeting ligands) and therapeutic and/or imaging cargo. The goal

of the proposed research is to determine how modification of these individual components affects nanoparticle biodistribution, interaction between bacteria and nanoparticles, tumor cell binding, nanoparticle internalization and efficacy.

Approved per IACUC Chair and Attending Vet Review 8/2/2018.

200735 3-yr RW Tissue - "Biodemography of Aging in Wild Chimpanzee (Tissue Protocol)."

Reviewers: *Chair, AV*

Summary: This is a tissue protocol supplement to the main protocol. It covers the analysis of blood specimens collected from chimpanzees in African sanctuaries:

As the closest extant relatives of humans, chimpanzees are of particular interest for understanding how human life history has changed during the course of our species' evolution. Although chimpanzees are among the longest-living mammalian species, one of the fundamental changes that occurred during human evolution was a marked increase in longevity. It is not yet clear how this remarkable change occurred, because very little information exists about how the aging process differs between humans and chimpanzees, in large part because comprehensive data on aging in great apes is unavailable. Our overall aim is to study the interaction of aging and social and ecological processes in wild chimpanzees, with supplementary data from provisioned, free-ranging individuals in African sanctuaries. Our study will compile data on reproductive health, physiological and energetic stress, oxidative stress, physical condition and locomotor proficiency, immune health and infection, cardiac health, kidney health, liver health, and gastrointestinal health using minimally invasive methods. Our aims are to (a) assess sex differences in the pace and pattern of aging, (b) investigate the role of energy limitation on aging, (c) examine the influence of social relationships and social status on aging, and (d) compare chimpanzee data with available data on humans. Our data will bear on prominent hypotheses in the aging literature. For instance, it is hypothesized that caloric restriction extends longevity. While we will not manipulate chimpanzee caloric intake, we will compare two chimpanzee groups that live in habitats of differing energy availability. Our study will collect more comprehensive health information than has previously been collected from any free-living chimpanzee population, and thus has important conservation applications. The majority of the project will be conducted in Kibale National Park, where two long-term field studies maintain long-term projects. Additional data will be collected from three African chimpanzee sanctuaries. These sanctuaries raise chimpanzees confiscated from the pet, entertainment, and bushmeat trades. Sanctuary guidelines recommend annual veterinary knockdowns performed by trained veterinary staff. We will obtain blood, serum, urine, and fecal samples collected by the veterinarians and conduct measurements of limb proportions and musculature on anesthetized chimpanzees.

Approved per IACUC Chair and Attending Vet on 8/2/2018.

200736 3-Yr RW Tissue - "Comparative Human and Primate Physiology Center (Tissue Protocol)."

Reviewers: *Chair, AV*

Summary: The Hominoid Reproductive Ecology Laboratory, in the Department of Anthropology at UNM, specializes in developing and applying minimally-invasive methods for studying the health of primates. This includes immunoassay and similar procedures in urine, saliva, feces, and hair. In addition to conducting in-house work related to the research of the two principal investigators, we operate as a UNM Internal Service Center, providing low-cost assay

services for scholars at UNM and other institutions. The work in this laboratory investigates the relationships between ecology, behavior, and health in primates. These studies have three important outcomes/benefits: (1) better understanding the behavioral ecology and life history of each primate species, using hormones or other biomarkers to reinforce or refine observational data; (2) generation of comparative data from model species for the examining the evolution of the human organism; (3) generation of data on physical and reproductive health that can have important conservation implications for these species in nature.

Approved by IACUC Chair and Attending Vet on 7/24/2018.

200739 3-Yr RW - "Biodemography of Aging in Wild Chimpanzees."

Reviewers: 23, 25, AV

A motion for approval was made and carried.

Summary: The proposed research is a continuation of long-term non-invasive field studies of the physiology and behavioral ecology of wild chimpanzees in the Kibale National Park, Uganda [see also Protocol 14-101117-MC]. The current emphasis of the study is the aging process. As the closest extant relatives of humans, chimpanzees are of particular interest for understanding how human life history has changed during the course of our species' evolution. Although chimpanzees are among the longest-living mammalian species, one of the fundamental changes that occurred during human evolution was a marked increase in longevity. It is not yet clear how this remarkable change occurred, because very little information exists about how the aging process differs between humans and chimpanzees, in large part because comprehensive data on aging in great apes is unavailable. Our overall aim is to study the interaction of aging and social and ecological processes in wild chimpanzees, with supplementary data from provisioned, free-ranging individuals in African sanctuaries. Our study will compile data on reproductive health, physiological and energetic stress, oxidative stress, physical condition and locomotor proficiency, immune health and infection, cardiac health, kidney health, liver health, and gastrointestinal health using minimally invasive methods. Our aims are to (a) assess sex differences in the pace and pattern of aging, (b) investigate the role of energy limitation on aging, (c) examine the influence of social relationships and social status on aging, and (d) compare chimpanzee data with available data on humans. Our data will bear on prominent hypotheses in the aging literature. For instance, it is hypothesized that caloric restriction extends longevity. While we will not manipulate chimpanzee caloric intake, we will compare two chimpanzee groups that live in habitats of differing energy availability. Our study will collect more comprehensive health information than has previously been collected from any free-living chimpanzee population, and thus has important conservation applications.

Recommended for approval on 8/3/2018.

Discussion during the meeting: The primary reviewer, the Chair, and a PI gave a summary of the protocol. This is a continuation of a long term project and was very well written. There was a question about importing animal tissues that had been resolved. There were no other issues and the protocol was recommended for approval.

Decision: Approved: Yes=9 No=0 Abstained=0 Recused=1

200741 3-Yr RW - "Utilizing rabbits to generate polyclonal antibodies for defining the function of novel genes involved in heart disease."

Reviewers: 10, 24, AV

A motion for approval was made and carried.

Summary: More people die from cardiovascular disease than any other cause worldwide. It is well established that certain external factors such as high cholesterol intake, smoking and diabetes among others can increase a person's chance for developing heart disease. However, there remains significant variability in individuals who may or may not have any of these risk factors and those who develop disease. Specific heart diseases have been shown to run in families suggesting our genetic makeup is a contributor and in fact, many genes have been linked to diseases of the heart. While the human genome has been fully sequenced and studies have identified the genes that are involved in disease, we still do not yet know what all of their functions are or how they might contribute to disease. It is difficult to determine the function of unknown genes in a vertebrate system because higher organisms have duplicated their genes and they tend to have overlapping function. The fruit fly *Drosophila* is a good model for studying function because it has highly similar genes with significantly less duplication.

Our goal is to investigate the function of genes that have been identified to play a role in vertebrate heart disease by studying highly similar genes in the fruit fly. First, we will do this by utilizing rabbits to generate antibodies against *Drosophila* heart genes. We will inject the rabbits with *Drosophila* proteins, and then collect antibodies that the rabbit generates against them, with small blood collections. These antibodies will be detected fluorescently and will adhere to proteins located in specific structures of the heart so that we can visualize it. Second, we will carry out experiments to eliminate or over express genes that have been identified to play a role in heart disease and then observe their effect on the heart with our rabbit generated antibodies. This will enable us to observe any effects these experiments have on the heart and help us to understand their function by observing what happens when they are mis-expressed. The results of this study will contribute to understanding how disease develops and potentially lead to the development of therapies to prevent or reverse it.

Recommended for approval on 8/15/18.

Discussion during the meeting: The primary reviewer gave a summary of the protocol. This is a continuation of a previous straight forward project and was very well written. The PI should repeat their alternative searches using the suggested search terms from the Library Rep. There was another question about the diet for the rabbits that was clarified by the Castetter Hall ARF Supervisor. The animals are adopted out at the end of each study so we should ensure that the proper legal paperwork for that is in order. There were no other issues and the protocol was recommended for approval.

Decision: Approved: Yes=10 No=0 Abstained=0 Recused=0

Item # 5 Major Amendments:

none

Item # 6 Minor Amendments:

none

Item # 7 Annual Renewals:

200421 Closure - "Using mice to investigate the effect of praziquantel on the biology of the parasite *Schistosoma mansoni*."

Reviewers: *Chair*

Summary: The major projects in the lab over the past several have been to examine the effect of the drug praziquantel on the parasite *Schistosoma mansoni*. We have used mice as the host to grow *Schistosomes* and tested the effect of different PZQ enantiomers on the worms. We have also used the infected mice for in vivo experiments to generate schistosomes resistant to the drug. These mouse experiments have allowed us to develop interesting hypotheses on the ligand of praziquantel, its mechanism of action and mechanisms of resistance to the drug. Using mice has allowed us to produce large number of schistosomes in a consistent manner which has proved valuable for larger scale transcriptomic analyses. This has resulted in a number of published papers with another two to come out in the near future. This as yet unpublished work will also form the cornerstone of the PhD thesis of the graduate student who has been on the protocol for the past 8 years.

The graduate student has completed her lab work and will complete her PhD studies in mid October. I will leave UNM at the end of October and so have no need to maintain the protocol.

Approved administratively per IACUC Chair on 8/8/2018.

200487 DMR - "Fetal-ethanol effects on neural physiology and spatial behavior."

Reviewer: *10 (VC)*

Sent for DMR by Vice Chair Review 1 on 8/13/2018.

200490 DMR - "Spatial learning and memory in the rat."

Reviewer: *10 (VC)*

Sent for DMR by Vice Chair Review 1 on 8/13/2018.

200648 DMR - "Animal Procedures and Techniques Training – Main Campus."

Reviewers: *Chair*

Approved as a DMR per IACUC Chair on 8/2/2018.

General Business:

1. IACUC Concerns –

- a. Semi-annual inspections on Wednesday, August 29 @ 9 AM.
- b. Facilities update – the AV announced approval of the budget for the zebrafish facility. Money is still needed for new cage wash and autoclave equipment for Castetter and Logan Halls.
- c. IPRA request – as an FYI, the Chair announced that we received an IPRA request for Main Campus USDA annual and inspection reports dating back to 2008.
- d. Committee constitution – The chair requested that we add something to our IACUC committee SOP stating that members who are out on sabbatical don't count against the quorum for voting purposes. Perhaps we should also have a letter from the IO stating that the PI who is on sabbatical does not count against the quorum. Conversely an alternate member could stand in for the member who is on sabbatical. A non-scientific voting member recently resigned from the committee so we will try to replace that member with another non-scientific voting member. We have a new SRS representative so introductions were made all around.

e. Four percent Paraformaldehyde disposal – carcasses that have been perfused with PFA cannot be disposed in the UNM crematorium. Instead they must be picked up by the UNM waste contractor for disposal. The ARF will update all signage to include PFA carcasses on the list of items that cannot be disposed in the UNM crematorium. Liquid PFA must also be picked up by SRS for disposal instead of discharging into the municipal sewage.

Meeting adjourned at 1:21 PM

Respectfully submitted by

[REDACTED]

Main Campus IACUC Meeting Minutes for Thursday, September 20, 2018

Meeting Place – [REDACTED]

Meeting time – 12:08 pm-1:15 pm

Members Present

Attending Veterinarian
Castetter Hall ARF Rep (NV)
Chemical Safety Representative (NV)
Environmental Health Manager (NV)
IACUC Administrator (NV)
Logan Hall ARF Rep (NV)
Member #10, Vice-Chair
Member #14
Member #16
Member #21
Member #22
Member #23
Member #24
Member #25
Member #26
OACC Operations Manager (NV)
Radiation Safety Representative (NV)

Members Absent

BHC Representative (NV)
EOHS Representative (NV)
IACUC Chair

NV= non-voting members, consultant or staff

Per the request of the Chair, the Recording Secretary noted a quorum was present.

Total voting members for the quorum = 10

Item # 1: Approval of Agenda:

A motion to approve the agenda was made and carried. Protocol 200526 Annual Renewal with Minor Amendment was moved from the Minor Amendment to the Annual Renewal section of the agenda. Item c. “Proposed change to pain management question on protocol form.” was added to IACUC Concerns in general business. The agenda was approved as amended.

Decision: Approved: Yes=10 No=0 Abstained=0 Recused=0

Item # 2: Approval of Minutes

A motion to approve the minutes from August 16, 2018 meeting was made and carried. The following wording was changed on item e. under IACUC Concerns "Four percent Paraformaldehyde disposal – carcasses that have been perfused with PFA cannot be disposed in the UNM crematorium. Instead they must be picked up by the UNM waste contractor for disposal. The ARF will update all signage to include PFA carcasses on the list of items that cannot be disposed in the UNM crematorium. Liquid PFA must also be picked up by SRS for disposal instead of discharging into the municipal sewage." The minutes were approved as amended.

Decision: Approved: Yes=10 No=0 Abstained=0 Recused=0

Item # 3: Old Business:

200487 DMR - "Fetal-ethanol effects on neural physiology and spatial behavior."

Reviewer: *VC*

Approved as a DMR by Vice Chair on 8/16/2018.

200490 DMR - "Spatial learning and memory in the rat."

Reviewer: *VC*

Approved as a DMR by Vice Chair on 8/20/2018.

200552 with Minor DMR - "Resource partitioning among small mammal communities at the Sevilleta Long-Term Ecological Research site in the northern Chihuahua desert."

Reviewers: *Chair*

Summary: Add/remove staff

Approved as a DMR by IACUC Chair on 8/24/2018.

Item # 4 New Protocols:

200737 3-yr RW DMR - "Snail-related Studies of Transmission and Control of Schistosomiasis in Kenya."

Reviewers: *14, 16, AV*

Summary: One of the world's great neglected tropical diseases is schistosomiasis, a malady for which over 90% of the world's 240 million cases currently occur in sub-Saharan Africa.

Schistosoma mansoni is one of the parasitic worms that causes the disease. Because the disease occurs in poverty stricken areas, schistosomiasis is a neglected disease that affects those who are poor and do not have access to clean water. One major goal of our project is to investigate the transmission dynamics of this parasite in the snail and vertebrate host including interactions with other parasite species. We will address transmission through examination of epidemiological parameters of the parasites around Lake Victoria, the genetic diversity of parasites within snails and humans, immunological interactions between schistosomes and snails, possible hyperparasitism of schistosome sporocysts in snails by other parasites, use of non-human mammalian hosts as reservoir hosts, and interactions with other parasite species. By studying these aspects of transmission we hope to be able to learn how to interrupt the transmission cycle of this parasite. Because *Schistosoma mansoni* is an obligatory parasite, it must live within a host

in order to survive, develop, and reproduce; therefore, our work requires the use of animals, particularly mice and snails, to maintain the parasites and to perform experiments.

Approved as a DMR by Sub-Committee on 8/29/2018.

Item # 5 Major Amendments:

200540 - "A Rat Model of Memory Impairment in Prenatal Ethanol Exposure."

Reviewers: *2I, 25, AV*

A motion for approval was made and carried.

Summary: Add/remove staff; we have added the following procedural changes to the behavioral paradigms:

- Aim 1 - We have added details regarding habituation of the animals to behavior tasks involving the radial maze. For tasks involving the radial arm maze, rats will also be habituated to the task by placing the animals in the test apparatus for 10min over 2 or 3 days.
- Aim 4 - Animals will also be tested on a narrow track. The different shaped environments allow us to test hypotheses related to the organization of spatial memory in relation to environmental features.
- Lastly, a new Aim has been added. In Aim 5, we will test the hypothesis that damage (neurotoxic NMDA lesions) to the anterior thalamus will model the impairments observed in hippocampal place cell activity in a rat model of prenatal ethanol exposure. A total of 32 rats (16 control and 16 neurotoxic NMDA lesion rats) will be tested in this aim. Each group will include equal numbers of female and male rats. Behavioral testing in Aim 5 will include the same tasks described in Aim 4.

Recommended for approval on 9/6/2018.

Discussion during the meeting: The Chair and the AV gave a summary of the protocol. This was a very straightforward amendment and was well written and thorough. A few minor items such as repeating the alternative search, and the clarification of a question from the AV about analgesic, number of experimental trials, animal weight loss, etc. had been resolved by the PI during the pre-review. There were no other pending issues and the protocol was recommended for approval.

Decision: Approved: Yes=10 No=0 Abstained=0 Recused=1

Item # 6 Minor Amendments:

200350 - "Neurobiology of Spatial and Object Memory".

Reviewers: *VC, AV*

Summary: We have added the following procedural changes to the behavioral paradigms:

- Aim 4 - We have added details regarding habituation of the animals to behavior tasks involving the radial maze. For tasks involving the radial arm maze, rats will also be habituated to the task by placing the animals in the test apparatus for 10min over 2 or 3 days.
- Aim 5 - Instead of a circular open field, rats will be tested in a large square open field. In addition, animals will be tested on a narrow circular track. The different shaped environments allow us to test hypotheses related to the organization of spatial memory in relation to environmental features.
- Aim 4 - Trials with the square environment and narrow circular track are added to aim 4 to allow comparison with aim 5.

- I have removed protocol associate Joshua Rysanek from the protocol.
- Lastly, we wish to house our cannulation implanted animals in a larger cage (Height: 21 inches, Length: 42 inches, Width: 25 inches). This request is based on our observations that the traditional rat shoebox cages are too low causing cranial implant impacts and damage to implants. With the cranial implant, the current caging and wire bar lid makes reaching for food and water difficult for the rat post-surgery. The increased space will improve accessibility to food and water post-surgery. The additional cage size and height reduces implant impacts improving the health welfare for the rat. Benefits of a larger cage would also include increased natural behavior such as climbing and foraging. Additionally the larger cage provides environmental enrichment improving animal welfare.

Approved by Vice-Chair and Attending Vet on 8/20/18.

200384 - "Immune responses of fish against pathogens."

Reviewers: *VC*

Summary: Add/remove staff.

Approved administratively per Vice Chair on 9/5/2018.

200540 – “A Rat Model of Memory Impairment in Prenatal Ethanol Exposure.”

Reviewers: *VC*

Summary: Add/remove staff

Withdrawn.

200705 - "Mouse models of Tauopathies."

Reviewers: *AV*

Summary: Adding new strains from another UNM PI - B6-Tg (APPS) X C57BL/6J and B6-Tg (APPS).

Approved by Attending Vet on 8/29/2018.

200731 - "A Rat Model of Spatial Disorientation and Dementia".

Reviewers: *Brant, AV*

Summary: We wish to house our electrode array implanted animals in a larger cage (Height: 21 inches, Length: 42 inches, Width: 25 inches). This request is based on our observations that the traditional rat shoebox cages are too low causing implant impacts. With the cranial implant, the current caging and wire bar lid makes reaching for food and water difficult for the rat post-surgery. The increased space will improve accessibility to food and water post-surgery. The additional cage size and height reduces implant impacts improving the health welfare for the rat. Benefits of a larger cage would also include increased natural behavior such as climbing and foraging. Additionally the larger cage provides environmental enrichment improving animal welfare.

Approved by Vice-Chair and Attending Vet on 8/20/18.

Item # 7 Annual Renewals:

200526 with Minor - "Building Scientific Infrastructure for Mammalian Studies at UNM."

Reviewers: *VC*

Summary: Add/remove staff.

Returned for modification on 9/18/2018.

General Business:

1. IACUC Concerns –

- a. Semi-annual inspection – The committee reviewed the semi-annual inspection report and program review and signed the final report to the IO.
- b. Facilities update – The AV gave an update on the facilities improvements that have been going on in Castetter Hall.
- c. Proposed change to pain management question on protocol form - there are some redundancies involving this question that will be addressed by the OACC and AV. The committee was invited to comment on the proposed changes.

Meeting adjourned at 1:15 PM

Respectfully submitted by  _____

Main Campus IACUC Meeting Minutes for Thursday, January 17, 2019

Meeting Place – [REDACTED]

Meeting time – 12:11 pm-1:42 pm

Members Present

Attending Veterinarian
Castetter Hall ARF Rep (NV)
Chemical Safety Representative (NV)
EOHS Representative (NV)
IACUC Administrator (NV)
IACUC Chair
Logan Hall ARF Rep (NV)
Member #10, Vice-Chair
Member #14
Member #22
Member #23
Member #24
Member #25
OACC Operations Manager (NV)
Radiation Safety Representative (NV)

Members Absent

BHC Representative (NV)
Member #16
Member #21
Member #26
SRS Representative (NV)

NV= non-voting members, consultant or staff

Per the request of the Chair, the Recording Secretary noted a quorum was present.

Total voting members for the quorum = 8

Item # 1: Approval of Agenda:

A motion to approve the agenda was made and carried. The agenda was approved as presented.

Decision: Approved: Yes=8 No=0 Abstained=0 Recused=0

Item # 2: Approval of Minutes

A motion to approve the minutes from September 20, 2018_meeting was made and carried. One reviewer name was removed from the minutes. The minutes were approved as amended.

Decision: Approved: Yes=8 No=0 Abstained=0 Recused=0

Item # 3: Old Business:

200526 with Minor DMR - "Building Scientific Infrastructure for Mammalian Studies at UNM."

Reviewer: *VC*

Summary: Add/remove staff.

Approved by Vice Chair on 10/19/2018.

Item # 4 New Protocols:

200770 3-yr RW - "Habitat Use by Pinyon Jays: Radio Telemetry and Banding."

Reviewers: *23, 24, AV*

Summary: The primary purpose of this study is to contribute to the understanding of the causes of Pinyon Jay decline. Goals of the project are to find nesting colonies, document home ranges, and assess habitat use by Pinyon Jays at Santa Fe County open space properties.

Approved as a DMR by Sub-Committee on 11/5/2018.

200796 3-yr RW DMR - "Small Mammal Studies Associated with the Sevilleta Long-Term Ecological Research Project."

Reviewers: *14, 24, AV*

Summary: The Sevilleta Long Term Ecological Research (LTER) Program is part of the National Science Foundation-supported LTER network of 26 sites throughout the United States. LTER science aims to understand ecological processes over long periods, usually on a scale of years-to-decades. Specifically, LTER research focuses on understanding the effects of climate, biogeochemistry, and water on ecosystems, including shifts in plant production and consumer populations. Monitoring small mammal communities enables us to describe long-term consumer dynamics and relate them to extensive data sets on plant productivity and climate. We can then answer questions about how animal populations are connected to food resources over space and time. Not all species respond in the same manner and on the Sevilleta National Wildlife Refuge we work to quantify the disparate fluctuations in desert- and grassland-dwelling rodent populations. Animals for these monitoring studies are live trapped. Non-invasive measurements are taken and the animals are released at the point of capture.

Approved as a DMR by Sub-Committee on 11/26/2018.

200801 DMR - "Examining the function of gut microbial communities with amino acid stable isotope analysis of *Peromyscus*"

Reviewers: *10, 16, AV*

Summary: Research in the field of microbial ecology over the last decade has discovered the gut of every organism with a structured digestive system, from a termite to a human, plays host to a large diversity of microbes and bacteria (gut microflora). Although some gut microflora are pathogens and potentially harmful, most have a mutualistic relationship with the host organism, functioning to further digest food, synthesize nutrients the body can use, prevent pathogenic bacteria such as *E. coli* from overwhelming the body, and potentially many other yet unknown benefits. This creates a complicated system; an entire ecosystem is living inside of our bodies. The exact functionality and physiology of how this system works is largely unknown and difficult to study. However, recent research focusing on the mammalian gut system has greatly increased, providing insights into human growth and development, immunology, nutrition, and

overall health and physiology. This study hopes to further expand research in these fields, specifically looking into how diet and nutrition affect bodily tissue development and the bacterial community of the gut. We anticipate that the results of this study will (1) advance the use of stable isotope analysis in animal ecology and eco-physiology, and (2) determine the contribution of microbially synthesized amino acids used by the host to synthesize its structural tissues.

Approved as a DMR by Sub-Committee on 1/15/2019.

200804 3-yr RW DMR - "MSB Bird Division Specimen Collection and Specimen-Based Research and Teaching and Curation."

Reviewers: *10, 16, AV*

Summary: The Museum of Southwestern Biology Bird Division salvages, collects, prepares, and curates bird specimens for the enhancement of research and teaching at the University of New Mexico. Research in the Bird Division is oriented around biodiversity. This work begins at the most basic level -- documenting bird diversity of the southwestern North America, the Neotropics, and the South Pacific region. We carry out basic survey work to discover what birds occur where, and what their characteristics are. We sample birds through observation, audio recording, photography, and specimen collection. We investigate processes that generate and maintain diversity. Generally, this work involves measurements and analysis of preserved specimens and collection of DNA sequences to discover relationships (i.e. the bird family tree). All our work is based on wild-caught specimens which are humanely killed at the site of collection using humane methods. The specimens form the basis of the bird collection at the MSB. Data garnered from these specimens is incorporated into publically available databases. The specimen materials and the data are intended to benefit biodiversity research by the Bird Division and scientists around the world for as long as they last. They also serve as a boon to students who conduct thesis projects on birds or seek to obtain curatorial or ornithological experience as part of their education.

Approved as a DMR by Sub-Committee on 1/4/2019.

200807 3-yr RW - "Neuroinflammation: Role in FASD Cognitive Deficits."

Reviewers: *10, 25, AV*

A motion for approval was made and carried.

Summary: Exposure to alcohol during prenatal brain development can result in a set of profound alterations in the structure of the body (including brain) and the functions of the brain. An estimated 2%-5% of children born each year in the United States meet criteria for a diagnosis of Fetal Alcohol Spectrum Disorder (FASD). FASD is associated with persistent deficits in learning, cognition, behavior, and brain function that have tremendous monetary costs and dramatically decrease quality of life. At present, there are no effective treatments for the persistent consequences of prenatal alcohol exposure. This is not for lack of effort, but in large part because the required basic understanding of how fetal ethanol exposure alters brain function is not sufficient to allow for targeted, rational development of treatments for specific deficits. The goal of the proposed work is to understand putative mechanisms of damage to the developing fetal brain in FASD and prevent or treat the brain damage with medications. We have identified brain inflammation in a mouse model of development ethanol exposure, which may underlie the effects of ethanol on brain function and behavior. This suggests anti-inflammatory treatment strategies may prevent or at least ameliorate consequences associated with FASD in humans. In this mouse study, we will investigate whether either of two anti-inflammatory

medications has the potential to prevent or ameliorate against long-term ethanol-related alterations in synaptic plasticity function and learning and memory cognition.

Recommended for approval on 1/7/2019.

Discussion during the meeting: The PI gave a summary of the protocol. The AV pointed out that data for general anesthesia was also added under the analgesia section and a request for administrative change was recommended during the pre-review. In addition, the AV pointed out the recent addition of new protocol form questions relating to analgesia and local anesthesia with emphasis on pre-emptive pain management as a means to minimize post-operative pain. The Library Rep asked that search phrases be enclosed in parentheses during alternative searches. A few other minor items had been resolved by the PI during the pre-review. There were no other pending issues and the protocol was recommended for approval.

Decision: Approved: Yes=7 No=0 Abstained=0 Recused=1

200813 3-yr RW - "Etiology and epidemiology of cercarial dermatitis, and, systematics of avian schistosomes."

Reviewers: 21, 24, AV

A motion for approval was made and carried.

Summary: Cercarial dermatitis, known as “swimmer’s itch”, an ailment caused by the penetration of human skin by the cercariae of non-human schistosome parasites, is a common, recurrent phenomenon in both shallow freshwater and marine habitats worldwide, including the U.S. Most cases of dermatitis originate from schistosome species of waterfowl, although a few are from mammals. This protocol will focus on the bird schistosomes. The adult worms live in the blood vessels of the intestine of a bird hosts and release eggs into the environment where the newly hatched larvae find and penetrate a snail. In the snail, the worm undergoes many clonal generations until swimming larva are released into the environment (cercariae). These cercariae will complete the life cycle by penetrating the foot/legs of a bird or mammal but develop into adults only in birds. It is this swimming stage, the cercariae, which has been the cause of swimmer's itch in people. There is no true disease in people, but there are about 1-2 weeks of intense itching, much like chiggers. In addition to their medical impact, dermatitis outbreaks can have significant economic repercussions (tourism, real estate, aquaculture) for affected communities. The avian schistosomes responsible for dermatitis outbreaks are poorly characterized, such that even in the U.S. we lack reliable information on the number of species involved, their natural hosts, predilection to cause pathology, geographic distributions, and basic epidemiology. Our extensive reference collection of schistosomes create exciting new opportunities to advance our understanding of this under-appreciated yet widespread public health problem. It is important to establish a baseline of understanding so we can better grasp how human-imposed ecological changes might alter the epidemiology of cercarial dermatitis. From the studies outlined in our proposal, we will gain a far more definitive view of the most common agents responsible for causing swimmer's itch, their geographic distributions, and critical aspects of the timing of their life cycles that directly influence the epidemiology of this poorly-known ailment.

Recommended for approval on 1/8/2019.

Discussion during the meeting: The PI gave a summary of the protocol. The PI clarified the four species of lab birds that will be used. There was a question about the roles and number of people listed on the personnel roster. Some edits were needed for the alternative search for duplication of research. Authorized amounts were entered for Lab Birds using the total from the attached animal numbers table. The AV asked if the birds normally show sequellae after parasite

infection. The PI said they do not. The PI should clarify under post-procedural monitoring on which day post-infection SID observations will begin on mice by PI lab members. All animals housed in the ARF are observed by animal facility staff daily. The EOHS Rep asked if there was any chance of anaphylactic shock from exposure to the Schistosomes. Sensitivity to exposure does increase over time. The EOHS Rep offered an EPI Pen if needed. The Chair requested that the PI describe in detail any adverse events that result from collecting in the field during the annual renewal. A statement was added to the alternative search narrative to reflect that some carcasses are gathered from hunting stands or other sources where the animals have already been collected in the field. This is a great way to reduce the number of animals that need to be collected live in the field for the purpose of this study. There were no other pending issues and the protocol was recommended for approval.

Decision: Approved: Yes=7 No=0 Abstained=0 Recused=1

Item # 5 Major Amendments:

200596 DMR - "Tracking migratory birds to determine seasonal movements."

Reviewers: 23, 25, AV

Summary: We are seeking a major amendment to add two additional graduate students, one undergraduate student, three additional tracking techniques, two additional bird species, and additional numbers of individuals; the central goal of all work under this protocol remains to track birds through key stages of their annual cycle to understand their ecology, physiology, and genetic adaptation to the environment. Tracking will be extended to three additional marker types, two additional bird species, and the addition of a core-body-temperature logger device. All of this work, as with all of our research, will be contingent on all appropriate permits from the management authorities (New Mexico: NMDGF, USFWS, and USGS; Chile: SAG).

Approved as a DMR by Sub-Committee on 1/15/2019.

Item # 6 Minor Amendments:

200437 - "Climate change effects on body condition, metabolism, and water loss in populations of desert reptiles."

Reviewer: VC, AV

Summary: We request to add 3 additional species to the protocol described for the chuckwalla (*Sauromalus ater*) dehydration experiment. After depriving chuckwallas of food and water and observing their body mass decrease, the animals were scanned in the QMR to determine overall body composition. We found that much of the overall body mass lost was in the form of fat, and though total body water mass had decreased, overall body water percentage had stayed stable, indicating fat was being metabolized to maintain water balance. Furthermore, thermoregulatory performance under heat stress did not appear to be affected. We would like to extend this protocol to three additional species to observe if the change in body composition, and thermoregulatory capacity is variable among species with different life histories. We would like to sample species that have different life histories than chuckwallas, which are large-bodied, thermophilic, sedentary lizards. We request to include crevice spiny lizards (*Sceloporus poinsetti*), collared lizards (*Crotaphytus collaris*), and whiptail lizards (*Aspidoscelis exsanguis*) in our studies on dehydration. Each of these species has a different body form, and physiological capacity to tolerate heat, and therefore serve as ideal representatives of their respective families. We will have 8-10 specimens of each species that will be dehydrated via food deprivation and

elevated metabolism, which falls within the currently approved species numbers. Animals will be held temporarily in an environmental chamber at warm temperatures that promote elevated metabolism and water loss, but do not exceed their panting threshold. Additionally, although we are approved to perform orbital bleeds to determine isotope content and hydration state of the lizards, we request to draw blood from the subcaudal vein of the tail, which is a less invasive and more widely used alternative method to orbital bleeding. These requested modifications will allow us to make comparisons of the effects of dehydration across species, and do not increase pain or distress outside of the purview of the existing approved protocol.

Approved by Vice Chair and Attending Vet on 10/26/2018.

200472 - "Mouse model of immunity to *Toxoplasma gondii*."

Reviewers: VC

Summary: Add/remove staff.

Administratively approved per Vice Chair on 11/28/2018.

200540 - "A Rat Model of Memory Impairment in Prenatal Ethanol Exposure."

Reviewers: VC, AV

Summary: We have made a modification to Aim 5 in which a different chemical is used to lesion the anterior thalamus (muscimol). The current protocol calls for animals to receive NMDA lesions of the anterior thalamus, but we have now updated the aim to reflect that a subset of the approved number of lesion rats will instead receive infusions of muscimol (a drug that non-selectively inhibits neural activity) into the anterior thalamus (16 control, 8 neurotoxic NMDA lesion rats, and 8 muscimol rats).

Approved by Vice Chair and Attending Vet on 12/7/2018.

200731 - "A Rat Model of Spatial Disorientation and Dementia."

Reviewers: VC, AV

Summary: We have made a change to our euthanasia procedures. We now add procedures that allow for rapid extraction of brain tissue which allows for analysis of immediate early gene and protein expression.

- Animals will be anesthetized with isoflurane in a tightly-sealed chamber (4% isoflurane/oxygen for 45-60sec) and then rapidly decapitated with a guillotine. After decapitation, the brain is extracted.

Approved by Vice Chair and Attending Vet on 12/5/2018.

200739 - "Biodemography of Aging in Wild Chimpanzees."

Reviewer: VC

Summary: Add/remove staff.

Administratively approved per Vice Chair on 11/27/2018.

Item # 7 Annual Renewals:

200361 Closure - "Ecology and niche separation of desert cottontails and black-tailed jackrabbits in the Chihuahuan Desert as determined by radiotelemetry, pellet collection, and automatic cameras

Reviewers: VC

Summary: Field work and animal handling was completed in 2017. Altogether 32 cottontails (14 males, 18 females) and 11 jackrabbits (2 males and 9 females) were captured over the course of the project. Of these, 20 cottontails and 6 jackrabbits were radiocollared. Three manuscripts were submitted to journals, including one to Southwestern Naturalist and two to Western North American Naturalist.

Closed administratively per Vice-Chair on 11/2/2018.

200418 DMR - "Field physiological performance assays for the comparative study of high-altitude adaptation in birds."

Reviewers: *VC*

Approved as a DMR by Vice-Chair on 12/20/2018.

200596 DMR - "Tracking migratory birds to determine seasonal movements".

Reviewer: *VC*

Approved as a DMR by Vice-Chair on 11/8/18.

200692 DMR - "Characterization of the microbiome of different animal phenotypes."

Reviewer: *VC*

Approved as a DMR by Vice-Chair on 11/19/2018.

General Business:

1. IACUC Concerns –

- a. Spring 2019 Semi-annual inspections will take place on February 27, 2019
- b. Facilities update – The AV updated the committee on plans for the new Zebrafish facility
- c. 2019 IACUC timeline – the OACC Operations Manager updated the committee on some important dates coming up in 2019 and 2020 such as our Main Campus OLAW Assurance Renewal.
- d. Update on how to handle voting member sabbaticals – an alternate can be appointed for voting members while they are out on sabbatical if needed so that the voting member's absence does not affect the quorum.

Meeting adjourned at 1:42 PM

Respectfully submitted by _____

Main Campus IACUC Meeting Minutes for Thursday, February 21, 2019

Meeting Place – [REDACTED]

Meeting time – 12:12 pm-1:20 pm

Members Present

Attending Veterinarian
Castetter Hall ARF Rep (NV)
Chemical Safety Representative (NV)
IACUC Administrator (NV)
Logan Hall ARF Rep (NV)
Acting Ex Officio Member
Member #10, Acting IACUC Chair
Member #14
Member #16
Member #2, Acting Vice-Chair
Member #22
Member #23
Member #26
OACC Operations Manager (NV)

Members Absent

BHC Representative (NV)
EOHS Representative (NV)
Member #24
Member #25
Radiation Safety Representative (NV)
SRS Representative (NV)

NV= non-voting members, consultant or staff

Per the request of the Chair, the Recording Secretary noted a quorum was present.

Total voting members for the quorum = 8

Item # 1: Approval of Agenda:

A motion to approve the agenda was made and carried. The agenda was approved as presented.

Decision: Approved: Yes=7 No=0 Abstained=0 Recused=1

Item # 2: Approval of Minutes

A motion to approve the minutes from the January 17, 2019 meeting was made and carried. The minutes were approved as presented.

Decision: Approved: Yes=7 No=0 Abstained=0 Recused=1

Item # 3: Old Business:

200813 3-yr RW DMR - "Etiology and epidemiology of cercarial dermatitis, and, systematics of avian schistosomes."

Reviewers: *Library Rep*

Summary: Cercarial dermatitis, known as "swimmer's itch", an ailment caused by the penetration of human skin by the cercariae of non-human schistosome parasites, is a common, recurrent phenomenon in both shallow freshwater and marine habitats worldwide, including the U.S. Most cases of dermatitis originate from schistosome species of waterfowl, although a few are from mammals. This protocol will focus on the bird schistosomes. The adult worms live in the blood vessels of the intestine of a bird hosts and release eggs into the environment where the newly hatched larvae find and penetrate a snail. In the snail, the worm undergoes many clonal generations until swimming larva are released into the environment (cercariae). These cercariae will complete the life cycle by penetrating the foot/legs of a bird or mammal but develop into adults only in birds. It is this swimming stage, the cercariae, which has been the cause of swimmer's itch in people. There is no true disease in people, but there are about 1-2 weeks of intense itching, much like chiggers. In addition to their medical impact, dermatitis outbreaks can have significant economic repercussions (tourism, real estate, aquaculture) for affected communities. The avian schistosomes responsible for dermatitis outbreaks are poorly characterized, such that even in the U.S. we lack reliable information on the number of species involved, their natural hosts, predilection to cause pathology, geographic distributions, and basic epidemiology. Our extensive reference collection of schistosomes create exciting new opportunities to advance our understanding of this under-appreciated yet widespread public health problem. It is important to establish a baseline of understanding so we can better grasp how human-imposed ecological changes might alter the epidemiology of cercarial dermatitis. From the studies outlined in our proposal, we will gain a far more definitive view of the most common agents responsible for causing swimmer's itch, their geographic distributions, and critical aspects of the timing of their life cycles that directly influence the epidemiology of this poorly-known ailment.

Approved as a DMR on 1/18/2019.

Item # 4 New Protocols:

200808 3-yr RW DMR - "MSB Division of Fishes: Collections and Specimen-Based Research and Teaching."

Reviewers: *23, 24, AV*

Summary: MSB Division of Fishes specimen collections and research that utilizes these collections document the diversity of native fishes and the health of aquatic habitats in the American Southwest and Great Basin. Associates with the MSB Division of Fishes carry out basic survey work, collecting data, genetic samples, and voucher specimens as well as photographing habitat conditions. Collections of fishes from wild populations for museum preservation are a critical component in understanding ichthyofaunal life histories, documenting and recording aquatic biodiversity, and establishing reference collections essential for understanding evolutionary relationships, environmental changes and impacts on aquatic fauna. Research that involves sampling fish communities is also investigating those ecological processes that generate and maintain diversity. The presence (or absence) of adult and larval

forms of certain species are indicators for habitat types as well as shifts and changes in aquatic habitats due to issues like local abiotic factors or global warming. Larval fishes must be collected in order to identify them to species.

All ichthyological work involves taking specimen measurements (morphometric and meristic) so specimens must be preserved carefully so these characters are maintained, in perpetuity. Each specimen must also be well-preserved so that internal organs and tissues can be studied/analyzed for a variety of research. In the last 20 years, the MSB Division of Fishes has required genetic sampling prior to fixing voucher specimens in formalin. These tissue collections have proven valuable for phylogenetic studies, population genetic analyses, and aquatic food web information through stable isotope analysis.

All forms of research in fishes and aquatic systems contributes to better stewardship of an important resource (fishes and water) used by humans.

Approved as a DMR by Sub-Committee on 1/31/2019.

200821 Breeding DMR - "*Peromyscus* breeding to support gut microbial research."

Reviewer: AV

Summary: In-house breeding of deer mice (*Peromyscus maniculatus*) will be used to support research examining the role of gut microbial communities on diet and amino acid synthesis.

Approved as a DMR by Attending Vet 1/30/2019.

200840 3-yr RW - "Thermoregulatory responses and water balance in five species of Sonoran Desert bats."

Reviewers: 14, 16, AV

A motion for approval was made and carried.

Summary: The bats for study are obtained from the widely used methods of mist net or harp trap capture which is done with minimal risk to the animals. Only enough bats are retained that are able to be studied and released within 24 hours (usually 3-6 bats). They are taken to our laboratory situation which is in our living quarters which takes about an hour. A PIT tag is inserted beneath the skin which continuously records the body temperature. For a maximum of three hours the bats are placed in the chamber which allows measurement of the flow of water vapor and carbon dioxide through the chamber. Except for weighing the bats before and after the experiment, no further handling is required. During the time in the chamber, the bat is exposed to incremental changes in temperature as response is measured by the flow of water vapor and carbon dioxide and the changes in body temperature. A camera allows us to continually observe the bat and stop the experiment if the animal's behavior indicates it is in danger. Once the data is obtained the bat is returned to its cage until it is transported back to the site of capture and released.

Sent for Pre-Review 1 on 1/17/2019.

Discussion during the meeting: The primary reviewer gave a summary of the protocol. This is both a novel and a very valuable study because it's the only one that directly examines thermoregulatory physiology and water balance of free ranging bats in the field. One reviewer suggested that we add a note to the approval letter that the PI should work with the Museum of Southwestern Biology (MSB) Mammal Collections Manager to develop procedures to assure, if there are future casualties, that the specimens be deposited into the MSB as soon as feasible. The PI had edited the lay summary during the pre-review. The PI had repeated the alternative searches per the recommendation of the research librarian. A few other minor items had been

resolved by the PI during the pre-review. There were no other pending issues and the protocol was recommended for approval.

Decision: Approved: Yes=7 No=0 Abstained=0 Recused=1

200847 3-yr RW - "Investigation of the presence of *Pseudogymnoascus destructans* in bats roosting in caves and surface environments and bat microbiota in New Mexico and Arizona."

Reviewers: 21, 25, AV

A motion for approval was made and carried.

Summary: North American bats are threatened by an emerging infection, white-nose syndrome (WNS), caused by a fungus, *Pseudogymnoascus destructans*. Low levels of *P. destructans* have been documented in New Mexico in 2018. Our proposal seeks to investigate whether the fungal agent, *P. destructans* or its relatives, are present in New Mexico or Arizona caves where bats roost or hibernate, on the bats, or on bats using nearby drinking sources. Our objectives include (1) testing soil and guano samples from bat roosting caves in NM and AZ with genetic primers specific to the fungus *Pseudogymnoascus* and sequencing samples that are positive for its presence, (2) swabbing cave roosting bats with the assistance of a bat biologist from Tucson, AZ to test for the presence of *Pseudogymnoascus*, for culturing of *Actinobacteria*, which may be a natural defense against WNS and for sequencing of microbiota. We will investigate microbes that live on the bats to create a baseline of natural bat microbiota and to identify microbes that may be able to fight off the *P. destructans* fungus. We hypothesize that *Actinobacteria* are present and may be effective in this effort. This research establishes a key baseline of who lives on bats before WNS reaches the state and may identify natural defense that will be effective in protecting bats.

Sent for Pre-review 1 on 1/31/2019.

Discussion during the meeting: The primary reviewer gave a summary of the protocol. There was a comment about repeating the alternatives search with the old and the new scientific names for white nose syndrome. The PI did this during the pre-review and did not get any different results. There was a question about whether or not the PI actually wears PPE while they are in the caves or handling the animals. The PI should clarify in the protocol when they will be wearing respirators in the field. This can be completed via email and administratively added to the protocol. A few other minor items had been resolved by the PI during the pre-review. There were no other pending issues and the protocol was recommended for approval.

Decision: Approved: Yes=7 No=0 Abstained=0 Recused=1

200850 3-yr RW - "Chemogenetic investigation of anxiety, fear and spatial learning in the rat."

Reviewer: 10, 26, AV

A motion for DMR was made and carried.

Summary: This project will explore the function of certain brain mechanisms/regions involved in regulating memory deficits and emotions related to Alzheimer's disease, as well as anxiety- and fear related disorders. Understanding these brain mechanisms will help develop novel treatments for these neuropsychiatric disorders.

Returned for modification on 2/11/2019.

Discussion during the meeting: The primary reviewer gave a summary of the protocol. There was a discussion about the animal numbers and the success rate for the tricky procedure that is being performed. Based upon the potential number of failures, the PI may need to increase the number per group to ensure sufficient successful models per group to meet statistical rigor.. There was a comment about Baytril dosing that the AV said was acceptable since the PI is

providing subsequent dosing in the drinking water. There was also a question about which strain of animal is being used in the study. The PI mentioned a strain in the experimental design that was not listed on the protocol. He may have picked the wrong strain or the additional strain should be added to the animal numbers table as well as the protocol SSB. This will be clarified during the sub-committee review. The PI should also clarify the early removal criteria and experimental end points. This protocol was returned for modifications and the PI had not yet submitted an amended version. Since this protocol will expire in March prior to the next convened meeting and with it being a 3-year rewrite with few changes, a motion for DMR was decided. The reviewers will remain the same per the Acting Chair.

Decision: Approved: Yes=7 No=0 Abstained=0 Recused=1

200853 Breeding 3-yr RW DMR - "Breeding mice for Toxoplasma research."

Reviewer: *AV*

Summary: This protocol aims to generate gene knockout mice for studies on the immune response to *Toxoplasma gondii*. This pathogen can cause disease in immune deficient populations such as AIDS patients and is a serious congenital infection. Therefore, it is important to understand the host immune response to the parasite in order to enable better strategies to control and prevent infection.

Approved as a DMR by Attending Vet on 2/20/2019.

Item # 5 Major Amendments:

None

Item # 6 Minor Amendments:

None

Item # 7 Annual Renewals:

200516 Closure - "Effects of Chronic social subordination stress on cocaine abuse-related behaviors."

Reviewer: *Chair*

Summary: This protocol can be terminated. It was written for a grant that is not going to be funded and the research is too expensive to pursue without that.

Closed administratively per IACUC Chair on 1/18/2019.

200554 with Minor DMR - "Field research on reptiles and amphibians in Latin America."

Reviewers: *Chair, AV*

Summary: Add/remove staff; I propose to continue our activities (preservation, observation) in various Caribbean locations, including the Cayman Islands, the Lesser Antilles, and the US and British Virgin Islands. Potential species studied are listed at caribherp.com. These activities will not increase the number of species or individuals studied for this protocol.

Approved as a DMR by IACUC Chair and Attending Vet on 2/12/2019.

200588 DMR - "Neurobiological mechanisms of stimulant and ethanol co-addiction in rodents."

Reviewer: *Chair*

Approved as a DMR by IACUC Chair on 2/7/2019.

General Business:

1. IACUC Concerns –
 - a. IACUC membership announcement – The IACUC Chair is stepping down but will continue to attend the meetings in an Ex Officio or advisory capacity. A new Chair and Vice-Chair will be appointed.
 - b. Spring 2019 Semi-annual inspections are scheduled for Wednesday, February 27, 2019 at 9 AM.
 - c. Facilities update – The AV gave an update on the plans for the upcoming Zebrafish facility.
 - d. TOPAZ update – the OACC sent out a working link since the TOPAZ link on the OACC webpage isn't currently working. Also, HTML 5 for Animal Protocols is being beta tested and will be released fairly soon.

Meeting adjourned at 1:20 PM

Respectfully submitted by  _____

Main Campus IACUC Meeting Minutes for Thursday, March 21, 2019

Meeting Place – [REDACTED]

Meeting time – 12:10 pm-1:27 pm

Members Present

Attending Veterinarian
Castetter Hall ARF Rep (NV)
Chemical Safety Representative (NV)
IACUC Administrator (NV)
Logan Hall ARF Rep (NV)
Ex Officio Member
IACUC Chair
Member #14
Member #22
Member #23
Member #24
OACC Operations Manager (NV)
SRS Representative (NV)

Members Absent

BHC Representative (NV)
EOHS Representative (NV)
Member #16
Member #21, Vice-Chair
Member #25
Member #26
Radiation Safety Representative (NV)

NV= non-voting members, consultant or staff

Per the request of the Chair, the Recording Secretary noted a quorum was present.

Total voting members for the quorum = 6

Item # 1: Approval of Agenda:

A motion to approve the agenda was made and carried. The agenda was approved as presented.

Decision: Approved: Yes=6 No=0 Abstained=0 Recused=0

Item # 2: Approval of Minutes

A motion to approve the minutes from the February 21, 2019 meeting was made and carried. The minutes were approved as presented.

Decision: Approved: Yes=6 No=0 Abstained=0 Recused=0

Item # 3: Old Business:

200850 3-yr RW DMR - "Chemogenetic investigation of anxiety, fear and spatial learning in the rat."

Reviewer: *Chair, 26, AV*

Summary: This project will explore the function of certain brain mechanisms/regions involved in regulating memory deficits and emotions related to Alzheimer's disease, as well as anxiety- and fear related disorders. Understanding these brain mechanisms will help develop novel treatments for these neuropsychiatric disorders.

Approved as a DMR by Sub-Committee on 3/6/2019.

Item # 4 New Protocols:

200854 Denkers 3-yr RW - "Mouse model of immunity to *Toxoplasma gondii*".

Reviewers: *14, 16, AV*

A motion for approval was made and carried.

Summary: Research in this lab focuses on immunity to the intracellular protozoan *Toxoplasma gondii*. This highly successful parasite is commonly found in humans, domestic animals, and wildlife populations. Normally, *Toxoplasma* infects and lives in its host without causing any symptoms of illness. Nevertheless, in immunodeficient patients (such AIDS individuals or organ transplant recipients) *Toxoplasma* may cause life-threatening disease. The goal of our research is to understand the elements of a successful immune response to *Toxoplasma*, and to understand what goes wrong when a non-effective immune response is elicited. By understanding these opposing facets of immunity to *Toxoplasma*, we can come to a better understanding of how to treat and prevent disease caused not only by this parasite, but by other similar microbial pathogens.

Recommended for approval on 2/24/19.

Discussion during the meeting: The AV gave a summary of the protocol. This is a very well written continuation of the first 3 years of the project. There was a question about whether or not the genotype leads to increased risk of pain or distress for the phenotypes expressed by the mice in this study. The Castetter Hall ARF Supervisor assured the committee that is not the case. The alternative search needs to be repeated because of formatting issues with the key words. This can be resolved via email after approval. A few other minor items had been resolved by the PI during the pre-review. There were no other pending issues and the protocol was recommended for approval.

Decision: Approved: Yes=6 No=0 Abstained=0 Recused=0

200863 DMR - "Fish immune responses to microorganisms and vaccines".

Reviewers: *21, 25, AV*

Summary: Animals interact with their environment via points of contact known as epithelial barriers. Epithelial barriers in mammals include the skin, the gut, the nasopharynx, the lungs and the reproductive tract. In aquatic animals such as fish, the main epithelial barriers are the olfactory organ, the skin, the guts and the gills. The ability to recognize danger is critical for the survival of every animal. Epithelial barriers are not only physical barriers against pathogen invasion but are also equipped with unique defense mechanisms, or what we call the mucosal immune system. Olfactory organs are very interesting because they detect dangerous odorants and send signals to the brain. At the same time, they are exposed to bacteria and viruses that

threat the health of the host. The goal of our research is to understand the mechanisms that govern the detection of pathogens by olfactory organs and how the olfactory organ mounts a defense response and talks to the brain about recently smelled microbes. Additionally, these basic investigations are coupled to applied aspects such as the development of better nasal vaccines for humans and animals. Olfactory to brain neuroimmune interactions will be investigated in both rainbow trout and zebrafish since each model offers some advantages. Additionally, this protocol also investigates nasal mucosal vaccination in rainbow trout. We are trying to understand the molecular and cellular mechanisms that allow nasal vaccines to provide long lasting protection. Farmed fish are one of the most nutritious protein sources for human consumption, yet, the aquaculture industry faces disease losses which need to be prevented via mucosal vaccination. Lungfish are the closest living species to all tetrapods and are very unique since they represent the transition of vertebrates from water to land. Importantly, they breathe both water and air. This means that their mucosal immune system has to be effective at defending them against both water and air pathogens. Notably, lungfish are able to survive long drought periods by a process called aestivation which involves the formation of a mucus cocoon that surrounds the animal body. We hypothesize that this cocoon has very important immunological functions since lungfish cannot evade pathogens once they enter the aestivation state. Understanding how mucosal immune systems such as the lungfish or bony fish immune systems work is critical for human and animal health. We study the evolution of mucosal immune systems in fish since they are less complex than mammals, yet they share the same principles.

Approved as a DMR by Sub-Committee on 3/8/19.

Meeting #21 (Vice-Chair) joined the meeting at 12:44.

200871 3-yr RW - "A Rat Model of Memory Impairment in Prenatal Ethanol Exposure."

Reviewers: *14, 16, AV*

A motion for approval was made and carried.

Summary: Fetal Alcohol Spectrum Disorders (FASD) are a serious public health concern with annual costs of \$4 billion. It is expected that the rate of FASD will increase in coming years as drinking rates in women of childbearing age remain high. Long-lasting impairments in memory are among the major behavioral and cognitive outcomes associated with FASD, but despite considerable evidence of a general need for effective treatments for memory impairment in FASD, there are currently no treatment interventions, which is a direct consequence of our incomplete understanding of the neural mechanisms underlying these impairments. Thus, a better understanding of the neurobiological basis of spatial memory deficits in FASD is of considerable importance and is critical for the identification of potential treatment interventions.

Sent for Pre-Review 1 on 3/4/2019.

Discussion during the meeting: The primary reviewer gave a summary of the protocol. A few minor items had been resolved by the PI during the pre-review but there were several other items that still needed to be addressed. This protocol had not yet been returned for modifications so cannot be voted on and was recommended for DMR. The motion for approval was withdrawn and a motion for DMR was made and carried. The reviewers will remain the same.

Decision: Approved: Yes=7 No=0 Abstained=0 Recused=0

Item # 5 Major Amendments:

200719 DMR - "Sequencing of the angelfish genome".

Reviewers: 23, 24, AV

Summary: Due to unsatisfactory Quality Control results from the DNA extractions sent to Novogene: Genome Sequencing Company for Whole Genome Sequencing (WGS), it has been decided necessary to collect tissue and extract DNA from multiple fish from the same brood. Therefore, two major changes to the amendment need to be made: (1) an increase of animals sacrificed from 1 to 4 and (2) an additional source for the angelfish (Angels Plus). These changes are reflected in the following sections: Lay Summary – 3.5, Animal Transportation Methods Description – 5.3.1.2, Project Design and Experimental Flow – 5.14.1.3, Animal Number Justification Pilot – 5.14.1.5.4, Authorized Amounts – 5.14.1.6, Specimen Collection (other than blood) Description – 5.14.1.8.4.1, Euthanasia Description – 5.14.1.10.1.2, and Disposition of Animal Carcasses – 5.14.1.10.1.4.

Approved as a DMR by Sub-Committee on 3/21/19.

Item # 6 Minor Amendments:

200731 - "A Rat Model of Spatial Disorientation and Dementia."

Reviewer: Chair

Summary: Add/remove staff.

Approved administratively per IACUC Chair on 3/12/2019.

Item # 7 Annual Renewals:

200546 DMR - "Field research at the Division of Amphibians and Reptiles, Museum of Southwestern Biology."

Reviewer: Chair

Approved as a DMR by IACUC Chair on 3/5/2019.

200715 Tissue Closure - "Frequency Response Testing of Animal Tissues."

Reviewer: Chair

Summary: The funding has ended and basically, we did some Electromagnetic wave testing on dead mice to study a phenomenon called "Microwave hearing" to see if electromagnetic waves can affect your hearing nerves. We did a number of tests without any conclusive results.

Closed administratively per IACUC Chair on 3/4/2019.

General Business:

1. IACUC Concerns – the committee reviewed the animal program and signed the final report to the IO for the spring 2019 Semi-annual inspections. There is an issue with the bottle washer in the Logan Hall ARF that may pose a risk to personnel so needs to be resolved. An issue with the bottle washer in the Logan Hall ARF was discussed and a work order for evaluation of the risk associated with this issue was requested from SRS.

a. Facilities update – the AV gave an update on the progress for the construction of the Zebrafish facility.

b. Grant congruency – the committee discussed the current mechanism for how grant congruency is being assured through the IACUC, OACC, and/or Main Campus Sponsored Projects Office (SPO) for Public Health Service (PHS) JITs (Just in Times) or

prior to funds being awarded. The IACUC, OACC, and the Vice President for Research (VPR) will consult with SPO to work out a mechanism for ensuring overall grant congruency and compliance with the PHS policy.

c. Committee constitution – We are in need of one more voting member on the committee in order to help assure a quorum so the Chair lead a discussion about what type of voting member (from which department, etc.) could be added to the committee in order to ensure proper representation.

Meeting adjourned at 1:27 PM

Respectfully submitted by

[REDACTED]

Main Campus IACUC Meeting Agenda for Thursday, September 19, 2019

Meeting Place – [REDACTED]

Meeting time – 12:15 pm-1:48 pm

Members Present

Castetter Hall ARF Rep (NV)
Chemical Safety Representative (NV)
EOHS Representative (NV)
IACUC Administrator (NV)
Ex Officio Member
IACUC Chair
Member #14
Member #22
Member #23
Member #24
OACC Operations Manager (NV)

Members Absent

Attending Veterinarian
BHC Representative (NV)
Logan Hall ARF Rep (NV)
Member #16
Member #21, Vice-Chair
Member #26
Radiation Safety Representative (NV)
SRS Representative (NV)

NV= non-voting members, consultant or staff

Per the request of the Chair, the Recording Secretary noted a quorum was present.

Guest: A future voting member attended the meeting

Total voting members for the quorum = 5

Item # 1: Approval of Agenda:

A motion to approve the agenda was made and carried. The agenda was approved as presented.

Decision: Approved: Yes=5 No=0 Abstained=0 Recused=0

Item # 2: Approval of Minutes

A motion to approve the minutes from the March 21, 2019 meeting was made and carried. The minutes were approved as presented.

Decision: Approved: Yes=5 No=0 Abstained=0 Recused=0

Item # 3: Old Business:

200871 3-yr RW DMR - "A Rat Model of Memory Impairment in Prenatal Ethanol Exposure."

Reviewers: 14, 16, AV

Summary: Fetal Alcohol Spectrum Disorders (FASD) are a serious public health concern with annual costs of \$4 billion. It is expected that the rate of FASD will increase in coming years as drinking rates in women of childbearing age remain high. Long-lasting impairments in memory are among the major behavioral and cognitive outcomes associated with FASD, but despite considerable evidence of a general need for effective treatments for memory impairment in FASD, there are currently no treatment interventions, which is a direct consequence of our incomplete understanding of the neural mechanisms underlying these impairments. Thus, a better understanding of the neurobiological basis of spatial memory deficits in FASD is of considerable importance and is critical for the identification of potential treatment interventions.

Approved as a DMR by Sub-committee on 4/3/2019.

Item # 4 New Protocols:

200862 3-yr RW DMR - "Kibale Chimpanzee Project/Comparative Human and Primate Physiology Center."

Reviewers: 21, 26, AV

Summary: This project examines how young chimpanzees develop, both behaviorally and physically. Key questions include: (a) How fast do wild chimpanzees grow and develop, compared to captive chimpanzees and humans? (b) How early do sex differences in behavior emerge (when, for example, do males become more aggressive than females?), and are such sex differences caused by hormones such as testosterone? and (c) Do mothers who are underfed or exposed to severe stress have infants that develop more slowly, or show other health problems? All of these questions are addressed by following chimpanzees and collecting urine samples non-invasively. Observers do not interfere or interact with the chimpanzees in any way, as they live their lives in the wild. Because observers are often with chimpanzees, however, they receive a degree of protection from threats such as human poaching.

Approved as a DMR by Sub-Committee on 4/25/2019.

200876 3-yr RW DMR - "Animal Holding Protocol - Main Campus."

Reviewers: 23, 16, Chair

Summary: A holding protocol is required to administratively move and/or hold animals in the event that: 1) a protocol is suspended by the IACUC for cause 2) a protocol expired without a continuation protocol in force; or 3) Animals are delivered or ordered prior to approval of a pending research protocol. No research can be conducted with any animals while assigned to the holding protocol.

Approved as a DMR by Sub-Committee on 5/13/2019.

200895 3-yr RW DMR - "Biology of Trematode-Snail Associations."

Reviewers: 14, 25, AV

Summary: Our studies focus on fresh water snails, which are important obligatory hosts of the larval stages of the human parasite, *Schistosoma mansoni*. This parasite infects 200 million

people around the world with a disease called schistosomiasis. The significance of our studies is that if we can understand how this snail defends itself against infection with this and similar parasites, such as *Echinostoma paraense*, we could potentially break the cycle of infection. The latter parasite is used because it is known to have dramatic effects on the snail immune system which make it easier to study. One of our lines of investigation is to identify immune molecules produced by the snail believed to play a role in defending the snail from the parasites. In addition, we are interested in identifying new ways to kill schistosome-infected snails, either by use of biological competitors or natural enemies like nematodes, microsporidians or viruses; or by identifying new molluscicidal (kills snails) chemicals to which infected snails are extraordinarily susceptible. We also will use the snails and associated parasites as a way to validate different genes brought to light during the *Biomphalaria* genome project which is coming to fruition right now with several UNM biologists playing active roles. Our studies are also timely because the World Health Organization has pledged to eliminate human schistosomiasis by 2025, and one of the tools required for this effort to be successful is development of new ways to control infected snails.

Approved as a DMR by Sub-Committee on 6/11/2019.

200908 3-yr RW DMR - "Building Scientific Infrastructure for Mammalian Studies at UNM."

Reviewers: 24, 16, AV

Summary: The MSB-DOM is an extensive archive of mammalian voucher material with the mission of furthering global knowledge on mammals and their diversity, ecology, evolution, pathogens, parasites, and distribution. In order to do this we must study natural populations. There is no substitute. We are interested in all populations, subspecies, and species that occur in particular regions (spatially intensive work) or across regions (geographic variation). Often a broader research project that integrates across disciplines and studies many species at once can strengthen conclusions about geographic variation, evolutionary history, impacts of climate change, occurrences of zoonotics, feeding ecology and productivity shifts, contaminant levels, and a number of other issues or questions. This why we use a general collecting protocol for museum specimens, to maximize the diversity and availability of samples from each collecting event and hence substantially increase the power of future integrated analyses of these data.

Approved as a DMR by Sub-Committee on 6/7/2019.

200915 3-yr RW DMR - "Laboratory Rodent Breeding to Support Main Campus Research and Husbandry Programs."

Reviewer: Chair

Summary: Laboratory mice, rats, and Syrian Hamsters will be bred, held, and/or transferred to relevant Main Campus IACUC approved research protocols.

Currently the parasitology research programs within the Department of Biology utilize CD1 (ICR) outbred laboratory mice and Syrian Hamsters. Both of the two rodent species are required in order to sustain the life cycles of specific parasite species under study. Laboratory rodents (mice and sometimes rats) are required to support feeding of reptiles that are managed under the Castetter Animal Resource facility (ARF) husbandry programs. Although no reptiles are currently held in Castetter, it is likely these species will be held at least for short term for some metabolic studies.

The breeding program in Logan Hall will procure and breed rats at a necessary level to support behavioral research models. Current models include F344 and F344 Tg AD (Alzheimer's model)

and Long Evans (LE outbred). LE fetal ethanol expose rats will not be bred in Logan under this protocol but will continue to be obtained from HSC since they have an establish program for ethanol exposure of pregnant rats for development of these models.

No research procedures will be conducted under this protocol, since this protocol format is only approved for breeding, holding, and minor identification procedures. Progeny will either be used as breeders or they will be transferred to other approved protocols before conduct of any research. Animals that are the wrong age, gender or genotype necessary for research or breeding will be euthanized following approved methods under the AVMA Guidelines for Euthanasia.

Approved as a DMR by IACUC Chair on 5/24/2019.

200926 DMR - "Observations of the ecology of North American porcupines (*Erethizon dorsatum*) in juniper savanna and juniper woodland in New Mexico."

Reviewers: 23, 26, AV

Summary: Piñon-juniper woodlands are one of the most extensive habitat types in New Mexico, and may contain a large proportion of the statewide population of porcupines. Porcupines prefer piñons over junipers for feeding and resting, but piñons have perished in many areas due to drought and climate change. How porcupines are surviving in juniper-only habitats is the focus of this study. Using radiocollared porcupines, I will determine porcupine diet, home range size, movements, and den site selection in juniper woodland and juniper savanna habitats. The results will provide a knowledge basis for comparison to future studies of porcupines in extant piñon-juniper woodlands.

Approved as a DMR by Sub-Committee on 7/16/2019.

200930 3-yr RW DMR - "Fetal-ethanol effects on neural physiology and spatial behavior."

Reviewers: 21, 25, AV

Summary: Exposure to alcohol during prenatal brain development can result in a set of profound alterations in behavior and brain function. An estimated 0.5%-2% of children born each year in the United States meet criteria for Fetal Alcohol Syndrome (FAS). More troubling is that an estimated 5%-20% of children are exposed to lesser levels of alcohol that do not result in the profound consequences associated with FAS, but result in subtle, yet persistent, deficits in learning, cognition, and behavior that have tremendous monetary costs (\$4 Billion annually) and decrease quality of life. Presently there are no effective treatments for the persistent consequences of fetal alcohol exposure. This is not for lack of effort, but in large part because the required basic understanding of how fetal ethanol exposure alters specific aspects of brain function is not sufficiently developed. Previous research in my lab has shown that children with FAS are impaired at spatial learning and memory in virtual environments (e.g, 3-dimensional video games). Spatial cognition deficits have since been included as part of the overall diagnostic criteria for Fetal Alcohol Spectrum Disorders (FASDs). Deficits in spatial learning and memory are linked to the function of a brain area called the hippocampus, which has been clearly established in several species including humans and rats. Consumption of moderate levels of alcohol during pregnancy in the rat (similar to 1-2 drinks per day) results in impaired memory for spatial information (where a goal is located in an environment) and reduces flexible spatial behavior (e.g., behaving in new ways when spatial information changes). How changes in the brain contribute to these alcohol-related deficits are not understood, however, this is critical for informing potential treatment approaches.

Approved as a DMR by Sub-Committee on 6/28/2019.

200939 3-yr RW DMR - "Neurobiological mechanisms of stimulant and ethanol co-addiction in rodents."

Reviewers: 24, 25, AV

Summary: Alcohol (i.e., ethanol) and stimulants (e.g., methamphetamine and nicotine - the primary active ingredient in tobacco) are some of the most commonly abused drugs in the United States. As many as 50 million Americans smoke cigarettes, nearly 20 million Americans are addicted to alcohol or regularly drink alcohol in harmful quantities, and nearly 2 million Americans abuse methamphetamine. Alcohol and stimulant abuse often coincide. Indeed, as many as 90% of alcoholics are smokers, and approximately 60% of smokers binge drink or consume significant amounts of alcohol. Importantly, individuals who co-abuse both alcohol and stimulants have worse clinical outcomes compared to individuals who use either drug alone. Thus, there is a critical need to better understand biological and behavioral mechanisms underlying alcohol and stimulant dependence, as well as their interactive effects. In addition to their addiction potential, alcohol and stimulants have a detrimental effect on anxiety and memory. These studies will test the effects of systemic and intracranial administration of several drugs that alter the brain's serotonin system on alcohol and stimulant conditioned place preference (i.e., reward) in adolescent and adult male and female rats. Additionally, following reward testing rats will be tested for anxiety- and fear-like behaviors, and learning and memory to see if targeting the serotonin system can prevent the deleterious effects of alcohol and stimulant exposure. These findings will greatly enhance our current understanding of serotonin's role in addiction, and could provide novel pharmaceutical targets for treating drug addiction.

Approved as a DMR by Sub-Committee on 8/15/2019.

200940 3-yr RW DMR - "Resource partitioning among small mammal communities at the Sevilleta Long-Term Ecological Research site in the northern Chihuahua desert."

Reviewers: 24, 16, AV

Summary: The aridland ecosystems of central New Mexico host a diverse community of plant and animal species that depend on seasonal pulses of precipitation. In this region, the summer monsoon fuels grass productivity, which has a unique chemical (carbon isotopes) signature in comparison to plants (shrubs) that rely on winter precipitation. The distinct carbon isotope signatures of these two components of primary production can easily be traced to higher trophic levels, such as small mammals and insects. In this study, we propose to examine seasonal (bi-monthly) variation in resource use by at least eight small mammal species that use three different types of foraging strategies: granivore, omnivore, and insectivore. Our approach will allow us to quantify the seasonal consumption of grasses versus shrubs at both the population and individual level. In addition to addressing fundamental questions regarding how species compete for and partition resources, our study has implications for understanding the processes that govern the structure of communities and how individual species vary in their ability to adapt to climate-driven environmental perturbations in this dynamic ecosystem.

Approved as a DMR by Sub-Committee on 7/15/2019.

200951 DMR - "Sylvatic Plague Vaccine Trial on *Neotoma* (Packrat) Species."

Reviewers: 14, 26, AV

Summary: Packrats, sometimes called woodrats (*Neotoma* spp.) are rodents native to New Mexico. Packrats and the fleas they carry are often implicated in the spread of the disease plague (*Yersinia pestis*) in this state to wild animals, people, and pets. Previous research (attached) has

shown some effectiveness of a plague vaccine when it is combined with an attractive bait and put in places where prairie dogs live. The bait has proved safe for use in the field. The purpose of the proposed research is to see whether the vaccine is also effective on packrats. This will be accomplished by putting baits near packrat middens (nests). About a month later the packrats will be trapped. They will be sedated using veterinary anesthetic, and a small amount of blood (about 0.01 mL) will be collected by poking the animal's cheek with a lancet. After the blood is collected, each animal will be allowed to recover from the anesthetic in the shade, and then taken back to the exact place it was captured to be released. If an animal other than a packrat is captured it will be released on-site. Animals will be marked with a livestock marker or non-toxic hairspray so that if an animal is recaptured it can be released immediately. There will be a licensed veterinarian on-site or within a short distance and available by radio at all times during the study.

If the vaccine proves effective, in the future public health workers would be able to use the vaccine to halt or prevent plague outbreaks in wild animal populations. This could also reduce the need for pesticide use in these circumstances. The vaccine could also be deployed around high-risk areas such as the location of a human or animal plague case, or communities in New Mexico which experience high plague activity predictably almost every year. If the vaccine proves effective it is hoped that it will become another tool to prevent the spread of plague in humans, pets, and wild animals.

Returned for modification on 8/13/2019.

200954 3-yr RW - "Field physiological performance assays for the comparative study of high-altitude adaptation in birds."

Reviewers: 24, 16, AV

Summary: The goal of this study is to figure out whether some wild bird species are better adapted to high altitude conditions than others. Some species that occur at high altitude are particularly good at dealing with the low pressure conditions that are found there. Other species are really good at dealing with cold. Species that are good at dealing with low pressure might be less affected by climate change. In contrast, species that are good at dealing with cold may be vulnerable to warming. We will do three things to try to understand how these abilities vary among bird species that occur in mountains. [Test 1] First, we will test whether hummingbirds can still hover when we reduce the pressure. [Test 2] Second, we will use a sophisticated method to test how birds react in real time to increases or decreases in pressure that would be equivalent to climbing to ~4000 m elevation (similar to the elevation of Mt. Wheeler peak), or descending to sea level. [Test 3] Third, we will test how well different hummingbird species can save energy by reducing their own body temperatures during cold nights. We think [Prediction 1] that certain species characteristics, including their evolutionary relationships, will allow us to predict how good they are at dealing with low pressure and cold. [Broader Importance to Society] These three tests will allow us to understand how species adapt to altitude and how they will respond to climate warming. Specifically, we will know which bird species in the mountains will go extinct sooner, and which might be able to survive climate warming. These benefits to society include basic scientific understanding of the natural world as well as tangible benefits to conservation biology and biodiversity management, with indirect relevance to human health and space travel.

Returned for modification on 9/4/2019.

Item # 5 Major Amendments:

200930 - "Fetal-ethanol effects on neural physiology and spatial behavior."

Reviewers: 23, 26, AV

A motion for approval was made and carried.

Summary: The experiment now includes assessing long-term potentiation (LTP), which involves an additional person and additional animals. We have included these procedures to cover research recently funded by NIH as part of a collaborative grant with an Health Sciences Center (HSC) PI in the Department of Neurosciences at UNM HSC. The procedures have been approved by the HSC IACUC, and we have previously had several protocols approved by the MC IACUC that included these procedures. The added procedures and animal numbers are being added to this protocol so that our collaborative work can take place at both locations (HSC and MC). The added procedures include measurement of hippocampal physiology in anesthetized as well as awake freely moving rats exposed to moderate levels of ethanol in utero. Thus, the added procedure are similar to those already approved in our current protocol and source rats from the same prenatal alcohol exposure paradigm (from the other PI's breeding protocol at HSC).

The principal difference in procedures involves the use of urethane anesthesia during hippocampal electrophysiological recordings, and the use of pharmacological treatments to evaluate effects on hippocampal electrophysiology. There is no increase in pain or distress associated with the added procedures.

Sent for Pre-Review 1 on 9/3/2019.

Discussion during the meeting: The PI gave a summary of the protocol. There was a question about the two different anesthesia methods used. Urethane is only used for non-survival surgery. Some of the anesthetic methods that are available cannot be used for this study because they interfere with the results.

Decision: Approved: Yes=5 No=0 Abstained=0 Recused=0

Item # 6 Minor Amendments:

200588 - "Neurobiological mechanisms of stimulant and ethanol co-addiction in rodents."

Reviewers: 21 (VC), AV

Summary: Adding CD rat strain to protocol.

Approved by Vice-Chair and Attending Vet on 7/23/2019.

200731 - "A Rat Model of Spatial Disorientation and Dementia."

Reviewers: Chair, AV

Summary: Add/remove staff, and under aim 1, an open field test has been added to assess exploratory behavior and navigation. The open field procedure is now described under the heading "Performance in navigation tasks by a rat model of Alzheimer's disease". The procedure includes daily testing for up to 5 days. Each daily test will consist of a 10-40min trial.

Approved by IACUC Chair and Attending Vet on 5/23/2019.

200731 #2 - "A Rat Model of Spatial Disorientation and Dementia."

Reviewers: Chair, AV

Summary: We request the use of Diazepam to help control post-operative seizures in the rat. Diazepam will be administered post-surgically. The dosage (1-2mg/kg) is added in the Anesthetic or Sedative Agent Table.

Approved by IACUC Chair and Attending Vet on 6/24/2019.

200801 - "Examining the function of gut microbial communities with amino acid stable isotope analysis of *Peromyscus*."

Reviewer: *Chair*

Summary: Add/remove staff.

Approved administratively per IACUC Chair on 8/13/2019.

200801 #2 - "Examining the function of gut microbial communities with amino acid stable isotope analysis of *Peromyscus*."

Reviewer: *Chair*

Summary: Add/remove staff.

Approved administratively per IACUC Chair on 8/27/2019.

200807 - "Neuroinflammation: Role in FASD Cognitive Deficits."

Reviewers: *Chair, AV*

Summary: Add/remove staff; Request additional animals for training purposes. This will not increase the number of animals obtained, because the animals for training will be obtained from our breeding colony from initial breeding rounds (where the offspring are not used for the main study) or from animals that would be culled.

Approved by IACUC Chair and Attending Vet on 6/5/2019.

200821 - "*Peromyscus* breeding to support gut microbial research."

Reviewer: *AV*

Summary: Add/remove staff.

Approved administratively per IACUC Chair on 8/13/2019.

200840 - "Thermoregulatory responses and water balance in five species of Sonoran Desert bats."

Reviewers: *Chair, AV*

Summary: Adding 18 Brazilian (Mexican) Free-tailed bats (*Tadarida brasiliensis*).

Approved by IACUC Chair and Attending Vet on 5/23/2019.

200854 - "Mouse model of immunity to *Toxoplasma gondii*."

Reviewers: *Chair, AV*

Summary: We are adding a new strain, CBA/J mice (n=36). These mice are used to amplify cyst numbers prior to oral infections with cysts.

Also, we had Swiss-Webster mice selected under strain name, but we had not included them in the animal numbers table or authorized amounts table. This strain has been added to both tables (n=60).

Oral inoculation is new to this protocol. Cysts are maintained in Swiss-Webster mice. This is a cost-effective strain to use, but numbers of cysts recovered are small (on the order of 100's). In order to have sufficient cysts for oral inoculation experiments, cysts are passed through CBA/J mice which results in large numbers of recoverable cysts (on the order of 1000's).

Approved by IACUC Chair and Attending Vet on 5/6/2019.

200854 #2 - "Mouse model of immunity to *Toxoplasma gondii*."

Reviewers: *Chair, AV*

Summary: We want to conduct a small series of pilot experiments to look for evidence of trained immunity during Toxoplasma infection. These will require a new mouse strain available from The Jackson Laboratory. The strain is B6.129S7-Rag1tm1mom/J (#002216). We will require n=20 for these pilot studies.

Approved by IACUC Chair and Attending Vet on 8/19/2019.

200863 - "Fish immune responses to microorganisms and vaccines."

Reviewers: *Chair, AV*

Summary: Additional location for *Danio rerio* so they can acclimate to lab environment day before experiment

Approved by IACUC Chair and Attending Vet on 5/21/2019.

200871 - "A Rat Model of Memory Impairment in Prenatal Ethanol Exposure."

Reviewers: *Chair, AV*

Summary: Add/remove staff. Under aim 1, we have modified the number of discrimination trials administered during a test from 32 to up to 100. We have found that each trial lasts approximately 5-10sec, and because rats are rewarded with cereal (a piece of fruit loop), they are motivated to perform this number of trials in a session. Under aim 3, an open field test has been added to assess exploratory behavior and navigation in the rat model of prenatal alcohol exposure. The procedure includes daily testing for up to 5 days. Each daily test will consist of a 10-40min trial.

Approved by IACUC Chair and Attending Vet on 5/23/2019.

200871 #2- "A Rat Model of Memory Impairment in Prenatal Ethanol Exposure."

Reviewers: *Chair*

Summary: Add/remove staff.

Administratively approved per IACUC Chair on 6/19/2019.

Item # 7 Annual Renewals:

200648 DMR by Chair - "Animal Procedures and Techniques Training – Main Campus."

Reviewer: *Chair*

Approved as a DMR by IACUC Chair on 8/12/2019.

200705 Breeding DMR by Vet - "Mouse models of tauopathies."

Reviewer: *AV*

Approved as a DMR by Attending Vet on 4/3/2019.

200719 DMR by Chair with Minor DMR - "Sequencing of the angelfish genome."

Reviewer: *Chair*

Summary: Add one fish.

Approved by IACUC Chair and Attending Vet on 5/24/2019.

200731 DMR by Vice-Chair - "A Rat Model of Spatial Disorientation and Dementia."

Reviewer: *2I (VC)*

Approved as a DMR by Vice Chair on 7/9/2019.

200735 Tissue DMR by Chair - "Biodemography of Aging in Wild Chimpanzee (Tissue Protocol)".

Reviewer: *Chair*

Approved as a DMR by IACUC Chair on 8/16/19.

200736 Tissue DMR by Vice-Chair with Minor - "Comparative Human and Primate Physiology Center (Tissue Protocol)

Reviewers: *21 (VC), AV*

Summary: Add/remove staff.

Approved as a DMR by Vice Chair and Attending Vet on 7/16/2019.

200737 DMR by Vice-Chair - "Snail-related Studies of Transmission and Control of Schistosomiasis in Kenya."

Reviewer: *21 (VC)*

Approved as a DMR by Vice Chair on 7/26/2019.

200739 DMR by Chair - "Biodemography of Aging in Wild Chimpanzees".

Reviewer: *Chair*

Approved as a DMR by Chair on 8/12/19.

200741 Closure - "Utilizing rabbits to generate polyclonal antibodies for defining the function of novel genes involved in heart disease".

Reviewer: *Chair*

Closed administratively per IACUC Chair on 8/5/19.

General Business:

1. IACUC Concerns –

a. Committee discussion and signature for the Main Campus IACUC Semi-annual Inspections and Program Review.

b. New Member Discussion – a new scientific voting member is still needed on the committee.

c. OLAW assurance renewal – an updated list of PHS funded projects was sent to OLAW. The OACC is working with the Main Campus OSP to find out why OLAW doesn't recognize that we have any PHS funded projects.

d. IPRA request – UNM has received an IPRA request for list serve communications from TOPAZ.

Meeting adjourned at 1:48 PM

Respectfully submitted by _____